Health Disparities 2018:
Closing the Gap

The University of Texas
Rio Grande Valley
School of Medicine

Research
Symposium

The Symposium Graphic: Closing the gap in health disparities is the core focus of our research. This 'gap' is depicted by the missing pieces of the puzzle, which we are striving to fill; it may require more than one piece to do so. The missing puzzle pieces are integrated, symbolizing the research synergism that is needed to address health disparities in the RGV and beyond. The colored puzzle pieces are akin to disease awareness ribbons and represent a snapshot of some of the important health issues here in the RGV (e.g., cardiovascular disease, diabetes, cancer, women's health, neurological disorders, infectious diseases). The images in each puzzle piece represent the scientific/clinical approaches that are being applied to address the health needs of the RGV. Our health disparity research is targeting biological, behavioral, and environmental (physical, sociocultural) domains to address the health of the individual, family unit, community, and population at large.

Graphic concept: Matthew Johnson. **Graphic design:** Ignacio Escobedo.

THE UNIVERSITY OF TEXAS RIO GRANDE VALLEY SCHOOL OF MEDICINE

2ND ANNUAL

RESEARCH SYMPOSIUM

September 15, 2018

McAllen Convention Center

McAllen, Texas

MCALLEN CONVENTION CENTER MAP

(No outside food or drinks allowed)

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Event Sponsored by the Office of the Associate Dean of Research, School of Medicine

The University of Texas Rio Grande Valley

Andrew Tsin, Associate Dean of Research

Jennifer Cahn, Grant Research Officer

Jorge Teniente, Director of Special Programs

Veronica Vera, Program Manager

Isabel Nicasio, Program Coordinator

Planning Committees

Scientific Committee Chair: Dr. Matthew Johnson, Associate Professor, STDOI; Dept. Human Genetics, School of Medicine, UTRGV

Event Planning Committee Chair: Veronica Vera, Program Manager, School of Medicine, UTRGV

Scientific Committee Members:

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David Goldblatt, Third Year Medical Student

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Leslie Ocampo, Second Year Medical Student

Victoria Ragland, Third Year Medical Student

Angel Rendon, Second Year Medical Student

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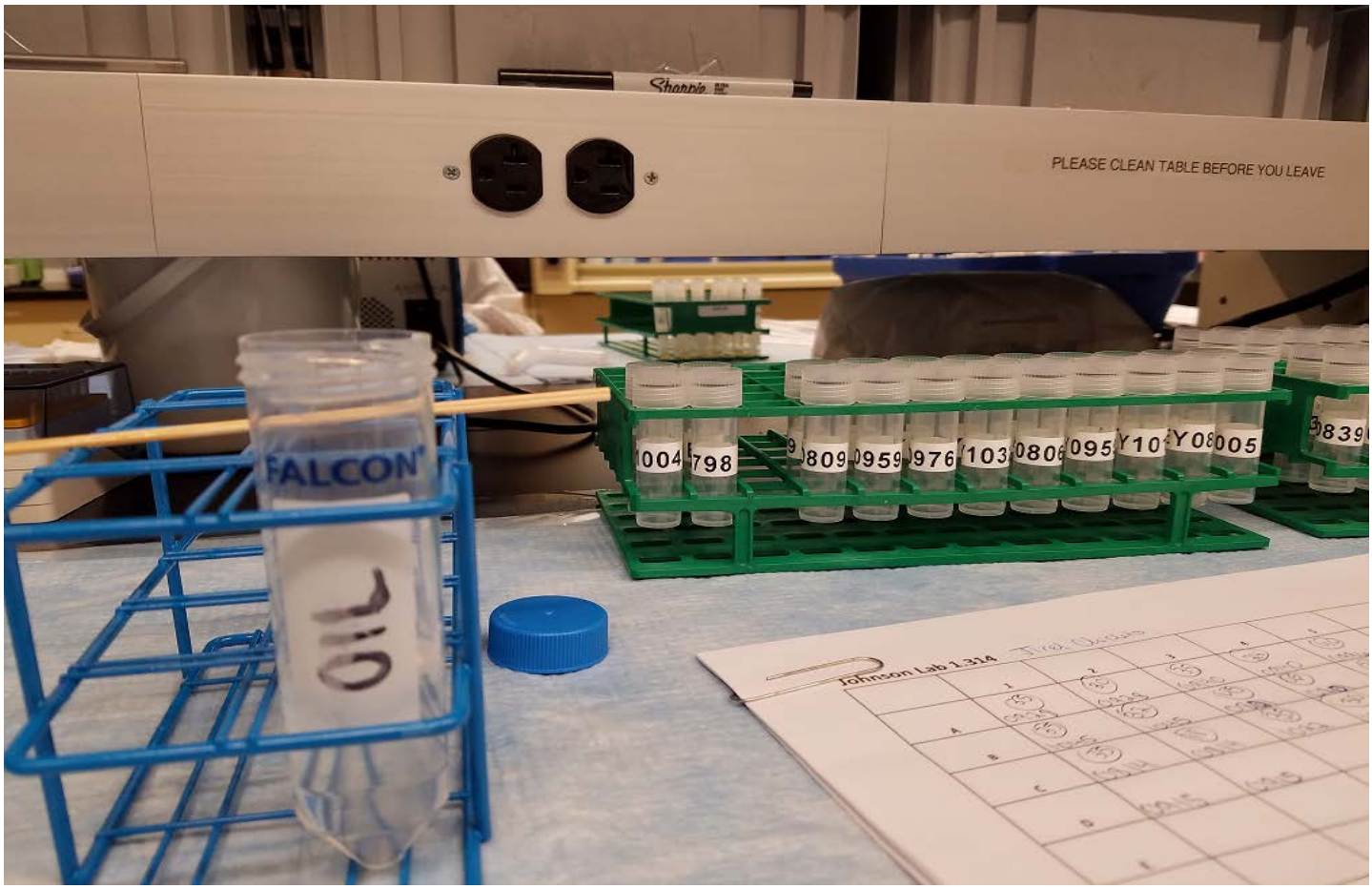
Dr. Joshua Wood, Resident, Family Medicine, DHR


EXIT
Visitor
Annelyn
UTRGV


PLEASE CLEAN TABLE BEFORE YOU LEAVE
FALCON
Johnson Lab 1.314

Welcome to the

2nd Annual

Research Symposium

On behalf of our faculty, staff, and students, I am pleased to welcome you to the UTRGV School of Medicine's Second Annual Research Symposium. We are excited to bring this program to the Valley and to showcase the outstanding research done by investigators both at the University and in the community. The oral and poster presentations that you will experience today are examples of the excellent work that these researchers have completed. They provide an expansion of knowledge in these key disciplines and demonstrate the diligence and commitment of these individuals in their pursuit of science. With the theme of "Health Disparities: Closing the Gap," this symposium aims to showcase the work done by researchers here in the Valley and beyond toward improving the health and well-being of the communities they serve and society as a whole.

One of the key missions of a medical school is the sponsorship and conduct of research activities, including basic, translational, and clinical research. It is through research that we engage our students in critical thinking and in enhancing scientific curiosity. Research serves as the basis for evidence into the quality and efficacy of clinical care and in enhancing patient safety. Discoveries made in the laboratories of our basic scientists assist in the understanding of mechanisms in both health and disease, and offer the foundation for translating these findings into clinical interventions. Research provides public visibility for a medical school and contributes to its reputation as an institution of higher learning.

It is with these key principles in mind that I once again welcome you to this Research Symposium. Thank you for attending and for participating with us in this important scholarly activity. Please enjoy the day and the program.

John H. Krouse, MD, PhD, MBA

Executive Vice President, Health Affairs

Dean, School of Medicine

PROGRAM SCHEDULE

8:00-8:45 A.M. LOCATION: WESTSIDE LOBBY	**REGISTRATION/CHECK-IN (PUT UP POSTERS IN ROOM 101)** ON-SITE REGISTRATION (ATTENDEES; $30 STUDENTS, $60 NON-STUDENTS)
8:45-9:00 A.M. LOCATION: BALLROOM	**WELCOME**, OPENING REMARKS DR. LEONEL VELA
9:00-9:30 A.M. LOCATION: BALLROOM	**CONCURRENT PLENARY SESSIONS** **DR. BELINDA REININGER** COMMUNITY/PUBLIC HEALTH PLENARY SPEAKER
LOCATION: ROOM 103	**DR. ADOLFO KAPLAN** PATIENT CARE PLENARY SPEAKER
LOCATION: ROOM 102	**DR. DAISY ZAMORA** TRANSLATIONAL SCIENCE PLENARY SPEAKER
9:30-11:00 A.M. LOCATION: BALLROOM LOCATION: ROOM 103 LOCATION: ROOM 102	**ORAL PRESENTATIONS** SESSION 1-COMMUNITY/PUBLIC HEALTH SESSION 2-PATIENT CARE SESSION 3-TRANSLATIONAL SCIENCE
11:00 A.M.-12:00 P.M. LOCATION: ROOM 101	**POSTER SESSION I, EDUCATION CATEGORIES:** UNDERGRADUATE, GRADUATE, MEDICAL STUDENTS
11:30 A.M.-1:30 P.M. LOCATION: BALLROOM	**LUNCH BREAK**
12:00-1:00 P.M. LOCATION: ROOM 101	**POSTER SESSION II, EDUCATION CATEGORIES:** HIGH SCHOOL STUDENTS, RESIDENTS
1:00-1:30 P.M. LOCATION: BALLROOM	**CONCURRENT PLENARY SESSIONS** **DR. JOANNE CURRAN** BIOMEDICAL SCIENCE PLENARY SPEAKER
LOCATION: ROOM 103	**DR. BRIAN WICKWIRE** CLINICAL SCIENCE PLENARY SPEAKER
LOCATION: ROOM 102	**DR. SAMIR IQBAL** BIOMEDICAL ENGINEERING/TECHNOLOGY/COMPUTATION PLENARY SPEAKER

1:30-3:00 P.M. LOCATION: BALLROOM LOCATION: ROOM 103 LOCATION: ROOM 102	**ORAL PRESENTATIONS** SESSION 4-BIOMEDICAL SCIENCE SESSION 5-CLINICAL SCIENCE SESSION 6-BIOMEDICAL ENGINEERING / TECHNOLOGY / COMPUTATION
3:00-4:00 P.M. LOCATION: ROOM 101	**POSTER SESSION III, EDUCATION CATEGORIES:** POSTDOCTORAL RESEARCHERS, FACULTY / STAFF / OTHER
4:00-5:00 P.M. LOCATION: BALLROOM	**KEYNOTE SPEAKER**: ***DR. MARIA ELENA BOTTAZZI***
5:00-5:30 P.M. LOCATION: BALLROOM	**AWARDS CEREMONY**, CLOSING REMARKS

Morning Oral Presentation Schedule

ORAL SESSION 1

Community/Public Health: Moderator, Dr. Candace Robledo

9:30 a.m. to 11:00 a.m.
Location: Ballroom

9:30-9:45 a.m.	**FSO-019:** UniMovil: A Mobile Health Clinic Providing Primary Care to the Colonias of the Rio Grande Valley, Texas. E. Manusov.
9:45-10:00 a.m.	**FSO-057:** Anxiety and depression in diabetes mellitus type 1 and their relationship with metabolic control and life quality; a study in families. J. Cornejo-Barrera.
10:00-10:15 a.m.	**R-038:** Evaluating the Use of Patient Health Questonnaire-2 to Identify Depression in a Hispanic Population with Uncontrolled Diabetes. C. Merhi.
10:15-10:30 a.m.	**G-015:** Exploring Prenatal Risk Factors among Hispanic Children with Autism Spectrum Disorders – A Pilot Study in the Rio Grande Valley. L. Tien.
10:30-10:45 a.m.	**MS-017:** Unmet Need for Risk Reduction Counseling and PrEP among Young Women at Risk for HIV. A. Lopez.
10:45-11:00 a.m.	**FS0-004:** Substance Use and HIV Prevention Education for College Students and Community Residents Ages 18 to 24. E. Curet.

ORAL SESSION 2

Patient Care: Moderator, Dr. Sharon Radzyminski

9:30 a.m. to 11:00 a.m.
Location: Room 103

9:30-9:45 a.m.	**FSO-042:** Patient initiated laboratory testing increases access in South Texas, an area among the highest uninsured in the nation. R. Castellanos.
9:45-10:00 a.m.	**FSO-006:** Interdisciplinary Magnetic Resonance Imaging Process in Children with Possible Musculoskeletal Infection Results in: Improved Study Efficiency, Decreased Use of Contrast and Improved Family Satisfaction. E. Lindsay.
10:00-10:15 a.m.	**MS-022:** Optimizing the use of diagnostic mammography in the era of digital breast tomosynthesis. J. Burton.
10:15-10:30 a.m.	**FSO-031:** Implementation of an IPP LARC program in a large, physician-owned hospital in Texas: a status update and lessons learned. S. Rivas.
10:30-10:45 a.m.	**G-003:** Exploring the mechanisms of racial disparity in infant mortality: A grounded theory approach. B. Eneh.
10:45-11:00 a.m.	**R-004:** End Stage Idiopathic Pulmonary Fibrosis: Educating our Patients on the Inevitable. A. Rivera.

ORAL SESSION 3

Translational Science: Moderator, Dr. Annelyn Torres-Reveron **9:30 a.m. to 11:00 a.m.**

Location: Room 102

9:30-9:45 a.m. **FSO-052:** Artificial Sweeteners: Effect on Cell Viability and VEGF Secretion in Retinal Endothelial Cells. B. Obregon.

9:45-10:00 a.m. **FSO-007:** Role of ERK in IRF3-Mediated Immune Responses. S. Reyna.

10:00-10:15 a.m. **FSO-038:** Liquid biopsy challenges of democratizing genomics and precision medicine. D. Aguirre-Treviño.

10:15-10:30 a.m. **FSO-014:** Utility of iPSC generated neural stem cells in modeling complex neurological disorders: from candidate gene prioritization to gene validation. S. Kumar.

10:30-10:45 a.m. **FSO-023:** Microcephaly and Other Developmental Abnormalities Caused by Intra-cranial Inoculation of Fetal Laboratory Opossums with Zika Virus (ZIKV). J. Thomas III.

10:45-11:00 a.m. **FSO-022:** Profound Pathological Abnormalities of Brain and Female Reproductive System Induced by Infection of Juvenile Laboratory Opossums with Zika Virus (ZIKV). J. VandeBerg.

Afternoon Oral Presentations Schedule

ORAL SESSION 4

Biomedical Science: Moderator, Dr. Michael Mahaney — **1:30-3:00 p.m.**
Location: Ballroom

1:30-1:45 p.m. **FSO-040:** The role of metabolic value versus appetitive taste in formation of long-term memories. J. Mustard.

1:45-2:00 p.m. **UG-019:** Understanding the mechanisms of VEGF secretion in 661W cone photoreceptors. C. Mercado.

2:00-2:15 p.m. **MS-018:** Genetic analysis localizes a novel locus on chromosome 4q for the glaucoma endophenotype, cup-to-disc ratio. S. Miller.

2:15-2:30 p.m. **P-001:** The disease modifying IL13 haplotype is associated with allelic expression imbalance. J. Hernandez.

2:30-2:45 p.m. **FSO-049:** Single-molecule study reveals multistep assembly of DNA condensation clusters by SMC. H. Kim.

2:45-3:00 p.m. **FSO-039:** Genotype-by-Socioeconomic Status Interaction Modulates Gene Expression in the Hypothalamic-Pituitary-Adrenal Axis. V. Diego.

ORAL SESSION 5

Clinical Science: Moderator, Dr. Minerva Romero Arenas — **1:30-3:00 p.m.**
Location: Room: 103

1:30-1:45 p.m. **FSO-033:** Diabetes screen during tuberculosis contact investigations highlights opportunity for new diabetes diagnosis and reveals metabolic differences between ethnic groups. B. Restrepo.

1:45-2:00 p.m. **FSO-001:** Oral Glucose Challenge Impairs Skeletal Muscle Microvascular Blood Flow in Healthy People. R. Russell.

2:00-2:15 p.m. **FSO-017:** Sarcopenic obesity and its paradoxical association with cardiometabolic risk factors in Mexican Americans. J. Lopez-Alvarenga.

2:15-2:30 p.m. **FSO-026:** A rare case of Hodgkin's lymphoma presenting with Superior Vena Syndrome and Functional Pulmonic Stenosis. F. Bello.

2:30-2:45 p.m. **R-022:** Searching for (PAD)dington. R. Huang.

2:45-3:00 p.m. **FSO-046:** Health disparities in inhibitor development in Hemophilia A: Hypotheses on the differential prevalence by race/ethnicity. T. Howard.

ORAL SESSION 6

Biomedical Engineering/Technology/Computation: Moderator, Dr. Kamal Sarkar 1:30-3:00 p.m.

Location: Room 102

1:30-1:45 p.m. **G-013**: Creating a wearable cooling device for high outdoor temperatures. R. Garza.

1:45-2:00 p.m. **UG-001:** High-Resolution Microendoscopy Training Models for Health Care Providers in Low Resource Settings. L. Vigneswaran.

2:00-2:15 p.m. **FSO-015:** Screening immune-related gene pathways for association with type 2 diabetes. M. Almeida.

2:15-2:30 p.m. **G-002:** Global annotation of protein phosphorylation networks using co-phosphorylation analysis. M. Ayati.

2:30-2:45 p.m. **FSO-037:** A computational method for accurate phasing of whole genome sequence data in pedigrees using lineage-specific alleles. H. Göring.

2:45-3:00 p.m. **FSO-020:** Challenges for Students with Visual Impairments to Attend College. K. Sarkar.

Thank You!

LIST OF PARTICIPATING INSTITUTIONS

- Baylor College of Medicine, Houston, Texas
- Case Western Reserve University, Department of Electrical Engineering and Computer Science, Cleveland, Ohio
- Children's Health System of Texas, Dallas, Texas
- City University of New York, Brooklyn College, New York City, New York
- Doctors Hospital at Renaissance, Edinburg, Texas
- Federal University of Agriculture, Department of Pure and Applied Zoology, Abeokuta, Nigeria
- Haplomics Biotechnology Corporation, Brownsville, Texas
- Harlingen School of Health Professions, Harlingen, Texas
- Harvard College, Cambridge, Massachusetts
- Harvard Medical School, Department of Biological Chemistry and Molecular Pharmacology, Boston, Massachusetts
- Hospital Infantil de Tamaulipas, Victoria, Tamaulipas, México
- Instituto Politécnico Nacional, Centro de Biotecnología Genómica, Reynosa, Tamaulipas, México
- Kennedy Krieger Institute, Baltimore, Maryland
- La Joya ISD, La Joya, Texas
- Medical University of South Carolina, Department of Psychiatry, Charleston, South Carolina
- Menzies Institute for Medical Research, University of Tasmania, Hobart, Australia
- National Institute of Aging, National Institutes of Health
- Nuestra Clinica del Valle, Rio Grande Valley, Texas
- Pulmonary and Sleep Center of the Valley, McAllen, Texas
- South Texas Academy for Medical Professions, Olmito, Texas
- South Texas Health Systems, Department of Pathology/Laboratory, McAllen, Texas
- Tecnológico de Monterrey, School of Medicine and Health Sciences, Monterrey, Nuevo León, México
- Texas A&M University
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  - National Natural Toxins Research Center, Kingsville, Texas
- UANL, Departamento de Bioquímica y Medicina Molecular, Facultad de Medicina, Nuevo León, México
- UAT-UAMRA, Department of Molecular Biology, Reynosa, Tamaulipas, México
- Universidad México Americana del Norte AC, Escuela de Medicina, Reynosa, Tamaulipas, México
- Universidad La Salle Victoria, Campus de Ciencias de la Salud "Dr. Rodolfo Torre Cantú", Ciudad Victoria, Tamaulipas, México
- University of Memphis, Department of Economics, Fogelman College of Business & Economics, Memphis, Tennessee
- University of North Carolina, School of Medicine
- University of Texas Health Science Center at Houston
  - Department of Orthopedic Surgery, Houston, Texas
  - School of Public Health, Brownsville, Texas
  - School of Public Health, Dallas, Texas
- University of Texas MD Anderson Cancer Center, Department of Diagnostic Radiology, Houston, Texas

- University of Texas Rio Grande Valley
  - College of Education and P-16 Integration
    - Department of Education
    - Department of Counseling
    - Department of Human Development & School Services
  - College of Engineering and Computer Science
    - Department of Electrical Engineering
    - Department of Manufacturing Engineering
    - Department of Mechanical Engineering
  - College of Health Affairs
    - Department of Health and Biomedical Sciences
    - Department of Health and Human Affairs
    - Department of Health and Human Performance
    - Department of Kinesiology
    - Department of Social Work
    - School of Nursing
  - College of Liberal Arts
    - Department of Communication
    - Department of Philosophy
    - Department of Political Science
    - Department of Psychological Science
  - College of Sciences
    - Department of Biology
    - Department of Chemistry
    - Department of Physics and Astronomy
    - School of Mathematical & Statistical Sciences
  - Honors College, Division of Academic Affairs
  - School of Medicine
    - Department of Biomedical Sciences
    - Department of Family Medicine
    - Department of Family and Community Medicine
    - Department of Human Genetics
    - Department of Internal Medicine
    - Department of Medical Education
    - Department of Neurosciences
    - Department of Obstetrics & Gynecology
    - Department of Pediatrics
    - Department of Population Health and Behavioral Sciences
    - Department of Preventive Medicine
    - Department of Psychiatry and Neurology
    - South Texas Diabetes and Obesity Institute
    - Student Support and Wellness Services
- Veterans Affairs Health Care Center, Harlingen, Texas

- Vitagénesis, S.A. de C.V., Monterrey, México
  - Biotechnology Laboratory
  - Department of Research and Development
  - Genetics Laboratory
  - Molecular Genetics Laboratory
- Walden University, College of Health Sciences, Minneapolis, Minnesota
- Yale new Haven Children's Hospital, New Haven, Connecticut

Special Thanks!

Abstract Reviewers

Presentation Judges

Oral Session Moderators

Staff Volunteers

Student Volunteers

&

Mayor Jim Darling and the City of McAllen

2018
KEYNOTE SPEAKER

Dr Bottazzi, has a bachelor degree in Microbiology and Clinical Chemistry, and a doctorate in Molecular Immunology and Experimental Pathology from the University of Florida. Her post-doctoral training in Cellular Biology was completed at University of Miami and Pennsylvania. Her academic tenure initiated at the George Washington University where she served for 11 years as Associate Professor and Vice-Chair for Administration in the Department of Microbiology, Immunology and Tropical Medicine.

This section has been approved for 1 CME Credit

Maria Elena Bottazzi, Ph.D., FASTMH

Presentation title: Global Health Technologies to Address Health Disparities and Neglected Tropical Diseases in the U.S. and Abroad

Biography: Maria Elena Bottazzi, Ph.D. is the Associate Dean of the National School of Tropical Medicine and Professor of Pediatrics and Molecular Virology & Microbiology at Baylor College of Medicine in Houston, Texas and is Distinguished Professor in the Department of Biology at Baylor University in Waco, Texas. Dr. Bottazzi directs Research and Administration of the Section of Pediatric Tropical Medicine and is the Co-Director for Texas Children's Hospital Center for Vaccine Development a Product Development Partnership (PDP). Dr. Bottazzi is an internationally recognized scientist with more than 18 years of experience in translational research and vaccine development for neglected tropical diseases. In addition, her major interest is in the role of vaccines as control tools integrated into international public health programs and initiatives. Dr. Bottazzi's philosophy focuses on motivating and empowering peers and young generations of scientists building strong inter- and intra-relationships and positively contributing to scientific and global health effectiveness.

Dr. Bottazzi is Editor-in-Chief of Current Tropical Medicine Reports, Springer, US and Associate Editor for Public Library of Science (PLoS) Neglected Tropical Disease Journal. She is recipient of multiple extramural grants and awards and has authored or co-authored of more than 120 scientific papers in molecular, cellular biology, immunoparasitology, and vaccine development. She has participated in more than 200 conferences around the globe and has given an array of television, newspaper and radio interviews. Dr. Bottazzi is a one of the 2017-18 Alan I. Leshner Leadership Institute Public Engagement Fellows and a Hedwig van Ameringen Executive Leadership in Academic Medicine (ELAM) and American Leadership Forum (ALF) Fellow. In 2015, she received the highest honor from the Government of Honduras, the "Jose Cecilio del Valle" National Science Award and a Medal of Honor from the Honduras National Congress. In 2017, she was awarded the leadership award in science and technology from Vital Voices Honduras and in 2018 she is the recipient of the Carlos Slim Foundation Lifetime Achievement in Research Award.

INVITED PLENARY SPEAKERS

Joanne E. Curran, Ph.D.

Presentation Title: The Human Lipidome in Complex Disease

Joanne E. Curran, Ph.D., is a Professor in the Department of Human Genetics and the South Texas Diabetes and Obesity Institute (STDOI) in the UTRGV School of Medicine. She also serves as the Discipline Coordinator for Genetics. She is a molecular geneticist with more than 15 years of experience in the genetic analysis of human complex diseases. Her main research interest lies in the identification and characterization of susceptibility genes for disease conditions such as cardiovascular disease, type 2 diabetes, obesity and related complications in the general population; with the ultimate objective of gaining an insight into the biological pathways involved in disease pathogenesis. She has extensive experience in high-throughput genomic technologies and is now focused on applying these novel genomic approaches to help understand the genetic underpinnings of disease.

Prior to joining UTRGV in February of 2015, Dr. Curran was on the faculty of the Department of Genetics at the Texas Biomedical Research Institute (formerly Southwest Foundation for Biomedical Research) in San Antonio, Texas. She earned her Ph.D. in molecular genetics of sporadic breast cancer from Griffith University, Gold Coast in Australia in 2002; and her postdoctoral training at the International Diabetes Institute in Melbourne Australia, focused on the genetics of diabetes and obesity.

Belinda Reininger, Dr.PH

Presentation Title: Population Health Strategies to Address Diabetes and Obesity

Belinda Reininger, Dr.PH, is the interim Chair of Population Health and Behavioral Sciences at the UTRGV School of Medicine and a professor of Health Promotion and Behavioral Science for the University of Texas, School of Public Health Regional Campus at Brownsville. Dr. Reininger's research focuses on evidence-based, participatory approaches to improving health with minority populations. Dr. Reininger currently serves as principal investigator for several research projects and 1115 Waiver DSRIP projects to address chronic diseases. Dr. Reininger, in partnership with an active community advisory board in South Texas, has supported policy and environmental changes including tobacco-free ordinances, complete street ordinances, building bike/ped trails, community gardens, farmers' markets, chronic care management programs and community wide campaigns. These efforts and partnerships resulted in City of Brownsville winning the 2014 Robert Wood Johnson Foundation Culture of Health Prize. Dr. Reininger has expertise in translational science.

Daisy Zamora, Ph.D.

Presentation Title: Dissecting the Diet Heart Hypothesis

Daisy Zamora, Ph.D., studies diet-disease associations with a particular interest in causality. Her work includes analyses of randomized controlled trials on the effect of replacing saturated fat with vegetable oil on serum cholesterol and cardiovascular disease. Her team received the BMJ's Best Research Paper award for this work in 2016. Dr. Zamora is an adjunct researcher at the National Institute of Aging, NIH and the University of North Carolina, School of Medicine. She completed a Ph.D. in nutrition epidemiology and a post doctoral fellowship in integrative medicine at the University of North Carolina. She lives in Brownsville with her family.

Samir Iqbal, Ph.D., P.E.

Presentation Title: Biomedical Interfaces at Micro and Nano Scales

Dr. Samir Iqbal received his Ph.D. from Purdue University, USA in 2007. His research is focused on enhancing sensitivity and selectivity of solid-state biosensors, understanding the physics of nano-bio interfaces and using novel molecular interactions in the design of early cancer detection approaches. He is a Fellow of the Royal Society of Chemistry, a senior member of The Institute of Electrical and Electronics Engineers (IEEE), and member of professional organizations like Biomedical Engineering Society, Biophysical Society and European Society of Nanomedicine. He has published 60+ journal articles and has presented at more than 100 conferences. He is a Distinguished Lecturer for IEEE Nanotechnology Council and IEEE Engineering in Medicine and Biology Society. He has received many research, teaching, mentoring and service awards.

Adolfo Kaplan, M.D., FAASM, FACCP

Presentation Title: Inequalities in Sleep Medicine in the Hispanic/Latino Population. The clinician's perspective.

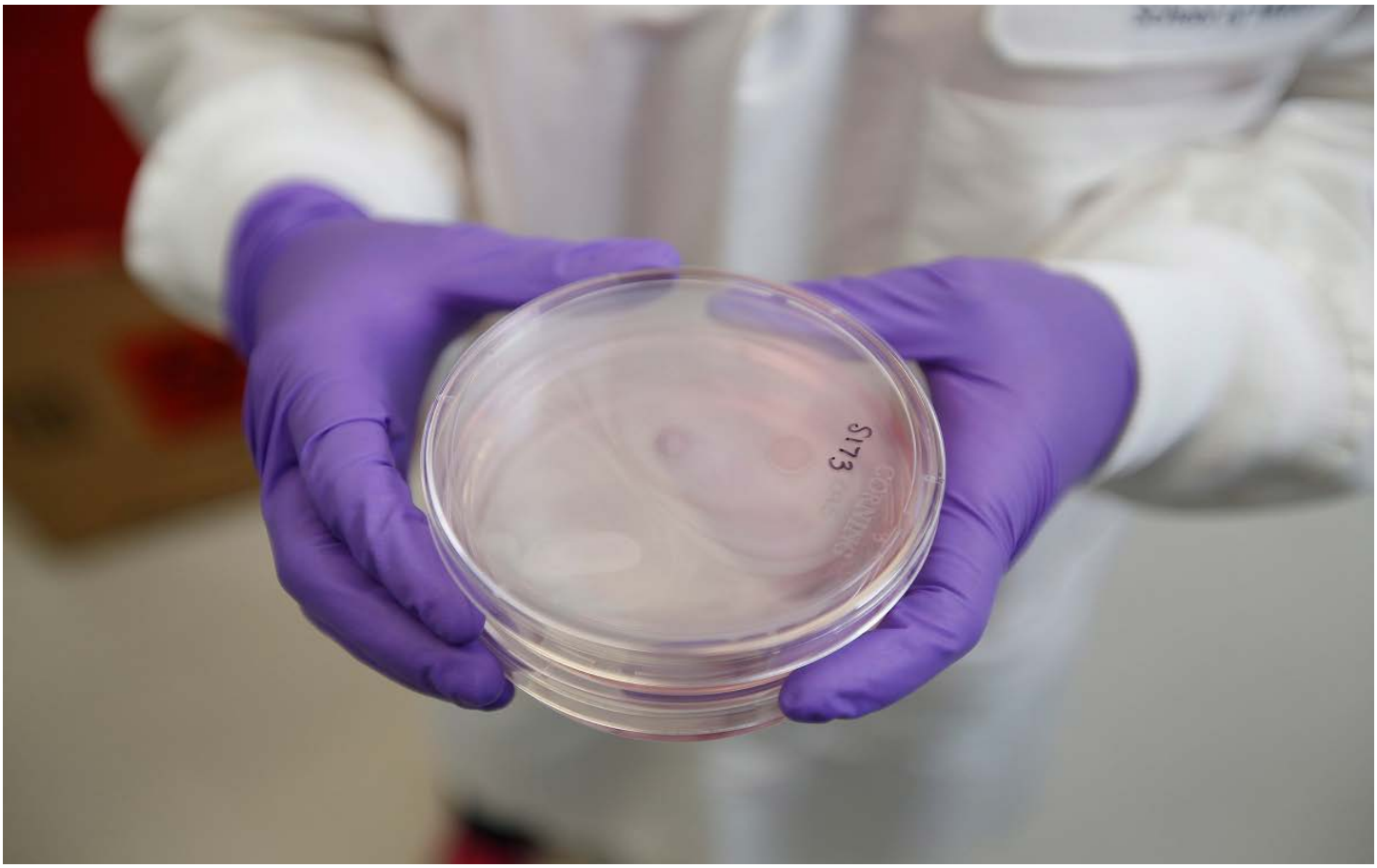
Adolfo Kaplan, M.D. is a Fellow of the American Academy of Chest Physicians and the American Academy of Sleep Medicine. He received his Medical Degree from the National University of Tucuman, Argentina, in 1993. Trained in Internal Medicine, Pulmonary and Critical Care Medicine at Beth Israel Medical Center in New York, and in Sleep Medicine at New York University. He has been residing and practicing Pulmonary, Critical Care and Sleep Medicine in the Rio Grande Valley, since 2005, and has served as the Medical Director of Critical Care Services at Doctor's Hospital at Renaissance for the past ten years. Dr. Kaplan is an Associate Professor of Medicine at the University of Texas-Rio Grande Valley (UT-RGV), the Pulmonary Program Coordinator for the Internal Medicine and Family Medicine Residency Programs at UT-RGV, and the co-director of the Sleep Center at the Pulmonary and Sleep Center of the Valley. He lives in McAllen with his family, and enjoys traveling, playing tennis, the arts and a good book.

Brian Wickwire, M.D., Ph.D.

Presentation Title: Rapid Progression of Diabetic Nephropathy in the Indigent Population in Mexico and the Rio Grande Valley.

Dr. Brian Wickwire graduated from Vanderbilt Medical School and Residency program with an M.D./Ph.D in Biochemistry in 1989. He worked in Indian Health Service Hospital in Oklahoma for 9 1/2 years, and has worked at Nuestra Clinica del Valle Community Health Center since 2002, Chief Medical Officer for ten of those years. By necessity, Dr. Wickwire is interested in the prevention of diabetes and diabetic nephropathy/end-stage renal disease in the Rio Grande Valley and Mexico.


Serena Olivarez
UTRGV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ORAL PRESENTATION ABSTRACTS

COMMUNITY/PUBLIC HEALTH

ORAL SESSION 1, FSO-019 LOCATION: BALLROOM

UNIMOVIL: A MOBILE HEALTH CLINIC PROVIDING PRIMARY CARE TO THE COLONIAS OF THE RIO GRANDE VALLEY, TEXAS

Eron Manusov, MD (1), Vincent Diego, PhD (1), Jesus Garza, MD (2), Jacob Smith, BS (3), John Lowdermilk PhD (4), John Blangero, PhD (1), Sarah Williams-Blangero, PhD (1).

(1) South Texas Diabetes and Obesity Institute, (2) UTRGV Knapp Family Medicine Residency, (3) UTRGV School of Medicine, (4) College of Education and P-16

Background: The Rio Grande Valley (RGV) is a region of South Texas that has over 240,000 people living in areas known as Colonias. A mobile unit (*UniMóvil*) was used to delivery primary healthcare to the highly medically underserved population residing in the Colonias. A model of care was developed to address access to healthcare. Seven clinical outcomes including obesity, diabetes, hypertension, hypertriglyceridemia, low high density lipoprotein cholesterol (HDL-C) levels, and depression were measured. Health-related quality of life (HrQOL) was assessed using the Duke Health Profile.

Methods: Baseline prevalence, associations, and contributing factors were characterized. Regression analysis and generalized linear/logistic modeling were used to determine potential predictors of clinical variables. The Duke Health Profile and PHQ9 were used to evaluate health related quality of life and depression. Missing data imputation approaches were used to ensure unbiased regression estimates and adequate coverage of the 90% confidence intervals.

Results: The average age of patients (849) was 45 years old and females represented 67 % of the population served. There was a high prevalence of obesity (55.5 %), hypertension (39%), diabetes (32.5%) and depression (19 %). Self-perceived health status was generally low, and depression predicted all 11 domains of the Duke Health Profile. Associations between clinical outcomes and predictors, as well as HrQOL domains, will be presented. Novel statistical analysis to account for missing data including MissForest will be reviewed.

Conclusion: Patients seeking care through a mobile clinic serving the Colonias in South Texas had a high prevalence of diabetes, hypertension, obesity, and depression. The self-perceived health of Colonia residents is low. Data collected indicated an association between depression and diabetes, as well a negative impact of chronic disease on perceived health. Implications for practice and future research will be discussed.

ORAL SESSION 1, FSO-057 LOCATION: BALLROOM

ANXIETY AND DEPRESSION IN DIABETES MELLITUS TYPE 1 AND THEIR RELATIONSHIP WITH METABOLIC CONTROL AND LIFE QUALITY: A STUDY IN FAMILIES

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Objective: Determine the frequency of the anxiety and depression in the patients with diabetes mellitus 1 and their nuclear family; its relationship with metabolic control and quality of life.

Methods: Transversal and analytic design. 29 patients with diabetes type 1, 26 mothers, 9 fathers and 2 brothers. Selected by invitation, with previous consent. Validated questionnaires where applied: HARS and CDI for anxiety and depression to minors, Beck and Hamilton for depression in parents, and DQOL for assessing quality of life. All instruments where analyzed according to stablished cut-off points. Clinical history was collected. Data was captured in MS Excel and analyzed in STATA 12 SE. Frequency of depression and anxiety was calculated, Odds Ratio and other statistical tests were made.

Results: 66 participants were studied, 29 patients, 13 females and 16 males. Average age of 3.4 ± 3.4 years. Mean Hba1c of 7.45% ± 1.64, 15 (51.7%) of the participants had good metabolic control, the anxiety frequency was 12/29 (41.37%), depression frequency 2/29 (6.9%). In the family 13 cases of depression were found (35.1%) according to Beck´s scale and 10 (27%) with the Hamilton´s (mothers 10 and 8; fathers 3 and 2 respectively). Anxiety was found in 18 out of 37 (48.6%) (15 mothers and 3 fathers). High quality of life was found in 20 patients (69%) and medium in 9 (31%). Correlation between good metabolic control and anxiety (OR 5.5, CI 95% 0.85-41.64, p=0.03), no correlation with quality of life was found.

Conclusions: Anxiety frequency was found higher in patients differing with what is found in the literature, depression was found to be minor. Anxiety and depression were found to be higher in the mothers. We found correlation between anxiety and metabolic control. Quality of life was found high in most of the patients.

ORAL SESSION 1, R-038 LOCATION: BALLROOM

EVALUATING THE USE OF PATIENT HEALTH QUESTIONNAIRE-2 TO IDENTIFY DEPRESSION IN A HISPANIC POPULATION WITH UNCONTROLLED DIABETES

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Symptoms of depression are more common among adults with chronic disease such as diabetes. Compared to other ethnic groups, Hispanics with type 2 diabetes are affected at a higher rate by depression and are less likely to be treated. The Patient Health Questionnaire (PHQ)-2 and PHQ-9 are widely used for screening and diagnosing depression in primary care settings.

In a cohort of Hispanics with uncontrolled diabetes, we describe how often patients screening positive for depressive symptoms using a PHQ-2 were followed up and administered a PHQ-9 for a diagnosis of depression.

We use a cross-sectional design to evaluate the use of the PHQ-2 and the PHQ-9 among participants in the Salud y Vida Program (SyV) (n=2226) that at baseline reported never having been diagnosed with depression (n=1697). Participants are predominately Hispanics with uncontrolled diabetes completing a structured, multidisciplinary program to improve their health and diabetes control. We describe how often SyV participants screening positive for symptoms of depression (PHQ-2 ≥ 3) were followed up with a PHQ-9. We also provide a description of participants' characteristics associated with follow-up.

Approximately 24% of SyV participants reported having received a prior diagnosis of depression at baseline. Among participants with no prior history of depression that were administered a PHQ-2 (n=1592), five percent (n=82) had PHQ-2 ≥ 3**.** Of those five percent, 57% (n=47) were followed-up and screened with a PHQ-9 for a diagnosis of depression.

These data suggest the need for programs working to improve the health and blood glucose control among Hispanic diabetic populations to address symptoms of depression among their patient population to ensure better physical and mental health outcomes. Changes can also be implemented to ensure to patients screened at baseline with a PHQ-2 are followed up with a PHQ-9 when needed.

ORAL SESSION 1, G-015 LOCATION: BALLROOM

EXPLORING PRENATAL RISK FACTORS AMONG HISPANIC CHILDREN WITH AUTISM SPECTRUM DISORDERS. – A PILOT STUDY IN THE RIO GRANDE VALLEY

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Background: Peer-reviewed studies suggest that a hostile gestational environment is associated with delayed neurological development for the infant. Autism is estimated to affect 1 in 59 United States children, yet limited research has studied Hispanic children with autism. The Rio Grande Valley (RGV) is a medically underserved area with a 90% Hispanic population, making it an optimal location to conduct preliminary research of prenatal risk factors among Hispanic women and their children who have Autism Spectrum Disorder (ASD). **Purpose**: The University of Texas RGV Hispanic Autism Research Center (HARC) studied Hispanic children with autism and their biological mothers to identify potential environmental exposures and prenatal risk factors that could impact the risk for autism. **Methods**: This pilot study recruited 25 Hispanic mothers and their biological children with autism and 25 Hispanic control mothers and children. Participants completed a twelve-section survey that included specific prenatal risk factors, such as gestational diabetes, maternal age, and length of pregnancy. The goal was to evaluate if specific prenatal risk factors demonstrate a higher prevalence among Hispanic mothers of children with autism living on the US-Mexico border. **Results**: STATA statistical analysis showed a significantly higher proportion of vaginal bleeding during gestation in Hispanic mothers of children with autism than control mothers ($n = 9/25$, 36%, $p = 0.037$). This finding supports peer-reviewed studies that have demonstrated a high prevalence of vaginal bleeding during the gestation of children diagnosed with ASD when compared to typically developed children. **Conclusion**: This pilot study adds to the body of research suggesting an increased prevalence of vaginal bleeding in women with children diagnosed with ASD. More research is needed to establish if vaginal bleeding can serve as a symptom of maternal inflammation and whether that dysregulation to the gestational environment leads to delayed neurological development, specifically among Hispanic children.

ORAL SESSION 1, MS-017 LOCATION: BALLROOM

UNMET NEED FOR RISK REDUCTION COUNSELING AND PREP AMONG YOUNG WOMEN AT RISK FOR HIV

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Pre-Exposure Prophylaxis (PrEP) significantly reduces Human Immunodeficiency Virus (HIV) acquisition. The Centers for Disease Control and Prevention (CDC) recommends HIV counseling and testing (CTS) for sexually active women diagnosed with a bacterial sexually transmitted infection (STI) and that PrEP be offered to women who have a HIV seropositive partner, engage in injection drug use (IDU), or inconsistently use condoms. This study utilized an analysis of data from the Women's Biohealth study, which consists of young women 13-29 years of age seeking routine gynecologic care within an academic institution in Baltimore, Maryland, a locale with high STI and HIV prevalence. Additional clinical data was extracted from the medical record for patients diagnosed with *Chlamydia trachomatis*, *Neisseria gonorrhea*, *Mycoplasma genitalium*, and/or *Trichomonas vaginalis* to assess documentation of HIV risk reduction counseling and/or Prep referral/initiation. Logistic regression analyses were used to evaluate the odds of HIV CTS, risk reduction counseling, and PrEP counseling. Of the 688 patients enrolled, 23% (N=159) were STI positive (CT 10%, NG 5%, TV 38%, MG 62%). Among HIV seronegative patients, 145 were eligible for PrEP counseling; the mean age was 21.5 years (SD 3.6), 93% were African American, 90% reported monogamy, 6.9% reported consistent condom use, and 41% (N=60) were pregnant. STI treatment was documented for 55% of pregnant women and 80% of non-pregnant patients. Non-pregnant women were 84.4 times more likely to receive risk reduction counseling compared to pregnant women (OR 84.4; 95% CI: 27.9; 255). Only 0.6% of women were offered PrEP counseling. This study illuminates the unmet need for STI/HIV reduction counseling including discussion of PrEP among HIV-negative young women diagnosed with bacterial STIs. Pregnant women in STI prevalent communities should be targeted for counseling given differential counseling behaviors and the potential impact of an STI diagnosis (including HIV) on maternal-fetal outcomes.

ORAL SESSION 1, FSO-004 LOCATION: BALLROOM

SUBSTANCE USE AND HIV PREVENTION EDUCATION FOR COLLEGE STUDENTS AND COMMUNITY RESIDENTS AGES 18 TO 24

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The 2016 Texas HIV Texas Surveillance Report indicated that South Texas residents continue to be heavily impacted by HIV. Hidalgo County accounts for 1,259 cases of people living with HIV, with a growing rate of 148.1 per 100,000 with 1,701 cumulative HIV diagnoses. Cameron County reported 803 case of people living with HIV at a rate of 190.2 cases per 100,000 population with 1,166 cumulative HIV diagnoses.

In 2013 the Minority Serving Institutions in Collaboration with Community-Based Organizations (MSI/CBO), a program funded by the U.S. Substance Abuse and Mental Health Services Administration, was established to provide substance use and HIV prevention education to youth and young adults between the ages of 18 and 24. Its goal is to prevent and/or reduce the transmission of HIV among Hispanic college students and community residents in the Hidalgo and Cameron Counties in South Texas.

The implementation of the program was based on the Socio-Ecological Model which acknowledges the importance of collaboration between community and campus constituencies as an effective strategy for health promotion and disease prevention. Student peer educators and promotoras (community Health workers) delivered the prevention education sessions to the students and community residents. Research assistants administered pre and post presentation surveys to measure the effectiveness of the educational sessions. Another survey to assess the longitudinal impact of the presentations was administered to a random sample of the participants one month after the presentations.

The program provided educational sessions to 39,816 participants during 2013-2018 and HIV testing to 2,233. The data analysis indicated that the educational sessions were successful at: a) educating participants concerning the use of substances and engaging in risky sexual behaviors that could lead to HIV infection; b) educating about how HIV infection is transmitted; c) how they can protect against HIV infection when engaging in sexual behaviors.

PATIENT CARE

ORAL SESSION 2, FSO-042 LOCATION: ROOM 103

PATIENT INITIATED LABORATORY TESTING INCREASES ACCESS IN SOUTH TEXAS, AN AREA AMONG THE HIGHEST UNINSURED IN THE NATION

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Significance: In 2014, the Department of Health and Human Services finalized the Patient's right to access report of clinical laboratory test results. Prior to this rule, a laboratory could only release test reports if ordering providers and/or state laws allowed. In response, some labs have enabled patients to obtain cost effective, low-risk tests without physician orders. Profiles such as heart health, lipid profiles, thyroid health panels and diabetes testing are performed.

Methods: Five-year retrospective study based on patient-initiated testing provided through South Texas Health Systems. Data collected were reviewed through the electronic health information systems for each patient-initiated testing encounter. Database review of the 2017 United States Census Bureau persons without insurance (under 65 years old) for Hidalgo County, Rio Grande Valley, Texas and USA.

Results: Patient-initiated testing encounters by year include: 1,315 (2013); 1,466 (2014); 1,566 (2015); 1,718 (2016); 2,071 (2017); 1,417 (through June 2018). Uninsured rates include Hidalgo County (29.7%), Rio Grande Valley (29.5%), Texas (18.6%) and USA (10.1%). Costs of tests varied from $7 to $30.

Conclusion: It is our experience that most patients who seek testing bring physician orders, may have high insurance deductibles or may be visiting from other areas with testing needs. In some cases, specialized care is provided in larger cities with local laboratory testing. Patients are encouraged to discuss results with their physicians, especially if they have abnormal results. Rio Grande Valley counties have some of the highest rates of uninsured in the country, with Hidalgo County leading the Rio Grande Valley. Offering this program allows for a cost effective, convenient and accessible alternative.

ORAL SESSION 2, FSO-006 LOCATION: ROOM 103

INTERDISCIPLINARY MAGNETIC RESONANCE IMAGING PROCESS IN CHILDREN WITH POSSIBLE MUSCULOSKELETAL INFECTION RESULTS IN: IMPROVED STUDY EFFICIENCY, DECREASED USE OF CONTRAST AND IMPROVED FAMILY SATISFACTION

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The purpose of the study is to present a multidisciplinary approach for assessment and management of musculoskeletal infection (MSI) in children through an interdisciplinary process of sedated magnetic resonance imaging (MRI) acquisition with or without contrast.

Children who underwent MRI for evaluation of possible MSI were studied retrospectively from 2012- 2017. After admission, a multidisciplinary meeting was held by the pediatric hospitalist, orthopaedic surgeon, radiologist, anesthesiologist, and nurse to coordinate a sedated MRI and possible surgery. Annual stakeholder updates were held to review data and improve the process. Kruskal-Wallis test was used to assess programmatic improvement in the process, for continuous data. A fisher's exact test was used to compare programmatic improvement for categorical data ($p<0.05$).

482 children were studied. MRI scan duration decreased from a mean of 95.8 minutes in 2012 to a mean of 30.4 minutes per study in 2017. This was attributed to scanning of fewer body areas (2.6 vs. 1.7) and obtaining fewer sequences per scan (8.1 vs. 4.6). In 2012, 91.8% of children received intravenous contrast. In comparison, only 19.1% of children received contrast in 2017. Invasive procedures were performed immediately after the MRI under continued anesthesia on 54.5% of children in 2012, compared to 73.7% in 2017. NRC Picker customer satisfaction rating improved from 91% in 2012 to 94% in 2017. All differences were statistically significant ($p<0.05$).

Children with MSI often require an MRI with sedation. A multidisciplinary team approach produced consistent and progressive improvement over time as evidenced by decreased MRI scan time, fewer sequences per scan, decreased use of intravenous contrast, and a higher rate of definitive procedures immediately following the MRI while under continued anesthesia. Minimizing contrast use for children with suspected MSI is indicated, and result in improved patient care and family satisfaction.

ORAL SESSION 2, MS-022 LOCATION: ROOM 103

OPTIMIZING THE USE OF DIAGNOSTIC MAMMOGRAPHY IN THE ERA OF DIGITAL BREAST TOMOSYNTHESIS

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OBJECTIVE. The incorporation of Digital Breast Tomosynthesis (DBT) as a standard 3D screening modality has increased cancer detection rates while simultaneously decreasing recall rates. While some studies have assessed the diagnostic applications of DBT, it has yet to be determined if DBT is sufficient to make accurate classifications of non-calcified findings. The primary purpose of this retrospective study is to determine if there is additional diagnostic value from performing diagnostic mammography (DM) in patients recalled for mass, asymmetry, or architectural distortion (AD) following 3D screening mammography.

MATERIALS AND METHODS. We performed a retrospective review of all female patients at MD Anderson who underwent screening DBT and were recalled for additional images (BI-RADS 0) from 2015 to 2017. Medical records were reviewed to determine clinical management of patient's abnormal findings.

RESULTS. 21% (154/748) of recalled patients only received ultrasound (US), while 79% (594/748) had DM and US. 9% (51/591) of cases were ultimately found to be cancerous, 25% (13/51) of which were recalled for AD. All cancerous findings, regardless of imaging, were confirmed with either US-guided biopsy or stereotactic-biopsy.

CONCLUSION. In this study, all patients who were recalled for DM and US received a final diagnosis determined by the US, US-guided biopsy, or stereotactic-biopsy. Additionally, all biopsies were performed on the original finding seen on DBT screening mammography, suggesting that following DBT screening, non-calcified findings can be affectively categorized without the use of DM.

ORAL SESSION 2, FSO-031 LOCATION: ROOM 103

IMPLEMENTATION OF AN IPP LARC PROGRAM IN A LARGE, PHYSICIAN-OWNED HOSPITAL IN TEXAS: A STATUS UPDATE AND LESSONS LEARNED

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Objectives: To provide an update on implementation and sustainability of an immediate postpartum long acting reversible contraception (IPP LARC) program in a private hospital within a new academic health center in the Rio Grande Valley (RGV).

Methods: We used the Change Acceleration Process (CAP) model to implement and sustain an IPP LARC program in a private hospital within a new academic health center in the RGV. The tools within the model were adapted to organize a workgroup made up of academic faculty, hospital administrators, and members from the pharmacy, coding, and billing departments, with the goal of creating the necessary infrastructure needed for implementation.

Results: Since February 2016, a total of 180 LARC devices have been placed – 134 implants and 46 intrauterine devices. One hundred twenty of the devices were supplied by a training grant while 60 were supplied by the hospital and eligible for Medicaid billing and reimbursement. We have received partial or complete reimbursement on 17 and 18 devices, respectively, on 49 submitted claims.

Conclusions: Our program is now in place and rapidly expanding with IPP LARC available to all unfunded and publicly funded patients. We will continue to monitor and troubleshoot the reimbursement process to ensure sustainability. Our next goal is to expand the program to privately insured patients. We are the largest private maternity hospital in Texas to offer IPP LARC. The CAP model is recommended for implementation and sustainability of an IPP LARC program.

ORAL SESSION 2, G-003 LOCATION: ROOM 103

EXPLORING THE MECHANISMS OF RACIAL DISPARITY IN INFANT MORTALITY: A GROUNDED THEORY APPROACH

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Background: Infant mortality is a critical health disparity problem in the U.S. Approximately twenty-three thousand infants die each year (MacDorman, Matthews, Mohangoo, & Zeitlin, 2014).

Problem: The highest incidents occur among African American infants. Evidence from previous studies implicated a mix of complex health determinants and risk factors. No previous study has explored the central mechanisms by which infant mortality predictably persists among African American women.

Objectives: The purpose of this study was to uncover the complex network of events, actions, interactions, conditions, behaviors and societal relationships that underlie racial and ethnic disparity in infant mortality.

Methods and Results: Using series of in-depth semi-structured interview of African American women in Franklin County, OH in a grounded theory methodology, study generated a mid-range substantive theory of racial death disparity among infants, known as *pediagram*. Results suggest that improvement in evidence-based practice to eliminate infant mortality is tied to the ability to predict and control risk and protective factors for infant death disparity.

Significance: Study will close current knowledge gaps, speed up evidence-based, equity-focused and efficient public healthcare delivery system practices. Study lays the groundwork for future quantitative research to test generated theory.

Conclusion: Averting the threat of racial death disparity will require upstream policy solutions, midstream healthcare system transformation and, downstream positive changes in lifestyle. Any meaningful improvement in infant and maternal health will require considerable modifications on the social determinants of health and wellness for women.

References

MacDorman, M. F., Matthews, T. J., Mohangoo, A. D., & Zeitlin, J. (2014). International comparisons of infant mortality and related factors: United States and Europe, 2010. *National vital statistics reports: from the Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System*, *63*(5), 1-6.

ORAL SESSION 2, R-004 LOCATION: ROOM 103

END STAGE IDIOPATHIC PULMONARY FIBROSIS: EDUCATING OUR PATIENTS ON THE INEVITABLE

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End Stage Idiopathic Pulmonary Fibrosis (IPF) is a mysterious, chronic, progressive, fibrosing interstitial pneumonia. It generally presents in patients above 55 years of age and evaluation begins with high-resolution computed tomography. Evaluation for a pattern of interstitial lung disease is important to choose a location for possible biopsy. Progression of the disease is difficult to predict with a median survival from 2 to 7 years. Some patients have a steady decline and some suddenly decompensate. Given this variance, clinicians and their patients are often caught unprepared to deal with the difficult questions that arise at the end of life. A 68 year-old female presents with acute hypercarbic hypoxemic respiratory failure requiring intubation. She had been diagnosed with IPF three years ago but refused treatment, never discussing her disease with family. As the primary team, we have multiple family meetings to discuss further aggressive measures in the setting of her increasing ventilation requirements and clinical deterioration. Nevertheless, as her disease is new to her relatives, it is difficult to connect and educate family sufficiently to reach a respectable end-of-life plan. Palliative care helps with management but little headway is made. Patient remains full code on mechanical ventilation and vasopressors for weeks with her condition deteriorating daily. For patients with IPF, we should conduct a discussion of end-of-life goals and advanced directives early. One study on IPF showed that end-of-life decisions in 42% of patients were made 3 or fewer days prior to death. Understanding a patient's individual preferences, beliefs, and values is key in achieving an appropriate management plan. In our population in the Rio Grande Valley, we have unique challenges in addressing code status given strong religious and cultural preferences. Proper education and discussion can improve the quality of the end-of-life care we provide these patients with IPF.

TRANSLATIONAL SCIENCE

ORAL SESSION 3, FSO-052 LOCATION: ROOM 102

ARTIFICIAL SWEETENERS: EFFECT ON CELL VIABILITY AND VEGF SECRETION IN RETINAL ENDOTHELIAL CELLS

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Diabetes mellitus is a chronic condition in which an impairment of glucose metabolism produces increased serum glucose levels which can negatively affect multiple organs and systems. Worldwide, approximately 285 million people have diabetes and over one-third show signs of Diabetic Retinopathy (DR). Due to glucose restriction in the diet of diabetic patients, the use of sugar substitutes has become widely used. Two the most utilized substitutes are aspartame and sucralose (Splenda), which are found in many popular sugar-free foods and beverages. In a previous study, we reported glucose decreased cell viability and increased VEGF secretion in Rhesus Monkey Retinal Endothelial Cells (RhREC). Viability and VEGF secretion are two of the major components of DR pathogenesis. ***Do sugar substitutes have similar effects on this cell line?*** **Methods:** RhREC were seeded in 6 well plates at 20k per well and treated with 5.5mM d-glucose (control), 0.05mM aspartame, or 0.05mM sucralose for 24hrs. ELISA was used to determine secreted VEGF levels in the conditioned medium. Cell viability was measured using the trypan blue dye exclusion method. **Results**: Aspartame showed a 25% increase in cell viability and VEGF secretion compared to control. Sucralose showed no significant change in cell viability or VEGF secretion compared to control. **Conclusions**: While aspartame affects cell viability and VEGF secretion, sucralose is comparable to controls and shows no significant affects. Further studies will be needed to fully understand the effects on patients who consume foods and beverages with these chemical sweeteners, as well as their contributing role to DR.

ORAL SESSION 3, FSO-007 LOCATION: ROOM 102

ROLE OF ERK IN IRF3-MEDIATED IMMUNE RESPONSES

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Insulin resistance precedes and contributes to the development of type 2 diabetes mellitus, and it is now believed that chronic inflammation is a major contributor to insulin resistance. Both cellular and secreted factors participate in the pathological and physiological changes that occur to promote inflammation. However, the molecular signaling pathways that drive these processes remain elusive. The mitogen activated protein kinase, extracellular signal-regulated kinase 1 and 2 module (ERK1/2), and the transcription factor, interferon regulatory factor-3 (IRF3), are both activated downstream of Toll-like receptor 4 and associated with the development of insulin resistance. We hypothesize that inhibition of ERK activity blocks IRF3-mediated immune responses. ERK1 and ERK2 isoforms can have different cellular functions; thus, to determine which ERK isoform is involved in the regulation of IRF3 activity, we performed siRNA to knockdown ERK1, ERK2, or both in RAW 264.7 macrophages and saw 70% knockdown of each ERK1 and ERK2. Knockdown of ERK1 or ERK2 or both blocked IRF3 translocation to the nucleus with LPS treatment (100 ng/ml, 1hr), as determined by immunofluorescence using an antibody specific for nuclear IRF3. Because phosphorylated and dimerized IRF3 translocates to the nucleus to regulate the transcription of interferon (IFN)-beta expression, we investigated whether ERK1 or ERK2 inhibited IFN-beta release. Macrophages were treated with LPS (100 ng/ml, 6hr). LPS induced an IFN-beta production of 791±18.0 pg/ml, but knockdown of either ERK1 or ERK2 decreased the release of IFN-beta to 199±12.3 and 282±32.7 pg/ml, respectively. However, double knockdown of ERK1 and ERK 2 had the greatest inhibition of IFN-beta release (121±15.2 pg/ml). In summary, both ERK1 and ERK2 regulate IRF3 nuclear translocation and signaling in macrophages. We propose that ERK positively regulates IRF3-mediated immune responses and inhibition of ERK signaling will protect against insulin resistance.

ORAL SESSION 3, FSO-038 LOCATION: ROOM 102

LIQUID BIOPSY: CHALLENGES OF DEMOCRATIZING GENOMICS AND PRECISION MEDICINE

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Liquid biopsy is a relatively new non-invasive technology with the potential to replace surgical biopsy, thus eradicating both risks and drawbacks. Moreover, its current main application is to improve diagnostics, prognosis and prediction of the particularly those of cancer in precision medicine, due to the limitations of surgical biopsy to serialize detection of biomarkers throughout the course of the disease and its restricted ability to reveal and inform about tumor heterogeneity. Despite its apparent convenience when assessing application in the clinic, the diagnostic, prognostic and predictive applications of circulating tumoral DNA become prohibitively expensive when implementing this technology in emerging economies. Thus, it widens the gap between those who can allow the expense for liquid biopsy testing and those who cannot. This, coupled with the fact that available technologies are not becoming less expensive, hampers democratization of precision medicine and genomics for developing countries. There are several factors that need to be addressed to ease the economic impact of implementation of liquid biopsy in emerging economies, particularly a) sparse population density, b) reliance of the technology on high-throughput next-generation sequencing platforms, and c) understanding of genomic variation in non-Caucasian populations. In this work, we describe our efforts to address these issues throughout the years to make liquid biopsy, precision medicine and genomic medicine available to the general population and the challenges we have faced in order to bring these technologies into the health system in Mexico.

ORAL SESSION 3, FSO-014 LOCATION: ROOM 102

UTILITY OF IPSC GENERATED NEURAL STEM CELLS IN MODELING COMPLEX NEUROLOGICAL DISORDERS: FROM CANDIDATE GENE PRIORITIZATION TO GENE VALIDATION

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Multiple lines of evidence from brain imaging, post-mortem brain studies and genetic studies indicate a strong genetic component to many complex neurological disorders. However, identification of genes and pathways has been challenging due to unavailability of relevant tissues. The iPSC technology is a promising tool to generate relevant cells/tissues. Though, generation of relevant cells/tissues such as 3D brain-organoids, mature neurons or glial cells for *in-vitro* modeling of complex neurological disorders is an intricate multistage process that takes months and often produces heterogeneous cell populations. In contrast, neural stem cells (NSCs) are a highly replicative neural cell population capable of rapid neural differentiation and are well suited to scalability for large-scale disease gene discovery approaches.

Using the LCLs established from our Genetics of Brain Structure Study, Mexican American cohort, integration free iPSCs were reprogrammed and differentiated into NSCs. The extensive molecular characterization by immunocytochemistry analysis and RNA sequencing shows that *≥95%* cells in each generated NSC line expressed NSC markers. A correlation analysis based on all expressed genes (17656 genes) showed a uniform expression profile (*mean correlation coefficient 95%CI=0.96±0.04*) of the generated NSC lines.

Using our recent studies, we demonstrated the utility of these NSCs in the prioritization and validation of candidate genes. In the first study, genome wide differential gene expression analysis of NSCs of 2 late onset Parkinson's disease (PD) cases and their 7 first-degree and 3 second-degree normal relatives, identified 89 significantly differentially expressed candidate genes (*p-value≤0.05, FC-abs≥4.0*). In the second study, iPSC generated NSCs were used to model the effect of a rare variant in the *ADD3* gene which shows significant association with major depressive disorder *(p-value=3.1x10-9)*. Our results suggest that this rare variant affects the assembly and integrity of the adherens junctions, which may result in diminished NSC self-renewal in developing and adult brains.

ORAL SESSION 3, FSO-023 LOCATION: ROOM 102

MICROCEPHALY AND OTHER DEVELOPMENTAL ABNORMALITIES CAUSED BY INTRA-CRANIAL INOCULATION OF FETAL LABORATORY OPOSSUMS WITH ZIKA VIRUS (ZIKV)

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Progress in understanding the pathologies induced by ZIKV and in developing vaccines is impeded by the lack of natural animal models of ZIKV infection. Immunocompetent rodents are resistant to infection by ZIKV, and genetically engineered immunodeficient rodent models have limitations in their utility. Monkeys are good models for investigating ZIKV infection, but they are limited in utility by expense and long developmental time. We have established a new animal model for research on ZIKV infection of embryos and fetuses, the laboratory opossum (*Monodelphis domestica*), which circumvents the shortcomings of rodent and primate models and provides some unique research opportunities. Among the unique characteristics of *M. domestica* as a laboratory animal is their early stage of development at birth, approximately equivalent to a 6-week human embryo. We intra-cranially inoculated pups that ranged in age from 4 to 9 days with 5,000 PFUs of ZIKV or PBS as a control, and necropsied the animals at 80 days of age (developmentally equivalent to a 6-year-old child). We demonstrated presence of virus in the brains of some animals by immunohistochemistry, and active replication by in situ hybridization of viral RNA. The brains of some animals had a spongiform appearance (similar to that which occurs in Creutzfeldt-Jakob disease) at the time of necropsy, with large gaps between neurons. One of six pups inoculated at 6 days of age (equivalent to a human fetus at mid-gestation) grew to less than half the size of its siblings and exhibited skull malformations similar to those of human micocephalic infants. We conclude that a single inoculation of ZIKV into the brains of laboratory opossum fetuses results in persistent viral replication and, in some cases, severe developmental abnormalities of the brain. This new laboratory animal model promises to significantly accelerate research on pathologies caused by ZIKV infection.

ORAL SESSION 3, FSO-022 LOCATION: ROOM 102

PROFOUND PATHOLOGICAL ABNORMALITIES OF BRAIN AND FEMALE REPRODUCTIVE SYSTEM INDUCED BY INFECTION OF JUVENILE LABORATORY OPOSSUMS WITH ZIKA VIRUS (ZIKV)

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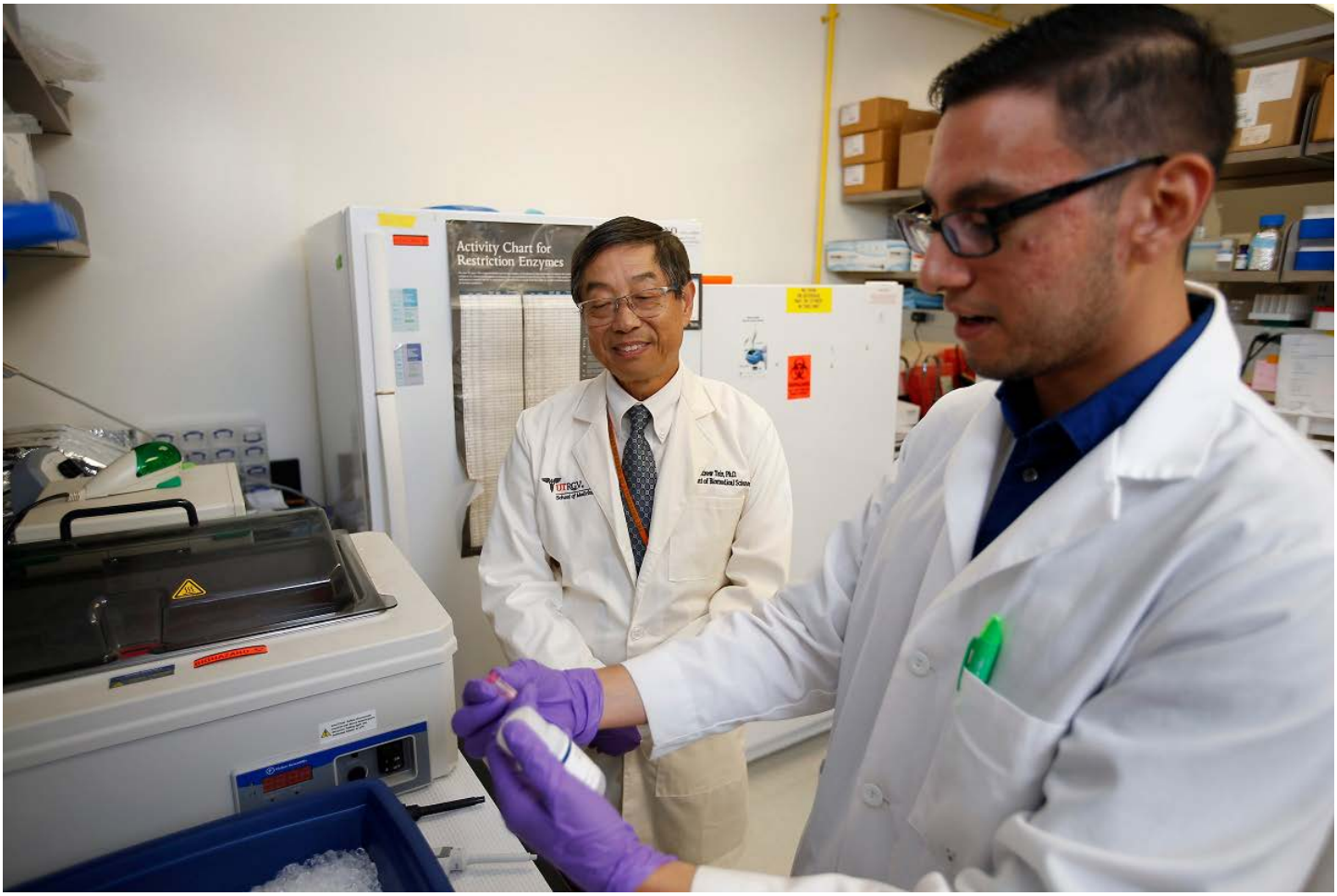
After establishing the laboratory opossum (*Monodelphis domestica*) model for infection of embryos and fetuses by intra-cranial inoculation of ZIKV, we proceeded to establish this species as a model for research on ZIKV infection of juveniles. This is the first natural non-primate animal model for research on ZIKV infection of juveniles and the pathological sequelae at that stage of development. We inoculated juveniles with 105 PFUs of ZIKV at 2-week intervals from 18 to 24 weeks of age (equivalent to 9- to 12-year-old children), and necropsied the animals at 26 months of age (equivalent to a 13-year-old child). Similar results were obtained from intra-peritoneal, intra-muscular, or subcutaneous inoculations. There were no size or gross anatomical differences between inoculated and control animals, but we demonstrated widespread dissemination of virus to most organs by immunohistochemistry, and active replication by in situ hybridization of viral RNA. The brains of some animals had a spongiform appearance (similar to that which occurs in Creutzfeldt-Jakob disease), with large gaps between neurons; they weighed significantly less than brains of control animals. Ovaries weighed significantly more than those of control animals, suggesting inflammation and edema consequent to viral infection. Vaginae and uteri also weighed significantly more than those of control animals, except in a minority of animals in which they were severely atrophied or not identifiable. Atrophy may have been caused by viral mediated lysis or by killer T-cell mediated death of infected smooth muscle cells. We conclude that juvenile laboratory opossums are a vital addition to the collage of animal models used in research on ZIKV infections and pathological sequelae. Moreover, if the results translate to humans, they suggest that children who have been infected with ZIKV might experience some developmental abnormalities even if they exhibit normal growth and development of external anatomical features.


Activity Chart for
Restriction Enzymes

BIOMEDICAL SCIENCE

ORAL SESSION 4, FSO-040 LOCATION: BALLROOM

THE ROLE OF METABOLIC VALUE VERSUS APPETITIVE TASTE IN FORMATION OF LONG TERM MEMORIES

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Honey bees will learn to respond to an odor when their antennae are stimulated with sucrose, even if they are not fed during the conditioning phase. However, the memory of this association does not persist at 24 hr after conditioning. These results suggest that gustatory stimulation of proboscis and/or the nutritional quality of the reward plays an important role in establishing a long lasting memory. Three tasteless, but nutritional, sugars (xylose, sorbitol and mannitol) are used to further investigate the relationship between learning, sensory perception and nutritional value. Bees fed sucrose, sorbitol or xylose during olfactory conditioning formed stable 24 h memories, while bees receiving mannitol or no food showed significant reductions in their memory. However, in a choice test where bees were able to choose between two feeders, one with a low concentration of sucrose alone and one containing the same concentration of sucrose supplemented with sorbitol, mannitol or xylose, bees did not show a preference for solutions containing sucrose supplemented with the nutritional sugar. In addition, when bees only had access to a feeder containing one of the three sugars alone, without sucrose as a gustatory signal, bees showed mortality rates similar to those seen for water, suggesting that the bees were unable to determine that the solutions were nutritious. Together these results suggest that nutritional content and not just sensory information is important for establishing long term memories, but that bees may not be able to assess nutritional content independently from taste.

ORAL SESSION 4, UG-019 LOCATION: BALLROOM

UNDERSTANDING THE MECHANISMS OF VEGF SECRETION IN 661W CONE PHOTORECEPTORS

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Purpose: Some degree of photoreceptor degeneration may occur in early stages of diabetes and prior to the onset of diabetic retinopathy (DR). Such event may contribute to the development of DR. The aim of this study is to investigate the effect of distinct glucose concentrations over the mouse cone photoreceptor 661W cell viability and vascular endothelial growth factor (VEGF) secretion as well as understand the mechanisms involved the process.

Methods: Photoreceptor cells were seeded at 100k cells per well in a 24 well plate and treated with glucose concentrations of 0 mM (hypoglycemic), 5.5mM (euglycemic), 18.5 mM, and 30 mM (hyperglycemic) for 48 hours. Cell viability was determined at 24 and 48 hours by trypan blue dye exclusion method and VEGF secreted was measured by ELISA. Hypoxia induced factor 1 alpha (HIF-1a) expression was confirmed using RT-PCR at 8 hours.

Results: High glucose concentrations (30 mM) decreased the number of viable cells by 11% and 19% compared to the physiological control (5 mM; X=11,250; N=3) after 24 and 48 hours of treatment respectively. Moreover, cell viability decreased by 19% and 97% in the absence of glucose (0 mM) at 24 and 48 hours respectively. In contrast, VEGF levels in conditioned media increased in proportion with glucose concentrations after 48 hour treatment (16, 16.4, and 16.8 pg/ml VEGF in 5.5, 18.5, and 30 mM glucose subsequently) and greatly increased in 0mM glucose (211pg/ml VEGF secreted) after 48 hours. HIF-1a presence was observed at 8 hours of treatment.

Conclusion: Our data reveals for the first time a possible involvement of cone photoreceptor cells on the development of DR through VEGF secretion. It also suggests the involvement of a HIF-1a mediated pathways. Further studies will be done to better understand the mechanisms involved.

ORAL SESSION 4, MS-018 LOCATION: BALLROOM

GENETIC ANALYSIS LOCALIZES A NOVEL LOCUS ON CHROMOSOME 4Q FOR THE GLAUCOMA ENDOPHENOTYPE, CUP-TO-DISC RATIO

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Glaucoma, a leading cause of blindness worldwide, is a heterogenous disease influenced by genetic risk factors. However, not all genetic risk factors have been identified. The aim of this project was to localize genetic factors influencing glaucoma-specific biological variables (endophenotypes) such as intraocular pressure (IOP), central corneal thickness (CCT), and cup-to-disc ratio (CDR).

The family-based study design involves recruitment of individuals from a single well-characterized pedigree residing in the Jiri region of Nepal. Glaucoma diagnosis was based on perturbed functional (visual field) and structural (optic disc) evidence, and IOP measurements. A variance components approach was used to estimate the heritability of glaucoma endophenotypes. Genome-wide single nucleotide variant (SNV) data were used to localize areas of the genome (QTLs) that harbor genes influencing glaucoma endophenotype trait variation. The same SNV data set was used to identify (genetic association) positional candidate genes contributing to these QTL signals. This cohort has 80% power to detect heritability as low as 6.5% of the total phenotypic variation and genetic signals accounting for as little as 1.1% of the observed phenotypic variation.

For this study, data from 1,163 (55.2% female) members of the Jirel population were available. The mean (SD) age of the sample is 43.8 (15.7) years. The prevalence of glaucoma is 3.1%. The heritability of IOP, CCT, and CDR is 19% (p-value=6.1x10-5), 57% (p-value=1.6x10-26), and 48% (p-value=9.7x10-22), respectively. A significant CDR QTL was localized to chromosome 4 at 96 centimorgans (LOD score=3.5, p-value=5.3x10-5). Within this QTL, the strongest genetic association signal was an intergenic SNV (rs11941179, p-value=5.6x10-7). To our knowledge, the CDR QTL is a novel locus.

These results highlight the importance of continued evaluation of genetic factors influencing glaucoma endophenotypes in under-studied populations, such as the Jirels. Future analyses may help elucidate new information on the underlying causal pathways of these traits.

ORAL SESSION 4, P-001 LOCATION: BALLROOM

THE DISEASE MODIFYING IL13 HAPLOTYPE IS ASSOCIATED WITH ALLELIC EXPRESSION IMBALANCE

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Background. IL-13 is a prominent Th2 cytokine involved in immune response to extracellular pathogens and allergic diseases. Genome-Wide Association studies showed that several single nucleotide polymorphisms (SNPs) that localize to the coding, noncoding, and regulatory regions of *IL13* locus are related to diverse diseases. For example, rs1295686, rs20451 and rs848 are associated with allergic diseases, atopic dermatitis, and IgE levels, respectively. However, the functional mechanisms by which these SNPs modulate *IL13* expression are poorly understood. A powerful method to determine the role of SNPs is to assess allelic expression imbalance (AEI), which is the differential expression of one allele with respect to the other in heterozygous donors.

Methods: *IL13* haplotypes were constructed using publicly available data through 1000 genomes with Haploview 4.1. We obtained peripheral blood naïve CD4+ T cells from heterozygous donors (rs848C/A), *in vitro* differentiated them to Th2 lineage and reactivated with PMA/A23187. RNA was purified and *IL13* transcripts quantified. The region encompassing rs848 was PCR amplified and sequenced. AEI was calculated using PeakPicker v.2.0.

Results: Using SNP data from worldwide populations (N=1,843), we defined two major haplotypes in the *IL13* transcribed region: H-1 (CGGCC, frequency=0.68) and H-2 (TAAAT, frequency=0.29) based on rs1295686, rs20541, rs1295685, rs848 and rs847, respectively. All these SNPs were in high linkage disequilibrium (r2=0.86-1.00) in most populations. Following differentiation of CD4+ T cells, 52.4% of the Th2 cells expressed IL-13 and *IL13* mRNA increased after reactivation. Allele-specific transcript quantification in Th2 CD4+ T cells showed that disease associated rs848A allele was expressed at higher levels when compared to rs848C allele.

Conclusions: SNPs in *IL13* transcribed region associated with allergic/inflammatory diseases were all in high LD. AEI at the *IL13* locus provides a mechanistic basis for increased disease susceptibility and could potentially lead to identification of novel targets for personalized medicine.

ORAL SESSION 4, FSO-049 LOCATION: BALLROOM

SINGLE-MOLECULE STUDY REVEALS MULTISTEP ASSEMBLY OF DNA CONDENSATION CLUSTERS BY SMC

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SMC (structural maintenance of chromosomes) family members play essential roles in chromosome condensation, sister chromatid cohesion and DNA repair. It remains unclear how SMCs structure chromosomes and how their mechanochemical cycle regulates their interactions with DNA. Here we used single-molecule fluorescence microscopy to visualize how Bacillus subtilis SMC (BsSMC) interacts with flow-stretched DNAs. We report that BsSMC can slide on DNA, switching between static binding and diffusion. At higher concentrations, BsSMCs form clusters that condense DNA in a weakly ATP-dependent manner. ATP increases the apparent cooperativity of DNA condensation, demonstrating that BsSMC can interact cooperatively through their ATPase head domains. Consistent with these results, ATPase mutants compact DNA more slowly than wild-type BsSMC in the presence of ATP. We also identified the underlying mechanisms of DNA compaction by BsSMC protein by using single-molecule DNA motion capture assay. Briefly, multiple specific sites on a flow-stretched lambda DNA were fluorescently labeled with quantum dots. Tracking the positions of the quantum dots indicates that BsSMC uses both wrapping/bending and bridging mechanisms for DNA compaction. Our results suggest that transiently static BsSMC molecules can nucleate the formation of clusters that act to locally condense the chromosome while forming long-range DNA bridges.

ORAL SESSION 4, FSO-039 LOCATION: BALLROOM

GENOTYPE-BY-SOCIOECONOMIC STATUS INTERACTION MODULATES GENE EXPRESSION IN THE HYPOTHALAMIC-PITUITARY-ADRENAL AXIS

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Low socioeconomic status (SES) adversely affects health, particularly in Mexican Americans (MAs) living close to the US-Mexico border. One hypothesis for this negative association holds that the psycho-physiological stresses incurred under low SES conditions are linked to disease pathophysiology through the hypothalamic-pituitary-adrenal (HPA) axis, the main physiological stress response system. One straightforward prediction of this conceptualization is that gene expression in the HPA axis is modulated by SES. We tested this idea on gene expression data for 206 genes in the HPA axis for 461 MAs of the San Antonio Family Heart Study in relation to three SES variables, Duncan's socioeconomic index (SEI), education years (EDU), and household income (INC). Because of the high dimensionality of the HPA axis we employed principal component (PC) factor analysis (PCFA), where we performed a PC analysis to obtain the set of PCs explaining greater than 80% of the system variance, and then varimax rotation to obtain more-interpretable factors. Using the scree plot method, we chose 12 factors (designated F1 through F12) explaining 46% of the total variance. These may be termed "eigenphenotypes". Eigenphenotypes F1 through F11 were significantly heritable after controlling for the false discovery rate (FDR) at FDR=0.05. We performed genotype-by-SES interaction modeling of the remaining 11 eigenphenotypes according to a two stage strategy. In the first stage, we ascertained if the full interaction model performed better than the polygenic model. In the second stage, we examined the two main interaction components, namely additive genetic variance heterogeneity (GVH) and a genetic correlation (GC1) less than 1. For GVH, we found 3 eigenphenotype-environment "dyads" to be significant (FDR=0.05), F4_SEI, F10_EDU, and F10_INC. For GC1, we found 4 dyads to be significant (FDR=0.05), F5_EDU, F8_EDU, F9_INC, and F11_SEI. We are currently using network module analysis to determine the gene constituents of these eigenphenotypes.

CLINICAL SCIENCE

ORAL SESSION 5, FSO-033 LOCATION: ROOM 103

DIABETES SCREEN DURING TUBERCULOSIS CONTACT INVESTIGATIONS HIGHLIGHTS OPPORTUNITY FOR NEW DIABETES DIAGNOSIS AND REVEALS METABOLIC DIFFERENCES BETWEEN ETHNIC GROUPS

Blanca I. Restrepo (1,2), Léanie Kleynhans (3), Juan C. López-Alvarenga (2), Bassent Abdelbary (4), Stephanus Malherbe (3), Moncerrato Garcia (5), Genesis P. Aguillón (5), Gloria Salinas (6), Gerhard Walzl (3), Larry S. Schlesinger (7), Katharina Ronacher (8)

(1) UT Health Houston, School of Public Health, Brownsville; (2) UT Rio Grande Valley, School of Medicine, South Texas Diabetes and Obesity Institute; (3) Stellenbosch University, Faculty of Medicine and Health Sciences, South Africa; (4) UT Rio Grande Valley, Department of Physician Assistant; (5) Secretaría de Salud de Tamaulipas; (6) Hidalgo County Health Department; (7) Texas Biomedical Research Institute, San Antonio, TX; (8) The University of Queensland, Mater Research Institute, Australia

Objective: Type 2 diabetes (T2D) is a risk factor for tuberculosis (TB), but most studies on TB-T2D have been limited to one community and show a variable impact of T2D on TB risk. To address these gaps, we identified host factors that distinguish the TB contacts with T2D (versus no T2D) from two distant and ethnically different communities.

Methods: We conducted a cross-sectional assessment of sociodemographic and metabolic factors in adult TB contacts with T2D (versus no T2D), from the Texas-Mexico border to study Hispanics, and from Cape Town to study South African Coloured ethnicities. Mixed-model design analysis of covariance was performed.

Findings: The prevalence of T2D was 30.2% in Texas-Mexico and 17.4% in South Africa, with new diagnosis in 34.4% and 43.9%, respectively. Contacts with T2D differed between ethnicities in sociodemographic and metabolic characteristics known to affect TB risk, including higher smoking, hormonal contraceptive use and cholesterol levels in South Africa, and higher obesity in Texas- Mexico ($p < 0.05$). PCA Analysis revealed striking differences between ethnicities in the relationships between factors defining T2D and dyslipidemias known to increase cardiovascular disease risk.

Conclusion: i) Screening for new T2D in TB clinics is recommended for TB patients, and our findings now suggest that expanding screening to their adult close contacts is effective to identify new T2D patients at risk for TB. Ii) Future studies aimed at predicting individual TB risk among the millions of T2D patients with latent TB infection worldwide, should take into account the heterogeneity in dyslipidemias that are likely to modify the estimates of TB risk that are generally attributed to T2D alone. We have recently developed an in-vitro model to evaluate differences in *M. tuberculosis* growth within diabetic vs non-diabetic PBMCs, to begin evaluating the role of dyslipidemias on mycobacterial growth containment in T2D vs no T2D patients.

ORAL SESSION 5, FSO-001 LOCATION: ROOM 103

ORAL GLUCOSE CHALLENGE IMPAIRS SKELETAL MUSCLE MICROVASCULAR BLOOD FLOW IN HEALTHY PEOPLE

Ryan Russell (1,2), Donghua Hu (1), Timothy Greenway (3,4), James E. Sharman (1), Stephen Rattigan (1), Stephen M. Richards (1,4), Michelle A. Keske (1,5)

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Skeletal muscle microvascular (capillary) blood flow increases in the post-prandial state or during insulin infusion due to dilation of pre-capillary arterioles to augment glucose disposal. This effect occurs independent of changes in large artery function. However, acute hyperglycemia impairs vascular function, causes insulin to vasoconstrict pre-capillary arterioles, and causes muscle insulin resistance *in vivo*. We hypothesize that acute hyperglycemia impairs post-prandial muscle microvascular perfusion, without disrupting normal large artery hemodynamics, in healthy humans. Fifteen healthy people (5F/10M) underwent an oral glucose challenge (50g glucose) and a mixed meal challenge (MMC) on two separate occasions (randomised, cross-over design). At 1 hr, both challenges produced a comparable increase (6-fold) in plasma insulin levels. However, the OGC produced a 1.5-fold higher increase in blood glucose when compared to the MMC 1-hr post ingestion. Forearm muscle microvascular blood volume and flow (contrast-enhanced ultrasound) were increased during the MMC (1.3- and 1.9-fold from baseline, respectively, $p<0.05$ for both) but decreased during the OGC (0.7- and 0.6-fold from baseline, respectively, $p<0.05$ for both) despite a similar hyperinsulinemia. Both challenges stimulated brachial artery flow (ultrasound), and heart rate to a similar extent, as well as yielding comparable decreases in diastolic blood pressure and total vascular resistance. Systolic blood pressure and aortic stiffness remained unaltered by either challenge. Independent of large artery hemodynamics, hyperglycemia impairs muscle microvascular blood flow, potentially limiting glucose disposal into skeletal muscle. The OGC reduced microvascular blood flow in muscle peripherally, and therefore may underestimate the importance of skeletal muscle in postprandial glucose disposal.

ORAL SESSION 5, FSO-017 LOCATION: ROOM 103

SARCOPENIC OBESITY AND ITS PARADOXICAL ASSOCIATION WITH CARDIOMETABOLIC RISK FACTORS IN MEXICAN AMERICANS

Juan Carlos Lopez-Alvarenga, Alvaro Diaz-Badillo, Armando Totomoch-Serra, Rector Arya, Srinivas Mummidi, Joselin Hernandez-Ruiz, Feroz Akhtar, Roy G Resendez, Christopher P Jenkinson, Joanne Curran, Thomas D Dyer, Donna M Lehman, John Blangero, Ravindranath Duggirala.

South Texas Diabetes and Obesity Institute. School of Medicine. University of Texas Rio Grande Valley.

Background. Sarcopenia is a decline in skeletal muscle mass, in turn increasing fragility to fall injuries in elderly after 60 years old. In addition, sarcopenic obesity (SO) is defined as decrease in relative muscle mass in abdominal obesity, which is associated with cardiometabolic risk factors (CMFs). However, the patterns of these associations exhibit inconsistency by ethnicity. Therefore, this study aimed to assess the associations between SO and CMFs, and examined whether adiponectin (Adp) has any mediating role in these relationships.

Methods. This study used data from 1,127 participants of the San Antonio Mexican American Family Studies (Mean age [SD] = 40 [16] years; Females = 68%). CMFs analyzed were blood pressure, fasting glucose, insulin, Adp, and lipids. Abdominal obesity was defined as waist circumference >102 cm in men or > 88 cm in women. Sarcopenia was measured as skeletal muscle index (SMI= total muscle mass/height squared) lower than 1 SD of the young group (18-to-39 years old adjusted by sex). Using family data and variance components approach, polygenic residuals were obtained after adjustment for sex and age, and were inverse normalized for subsequent Mediation analysis.

Results. The occurrence of SO was 12% in women and 14% in men. Male gender was associated with obesity, but not with SO. Abdominal obesity was the main explanatory variable for insulin (Cohen-d 0.39, $p<0.001$). Paradoxically, SO individuals had a better metabolic profile compared to those without SO. Mediation analysis showed SMI had an inverse association with Adp (b=-0.32); and, Adp exhibited ($p<0.001$) partial mediated effects on IR (b=-0.33), lipids (b=-0.32) and blood pressure (b=-0.12).

Conclusion. Mexican Americans with SO have higher adiponectin levels that can explain the paradoxical association with CMFs. This finding supports the recent concept of adiponectin resistance by muscle tissue, but not from other tissues that remain sensitive to Adp action.

ORAL SESSION 5, FSO-026 LOCATION: ROOM 103

A RARE CASE OF HODGKIN'S LYMPHOMA PRESENTING WITH SUPERIOR VENA SYNDROME AND FUNCTIONAL PULMONIC STENOSIS

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Introduction: Superior vena cava (SVC) syndrome and functional pulmonic stenosis (PS) due to compression on the SVC and the right ventricular outflow tract (RVOT) respectively have been independently described. We present a rare case of combined SVC syndrome and RVOT.

Case Presentation: A 35-year-old man with a history of stage 3B Hodgkin's lymphoma, believed to be in remission was referred for exertional dyspnea, cough and chest pain. There has also been a history of weight loss and near-syncope episodes. On examination patient had facial edema, upper extremities swelling, diffusely enlarged neck, non-mobile mass on the left sternoclavicular area and enlarged supraclavicular, axillary and inguinal lymph nodes. He also had a systolic murmur best heard at the second right intercostal space. CT chest showed features suggestive of massive matted adenopathy, right main bronchus compression and SVC compression. An echocardiogram revealed functional stenosis of the pulmonic valve from the mediastinal mass compression. Bone marrow and node biopsy confirmed recurrent classical Hodgkin's lymphoma, nodular sclerosis subtype. Patient received IV steroids and emergent radiotherapy. He is being prepared for chemotherapy and scheduled to undergo a bone marrow transplant afterwards.

Discussion: Secondary pulmonic stenosis and SVC syndrome are both uncommon clinical entities. Only about 15,000 cases of SVC syndrome occur yearly in the US and usually in the setting of indwelling catheters. Secondary PS is even believed to be much rarer. Our patient’s unique underlying pathology with features of both acquired PS and SVC syndrome is a very rare clinical finding which is yet to be reported in literature, to the best of our knowledge. In our patient, high clinical suspicion and early treatment in a multidisciplinary setting has led to the prompt improvement of the acute symptoms.

Conclusions: RVOT and SVC can co-exist in patients. A high clinical suspicion can potentially improve patient's outcomes.

ORAL SESSION 5, R-022 LOCATION: ROOM 103

SEARCHING FOR (PAD)DINGTON

Rex Huang, MD (1,2); Jose Lozano-Garcia, MD (1); Christian Abreu-Ramirez, MD (1,2)

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Premature Peripheral Artery Disease is defined as the onset of peripheral arterial occlusion before the age of 50 years. In the general population, it is only present in 1% of the population with diabetes, tobacco use, and known arteriosclerosis at other sites of the body, as known risk factors. Patients with this disease are often asymptomatic; however, if this problem is left untreated, patients are at risk for pain, ulcerations, and even amputations. We have a 39 year old Hispanic gentleman with history of uncontrolled diabetes mellitus with associated nephropathy, neuropathy, peripheral vascular disease, dyslipidemia, history of CVA, and prior osteomyelitis requiring amputations. He was admitted for recurrent osteomyelitis requiring antibiotic treatment and was at risk for further amputation. Arterial dopplers showed monophasic waveforms from the proximal popliteal artery with subsequent three-vessel runoff with monophasic waveforms. He underwent successful percutaneous revascularization of his right lower extremity to help with wound healing. Unfortunately, his clinical course was complicated by ilio-psoas hematoma and psuedoaneurysm requiring multiple surgeries with with severe intraoperative hemorrhages and poor wound healing. Patient then required PEG tube for severe gastroparesis. This case demonstrates the need for improved diagnosis and treatment in our underserved population of associated risk factors for peripheral artery disease, as nearly 30% of our population in the Rio Grande Valley has diabetes, compared to the national average of 5-12%. These problems are complicated by the poor health literacy of our community, and increase the likelihood of under diagnosis and under treatment of this morbid condition. With improved education of our physicians and our community health centers in partnership with our patients, we may be able to decrease the complications and amputations from this disease, and improve our patients' quality of life.

Citations

Fisher-Hoch SP, Vatcheva KP, Rahbar MH, McCormick JB. Undiagnosed Diabetes and Pre-Diabetes in Health Disparities. Kirchmair R, ed. *PLoS ONE*. 2015;10(7):e0133135. doi:10.1371/journal.pone.0133135.

Abstract P292: Severe Obesity is Associated with Dramatic Increase in Cardiovascular Disease Risk Factor Prevalence: Hispanic Community Health Study/Study of Latinos (HCHS/SOL)

ORAL SESSION 5, FSO-046 LOCATION: ROOM 103

HEALTH DISPARITIES IN INHIBITOR DEVELOPMENT IN HEMOPHILIA A: HYPOTHESES ON THE DIFFERENTIAL PREVALENCE BY RACE/ETHNICITY

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Hemophilia A (HA) patients develop neutralizing antibodies called Factor VIII (FVIII) inhibitors in response to infusions of therapeutic (t) FVIII. Analyzing inhibitor prevalence data from the CDC, we found that Mexican Americans (MAs) had 1.5 times the inhibitor risk as Caucasian Americans (CAs) (Odds Ratio (OR) [95% confidence interval (CI)] = 1.5 [1.1-1.9]), and that African Americans (AAs) also had 1.5 times the inhibitor risk as CAs (1.5 [1.2-1.9]). Two hypotheses may explain these health disparities. Under the *F8*-haplotype mismatch hypothesis, individuals harboring a *F8*-haplotype mismatched to the haplotype from which their recombinant tFVIII is derived are at greater risk for inhibitors. We tested this hypothesis in data from the PATH Study on inhibitor determinants in HA patients. There are 6 *F8*-haplotypes, designated H1-H6. H1 and H2 correspond to tFVIIIs, are found in all races, and are the only haplotypes found in CAs. AAs, however, also have the H3 through H5 haplotypes. In the AA sub-sample (N=78) of the PATH Study, 28% had the H3 or H4 haplotype. We found that inhibitor prevalence was higher among AAs with either of these haplotypes than among patients with H1 or H2 (3.6 [1.1-12.3]). Under the Human Leukocyte Antigen (HLA) class II (HLAcII) repertoire hypothesis, differences in HLAcII repertoires underlie differences in tFVIII immunogenicity, and hence in inhibitor risk. Using published data for AAs (N=564) and CAs (N=1,899), and data for MAs (N=194) from the San Antonio Family Heart Study on *HLA-DRB1* allele frequencies across 26 shared alleles, we performed difference-of-frequency tests for AAs vs. CAs (AvC), AAs vs. MAs (AvM), and CAs vs. MAs (CvM). On controlling for the false discovery rate (FDR) at FDR = 0.05 for 78 tests, we found that 19, 16, and 16 *HLA-DRB1* alleles were significantly different for the AvC, AvM, and CvM comparisons, respectively.

Robert Kaplan, Larissa M Avilés-Santa, Christina M Parrinello, Sheila Castañeda, Arlene L Hankinson, Carmen R Isasi, Orit Birnbaum-Weitzman, Ryung Kim, Martha L Daviglus, Gregory A Talavera, Neil Schneiderman and Jianwen Cai

Circulation. 2013;127:AP292, originally published January 13, 2016

BIOMEDICAL ENGINEERING / TECHNOLOGY / COMPUTATION

ORAL SESSION 6, G-013 **LOCATION: ROOM 102**

CREATING A WEARABLE COOLING DEVICE FOR HIGH OUTDOOR TEMPERATURES

Richard Garza (1), Noe Vargas (1)

(1) Department of Mechanical Engineering, College of Engineering and Computer Science, UTRGV, Edinburg, Texas, USA

Temperatures in the Rio Grande Valley are high compared to other parts of the world nearly year-round. With so many college students wanting to save money, the high temperatures make it hard on those who choose to walk or ride bicycles to campus. The aim of our research is to design a device capable of cooling the average college student on their way to class, in a way as convenient as putting on a jacket. We aim to use the Peltier effect - a phenomenon in which two pieces of metal heat and cool through an electric current – as the source of heat absorption used to cool the user. In our research, we will determine whether or not it is feasible to use such a phenomenon to keep the user comfortably cool in hot weather. This will become apparent through design, calculations, prototyping, and experimentation. Larger impacts and implications beyond providing comfort to students include changing lifestyles by encouraging walking rather than driving, facilitating exercise, promoting use of public transportation and other activities that are typically avoided due to high temperatures.

ORAL SESSION 6, UG-001 LOCATION: ROOM 102

HIGH-RESOLUTION MICROENDOSCOPY TRAINING MODELS FOR HEALTH CARE PROVIDERS IN LOW RESOURCE SETTINGS

Lakshman Vigneswaran (1), Sonia Parra (2), Rebecca-Richards Kortum (2), Kathleen Schmeler (3)

(1) Department of Biomedical Sciences, UTRGV, Brownsville, Texas, USA, (2) Department of Bioengineering, Rice University, Houston, Texas, USA, (3) MD Anderson Cancer Center, Houston, Texas, USA.

The incidence and mortality rates of cervical cancer among women living in U.S. counties along the Texas-Mexico border are significantly higher than those among women living in non-border counties (age-adjusted incidence 12.3 vs. 9.5 per 100,000; mortality 4.1 vs. 3.0 per 100,000). Higher cervical cancer incidence and mortality rates among Hispanic women living near the Texas-Mexico border are attributed to poor access to health care and screening programs. Well-established public health strategies exist to prevent cervical cancer, including vaccination against the human papillomavirus (HPV) and periodic screening using the Pap and/or HPV test followed by colposcopy and directed biopsy in screen-positive women. However, low-resource settings such as the Texas-Mexico border region often lack the resources and trained personnel to implement effective screening programs. Researchers at the Rice 360 Institute at Rice University are developing low-cost cervical cancer training models to help train healthcare providers with limited cervical cancer screening experience how to perform cervical cancer screening and early treatment techniques such as visual inspection with acetic acid, colposcopy, cervical biopsies, cryotherapy, and LEEP (Loop Electrosurgical Excision Procedure). Researchers at Rice University have also developed a diagnostic tool called the HRME (High Resolution MicroEndoscope), a low-cost fiber-optic microscope that can image epithelial cell morphology in vivo in real time. The HRME has proven to be an effective tool for the early detection of cervical cancer in low-resource settings. To train medical providers how to use the HRME for cervical cancer detection, we developed inexpensive, reusable film patterns that mimic the nuclear morphologies of normal, inflammatory, and neoplastic cervical tissue that could be imaged and analyzed using the HRME. The development of appropriate training materials and models for cervical cancer screening and diagnosis may aid in the implementation of improved screening programs in low-resource settings.

ORAL SESSION 6, FSO-015 LOCATION: ROOM 102

SCREENING IMMUNE-RELATED GENE PATHWAYS FOR ASSOCIATION WITH TYPE 2 DIABETES

Marcio Almeida (1), Juan Peralta (1), Satish Kumar (1), Joanne Curran (1), Mathew Johnson (1), Harald Goring (1), Ravindranath Duggirala (1), John Blangero (1)

(1) Department of Human Genetics and South Texas Diabetes and Obesity Institute, School of Medicine, UTRGV, Texas, USA

Type 2 diabetes (T2D) is characterized by impaired insulin secretion and hyperglycemia. Diabetes is a complex disease where chronic low-degree inflammatory levels are observed. This unpaired immunological response is triggered largely by circulating glucose. The identification of reliable candidate genes playing a joint role in inflammation and diabetes risk will improve our understanding about how diabetes interacts with immunological response. This study explores diabetes-induced disturbances on gene expression correlations in genes known to be involved in immunological response. The correlation patterns of immune-related gene pathways were compared between groups of diabetics and nondiabetic using a partial correlation network analysis. Using data from our long running San Antonio Family Heart Study of Mexican Americans from large extended pedigrees, we explore the connection between T2D and the impaired immunological response using existing genome-wide gene expression profiles. We focused our analyses on the "Cytokine Signaling" gene pathway (KEGG database). This functional gene-pathway is composed by 184 unique genes and we tested the relevance of T2D for the expression of each gene using mixed model linear models in SOLAR. Within this pathway, we identified two significant associations for genes *IL1R2 (p* = 5.5 × 10-5) and *HLA-DPB1 (p* = 6.0 × 10-4) that are respectively classified as having suggestive and strong evidence of association with T2D. The gene *IL1R2* plays a central role in immune signaling and has already been associated with multiple immunological phenotypes and the association to diabetes is recent. The gene *HLA-DPB1* has a central role for the antigen presentation of macrophages to dendritic cells and has solid evidence of association to T2D. These results demonstrate the use of gene expression as valuable evidence for the identification of candidate genes associated with diabetes and immunological response. The identification of these molecular players is fundamental to understand this relevant phenomenon.

ORAL SESSION 6, G-002 LOCATION: ROOM 102

GLOBAL ANNOTATION OF PROTEIN PHOSPHORYLATION NETWORKS USING CO-PHOSPHORYLATION ANALYSIS

Marzieh Ayati (1), Mehmet Koyuturk (1,2), Mark Chance (2)

(1) Department of Electrical Engineering and Computer Science, Case Western Reserve University, Cleveland, Ohio, USA; (2) Center for Proteomics and Bioinformatics, Case Western Reserve University, Cleveland, Ohio, USA

High throughput mass spectrometry (MS) based technologies have enabled the identification and quantification of thousands of phosphosites providing valuable information on cellular signaling. However, our understanding of the accompanying kinase based regulatory networks, e.g. the kinases responsible for specific phosphorylation events in a specific cellular context lags by comparison. Computational approaches have been developed to predict kinase-substrate interactions (KSIs); these have typically relied on static information such as sequences, structures and protein interactions to make predictions. Here, we propose two methods, CophosK and CophosK+ that leverage dynamic information from mass spectrometry data in the form of co-phosphorylation analysis to infer KSIs from phosphoproteomics data. Using MS-based phosphoproteomics data from ovarian cancer tumors and breast cancer patient-derived xenografts, we demonstrate significant positive and negative co-phosphorylation relationships between phosphosites and also show that substrates of the same kinase have statistically significant positive co-phosphorylation relationships. Using CoPhosK, these correlations are used to predict novel kinase associations with phosphosites. We find that “static” predictions using benchmarked approaches (KinomeXplorer) are similar in accuracy but mostly orthogonal to “dynamic” predictions using co-phosphorylation data and CophosK. Combining the two approaches using CophosK+ significantly improves overall prediction accuracy. In the analysis of the two MS datasets we provide KSI predictions for over 12,000 previously un-annotated phosphosites. CophosK can provide global predictions of KSIs at medium confidence while for a subset of sites (35-40%). CophosK+ can significantly enhance the accuracy of predictions compared to static methods. Moreover, many KSIs predicted by CoPhosK+ are reproducible between independent datasets. These advances can be used to significantly enhance our understanding of phosphoprotein regulatory networks through a re-examination of existing MS data as well as drive new experimental approaches to explore and confirm regulatory networks in a specific disease context to drive drug target discovery.

ORAL SESSION 6, FSO-037 LOCATION: ROOM 102

A COMPUTATIONAL METHOD FOR ACCURATE PHASING OF WHOLE GENOME SEQUENCE DATA IN PEDIGREES USING LINEAGE-SPECIFIC ALLELES

Harald Göring (1), Mark Kos (1), Nicholas Blackburn (1,2), Juan Peralta (1,2), Peter Stevens (1), Donna Lehman (3), Lucy Blondell (1), John Blangero (1), August Blackburn (4)

(1) Department of Human Genetics and South Texas Diabetes and Obesity Institute, UTRGV, Brownsville/Edinburgh/San Antonio, TX, USA; (2) Menzies Institute for Medical Research, University of Tasmania, Hobart, TAS, Australia; (3) Department of Medicine, University of Texas Health San Antonio, San Antonio, TX, USA; (4) Blackburn Statistics LLC, San Antonio, TX, USA

Phasing, the process of predicting haplotypes from genotype data, is an important undertaking in genetics and an ongoing area of research. Phasing methods, and associated software, designed specifically for pedigrees are urgently needed, especially for populations without reference panels of sequenced individuals. Here we present a new method for phasing genotypes from whole genome sequencing data in pedigrees: PULSAR (Phasing Using Lineage Specific Alleles / Rare variants). The method is built upon the idea that alleles that are specific to a single founding chromosome within a pedigree, which we refer to as lineage-specific alleles, are highly informative for identifying haplotypes that are identical-by-decent between individuals within a pedigree. Through extensive simulation we assess the performance of PULSAR in a variety of pedigree sizes and structures, and we explore the effects of genotyping errors and presence of non-sequenced individuals on its performance. In some circumstances, PULSAR phases > 99.9% of heterozygous genotypes with a switch error rate below 1 x 10-4. We demonstrate that the method is highly accurate and is competitive with available methods applicable to pedigrees. The method holds promise for correcting genotype errors or imputing missing genotypes. The software implementation of this method is freely available.

ORAL SESSION 6, FSO-020 LOCATION: ROOM 102

CHALLENGES FOR STUDENTS WITH VISUAL IMPAIRMENTS TO ATTEND COLLEGE

Kamal Sarkar

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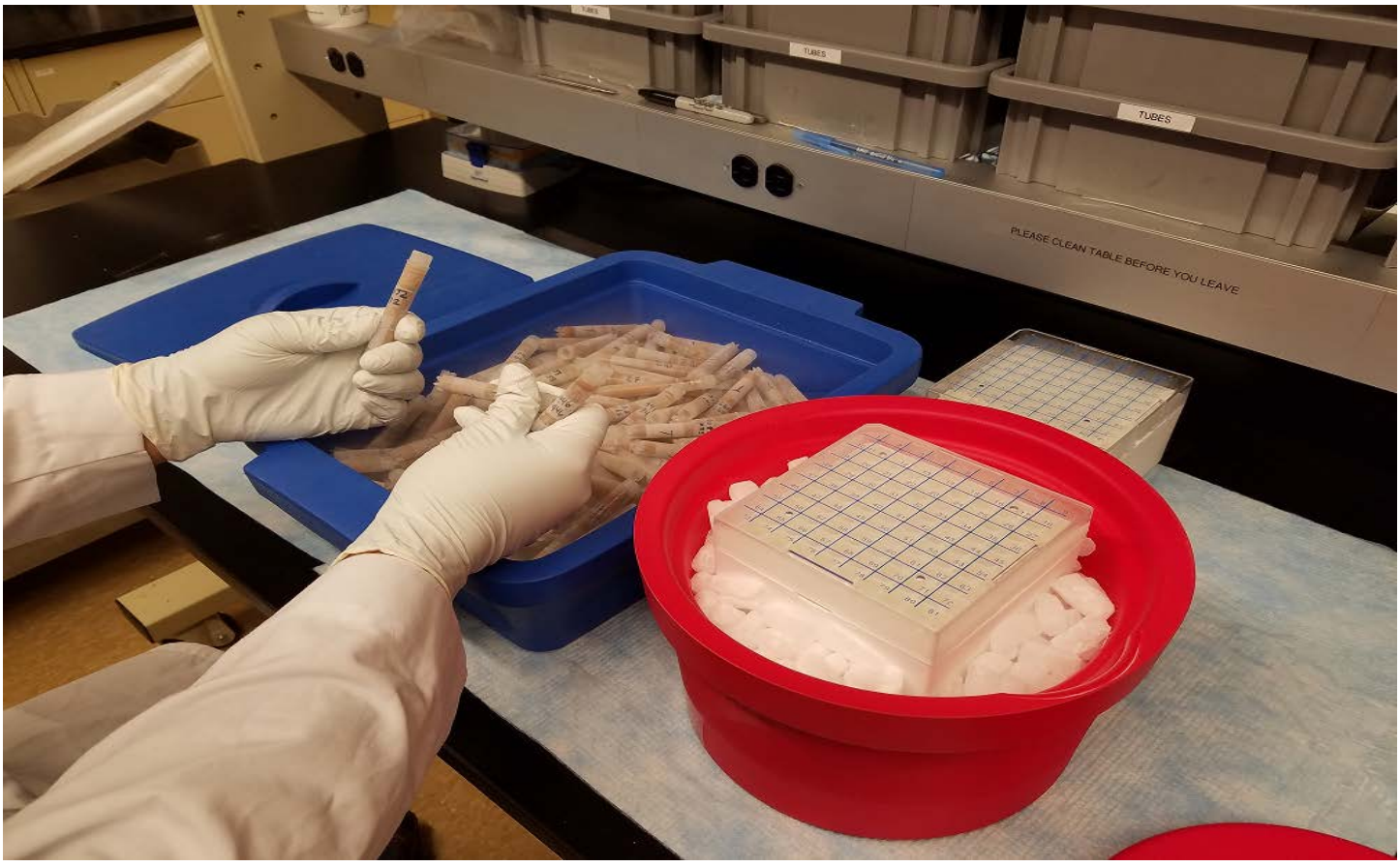
US has 4 million persons with Visual Impairment (VI), about 1% of general population. University of Texas, Rio Grande Valley (UTRGV), has only 30 students or about 0.1% with VI. The question is why the university student population is not reflective of the general population.

We developed an IRB (Institutional Review Board) approved survey protocol to understand this anomaly. A total of 54 surveys were done from the Valley and beyond. Interviews were either face to face (44) or over the phone (10).

Based on these interviews, we identified three challenges faced by this population, namely, Physical Mobility (PM), Social Mobility (SM), and Educational Mobility (EM). PM allows persons with VI to move from Point A to Point B. SM is related to their ability to interact socially. Finally, EM is connected to opportunities to advance their education.

Based on these interviews we found that unlike the general population, a significantly lower (35% by one estimate) percent of these students with VI are eligible for college education. Also, students with VI and their teachers overwhelmingly supported the view of bringing students with VI to one specialized school, rather than putting them with the general population. This perception of social marginalization by students with VI by the students with sight is about SM.

Based on our surveys it seemed that the challenges faced by students with VI include three types of Mobility, namely, Physical, Social, and Educational. We further concluded that the biggest challenge faced by this demography is Social Mobility. They feel isolated and somewhat marginalized. Based on these observations we are developing a set of assistive tools for persons with VI that include Tactile Maps and “Smart” canes to improve their social mobility. We are continuing our research to validate this hypothesis and improve diversity of our campus.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POSTER PRESENTATION ABSTRACTS

UNDERGRADUATE STUDENT CATEGORY

POSTER SESSION I, UG-002

PRESENCE OF PATHOGENIC BACTERIA (SALMONELLA AND E. COLI) IN AMERICAN OYSTER IN SOUTH TEXAS WATERS

Eleazar Hernández II (1), Omar Vázquez (2), Ivonne Cano (3), Alehli Silguero (4), Md Saydur Rahman (5)

(1) Department of Biology, (2) Department of Bioengineering, (3) School of Earth, Environmental, (4) Biomedical Science, (5) Marine Science, UTRGV, Texas, USA.

Atlantic oyster also called American oyster is an edible and commercially important marine species, and has been a model organism for multidisciplinary studies involving pathogenic research. People eat raw oyster and can get infected from pathogenic bacteria. Bacterial pathogens rapidly facilitate and transmit infectious diseases to seafood consumers. For this reason, the American oyster represents a risk to public health due to anthropogenic contamination in South Texas region specifically in Brownsville waters that receives municipal and industrial drainage runoffs. The objective of this study is to investigate two important bacterial pathogens, *E. coli* (*Escherichia coli*) and *Salmonella* (*Salmonella enterica*), in the American oyster in Brownsville waters. Oysters were collected from San Martin Lake and South Padre Island during fall and winter. Gills and gonadal tissues were removed from body cavity and fixed in 4% paraformaldehyde at 4°C for immunohistochemical detection of bacterial pathogens. Coelomic fluid (body fluid) was collected rapidly and the pH and glucose levels were measured. Our immunohistochemistry results clearly showed that *E. coli* and *Salmonella* were not just within the lumen of gut but also in digestive gland, gills, epithelial barrier and connective tissue of oyster collected in San Martin Lake and South Padre Island. Coelomic fluid glucose levels were relatively constant in October and November but significantly lower in December, whereas fluid pH levels were significantly higher in South Padre Island in December compared to San Martin Lake. Fluctuating body fluid pH levels is a common indicator of environmental stress, whereas a pH rise on decreased glucose levels and low water temperature elucidates the anaerobic digestion of volatile acidic compounds by *E. coli* and *Salmonella* in oyster during winter. Collectively, our histological and immunohistochemical results, together with coelomic fluid pH and glucose levels suggest that Atlantic oyster is prone to water-borne pathogen contamination in Brownsville waters.

POSTER SESSION I, UG-003

A REVIEW OF THE DISABILITY ACCOMMODATIONS PRACTICES OF THE MEDICAL COLLEGE ADMISSIONS TEST, WITH SPECIAL ATTENTION TO LEGAL COMPLIANCE WITH THE AMERICANS WITH DISABILITIES ACT

Mimosa Thomas

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Research Question: Are the practices utilized by the Association of American Medical Colleges for reviewing requests for disability accommodations for the Medical College Admissions Test (MCAT) compliant with established federal disability rights law?

Methodology: The MCAT's disability accommodations application process was examined across three categories of disability: learning disabilities, ADHD, and/or psychiatric disabilities, sensory disabilities, and physical disabilities. Within each category, the AAMC polices relating to required documentation, medical evaluation, and evaluation timeframe where compared to the ADA guidelines for accommodated testing. Each policy was rated as "compliant" or "non-compliant".

Results: Of the nine policy areas examined, only five (56%) where compliant with federal disability rights law. The AAMC's policies for required documentation were non-compliant across all three disability categories due to excessive documentation requirements. The AAMC's policies regarding the medical evaluation of disability were compliant across all three disability categories. The AAMC's policies around timeframe of the medical evaluation of disability were compliant for sensory impairments and for physical disabilities, but non-compliant for learning disabilities, ADHD, and/or psychiatric disabilities due to illegal recency requirements.

Conclusion: The AAMC's disability accommodations policies for the MCAT exam do not meet federal standards and pose a significant potential burden and/or disadvantage for prospective medical students with disabilities. The proportion of American medical students with disabilities is drastically low compared to the general population, a disparity that is at the very least exacerbated by the AMMC's non-compliant policies. A key factor in closing healthcare disparities for minority groups is ensuring their adequate representation in the medical field. The AAMC should consider how its policies may negatively affect disability representation in the medical field, both for the sake of educational equity and as a necessary first step towards ending the persistent healthcare disparities faced by disabled patient populations.

POSTER SESSION I, UG-004

PROTEIN STRUCTURE OF PSEUDOMONAS AERUGINOSA INITIATION FACTOR III

Frank Mendiola, Yonghong Zhang

Department of Chemistry, College of Sciences, UTRGV, Edinburg, Texas, USA

Pseudomonas aeruginosa a Gram-negative bacterium which can cause disease is a multidrug resistant pathogen and is seen mostly in hospital settings. We are interested in the initiation factor 3 structure for the translation of protein which can cause disease from Pseudomonas aeruginosa where we identify the protein structure for further research of an antagonistic protein. The procedures that were done to analyze the protein of Pa IF3 were from transformation, protein

expression, and purification. The way it was tackled was by focusing on the C terminal of the protein, and later analyzing the N, as well as both terminals together of the protein. This way we could get a 3D representation of this protein using NMR and to check if we have our protein of interest is by Polyacrylamide gel electrophoresis.

POSTER SESSION I, UG-005

SYNTHESIS AND BIOLOGICAL EVALUATIONS OF HYDROQUINONE AND P-INDOLEQUINONE DERIVATIVES AS ANTICANCER AGENTS

Arnelle Gonzalez (1), Christian Strong (1), Foyu Zhang (2), Shizue Mito, PhD (1)

(1) Department of Chemistry, College of Sciences, UTRGV, Edinburg, Texas, USA; (2) Department of Chemistry, College of Sciences, UTEP, El Paso, Texas, USA

My name is Arnelle Gonzalez and I am working on a project under Dr. Shizue Mito, Department of Chemistry at UTRGV. The specific reaction I am working on is the reaction of quinoxialine-5,8-dione with benzaldehyde (under sunlight), which will yield the target molecule. The molecule was derived from a similar molecule previously made in Dr. Mito's lab which has exhibited anti leukemia/lymphoma properties.

The first thing done was to successfully synthesize quinoxialine-5,8-dione, which took several reactions in itself. All reactions were monitored by thin layer chromatography. After evaporating the solvent out, the compound was purified and separated by column chromatography. Quinoxialine-5,8- dione was then identified by nuclear magnetic resonance spectroscopy. Finally, once the reactants will be allowed to react under sunlight and the target molecule has been successfully synthesized, the bioactivity will be tested in collaboration with the Department of Biomedical Sciences at UTRGV.

When it comes to results, Dr. Mito has synthesized and tested the bioactivity of the the first product which exhibited anti leukemia/lymphoma properties. After that in her lab, the reaction of quinoxialine-5,8-dione was attempted with benzaldehyde, however, the reaction could not proceed after a certain point. A reaction was completed in her lab with quinoxialine-5,8-dione and acetaldehyde which gave a product yield of 72.6%; although, the bioactivity has not yet been tested.

Artificial synthesis of natural products has become vital given the need to produce more viable drugs to combat cancer and other newly emerging resistant bacteria. Not only do we gain insight on the bioactivity of the compound, but this research will help to increase the overall efficiency of utilization of natural resources and help scientists to better understand sunlight driven reactions, which can also be useful in many areas of science.

POSTER SESSION I, UG-006

LIFESTYLES AND STRESS LEVELS FROM THE DEPRESSION FAMILIES COLLECTED FROM THE US HISPANIC/LATINO FAMILIES

Stephanie Lozano (1), Javier Resendez (2), Jasmin Santibanez (1), Perla Leyva (1), Jacqueline Giacoman (1),Gabriel de Erausquin (3), Chun Xu (1)*

(1) Department of Health and Biomedical Sciences, College of Health Affairs, University of Texas Rio Grande Valley; (2) Brownsville Early College High school; (3) Department of Psychiatry and Neurology, University of Texas Rio Grande Valley, School Medicine

Depression is a common mental disorder that presents with, depressed moods, loss of interest, decreased energy, feelings of guilt or low self-worth, disturbed sleep appetite, and poor concentration. Previous studies exploring lifestyle and stress levels have been conducted in associations with depression, reported mainly in the European decent. In addition to use of medication and psychological techniques for the patients, lifestyle modification is suggested to be a routine part of treatment and preventative efforts. The lifestyle and stress level is poorly understood in the US Hispanic/Latino population, a fast-growing group. Thus, the objective of this study is to understand certain lifestyle and stress levels for the patients in the Rio Grande Valley (RGV) using a family study design.

We recruited five families (22 affected) with depression from this population and collected phenotypes (e.g., Simple Lifestyle Indicator Questionnaire (SLIQ) and Perceived Stress Scale (PSS)). The study is ongoing currently. We analyzed data and compared lifestyle, stress levels among the subjects from the RGV, Texas and national wide.

We completed two families with lifestyle and stress information. We observed that affected family members tended to have less intakes for any fruit, high -fiber diet, less moderate exercise, and slightly increase of their stress levels as compared with unaffected family members.

Main findings of our preliminary study include that poor lifestyles and high level of stress were observed among the affected family members from the US Latino population. Next, we will analyze remaining families.

This study suggests that reduce stress level together lifestyle modification improves health outcomes for patients with depression. We realized the sample size is small, we will continue to our recruitment to be able to validate our current findings with a large sample in this unique population. Future findings of healthier lifestyles will improve outcomes for these patients.

POSTER SESSION I, UG-008

PHARMACOMETABOLOMICS OF GLIOBLASTOMA PATIENT-DERIVED XENOGRAFT MODELS

Patricia Marie Guzman (1), Mohamed El-Abtah (1), Ike Okonkwo (1), Embree Thompson (1), Grant Zhao (1), Elizabeth Randall (2,3), Nathalie Agar (2,3)

(1) Harvard College, (2) Harvard Medical School, (3) Brigham and Women's Hospital

Glioblastoma, one of the most damaging forms of brain cancer, has been a historically difficult disease to treat, largely due to the characteristic heterogeneity of its tumors. As a direct result of such heterogeneity, there has been a lack of success thus far in clinical trials, marked by an inability to target specific metabolites that are involved in the disease, as well as difficulty in quantifying the absolute concentration of drug that is delivered to tumorous tissue. In our study, we develop a technically simple, easily replicable, and cost-efficient benchtop method to quantify the absolute concentration of drug in dosed animal tissue via mass spectrometry analysis; measure lipidomic and metabolomic signals in drug-treated animal tissues to gauge treatment response; and create a data analysis workflow for the identification of various metabolites detected via mass spectrometry in both treated and untreated tumor tissues. Through comprehensive metabolomic analysis, our study marked two particular classes of molecules as potential biomarkers for an intracranial GBM tumor: diacylglycerides and fatty acyl carnitines. The identification of these molecules as potential biomarkers may inform and streamline ongoing drug discovery to expedite pathways towards clinical success for GBM.

POSTER SESSION I, UG-009

CONSTRUCTION, EXPRESSION, PURIFICATION, AND STRUCTURAL STUDIES OF RECOMBINANT INITIATION FACTOR 3 IN *CLOSTRIDIUM DIFFICILE* PROTEIN SYNTHESIS

Sara Doty (1), Faith Aguilar (2), and Yonghong Zhang (3)

Department of Chemistry, College of Sciences, UTRGV, Edinburg, Texas, USA

Clostridium difficile is a gram-positive bacterium that produces two types of toxins: enterotoxin A and cytotoxin B. These toxins disrupt cytoskeleton signal transductions in the host body. *C. difficile* can produce spores that can live in extreme conditions. *C. difficile* can establish itself in human colon and is present in 2-5% of the human population. The use of antibiotics against other bacterial infections can disrupt the natural gut flora and lead to a *C. difficile* infection (CDI). In infected patients, they may experience diarrhea and inflammation; the range of harm it can cause goes from a few days of fluid loss to potentially life threatening pseudomembranous colitis. Patients are typically treated with metronidazole, which can lead to severe side effects. Around 20% of patients who finish antibiotic therapy will have a relapse and a fraction will have continuous reoccurrences. Each relapse is more severe than the last. Seeking a more efficient way to treat CDI, our efforts have been on understanding the structure and molecular mechanisms of translation initiation factors in *C. difficile* protein synthesis to identify targets for new narrow-spectrum antibiotic development. *C. difficile* initiation factor 3 (Cd- IF3) is one of three IF proteins which facilitates the binding of the 30S ribosomal subunit to the mRNA for translation initiation during protein synthesis. In the current studies, the Cd-IF3 gene was cloned into the pET24b vector. The recombinant protein was expressed and purified for NMR structural studies. These structural studies

will help provide a source for understanding IF proteins initiated protein synthesis machinery and structural insight onto structure-guided ration design of small molecular inhibitors for the development of new and efficient antibiotics.

POSTER SESSION I, UG-010

NANO SILICON NITRIDE REINFORCED COMPOSITES FOR TOTAL JOINT REPLACEMENT

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(1) Department of Mechanical Engineering, The University of Texas Rio Grande Valley, Edinburg, Texas, USA

The useful lifetime of a joint prosthesis used in total joint replacement (TJR) surgery is 10 to 15 years. They are most commonly made of a metal-on-polymer biomaterial combination. The most widely used polymer is ultra-high molecular weight polyethylene (UHMWPE). Even though the prosthesis itself does not fail, the constant friction between the polymer cup and the metallic head generates polymeric wear debris, which may cause inflammation, osteolysis, and device loosening, leading to an eventual revision surgery. Silicon nitride (Si3N4) has been used as a bioceramic due to its biocompatible, antibacterial and osteoinductive properties. The combination of UHMWPE and Si3N4 can result in a composite with a greater wear resistance that could suppress the formation of polymeric wear debris. Samples were prepared by mechanical mixing of UHMWPE and Si3N4 powders followed by hot pressing at 180°C for 20 minutes. Characterization tests such as compression and microhardness were performed on UHMWPE with different weight percentages of Si3N4 and the effect of the bioceramic on the composites mechanical properties is presented.

POSTER SESSION I, UG-011

CHARACTERIZATION OF NON-ASSOCIATIVE LEARNING ABILITIES IN THE GRAY, SHORT-TAILED OPOSSUM (*MONODELPHIS DOMESTICA*) USING TWO OLFACTORY-BASED PARADGIMS

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Learning and memory are cognitive mechanisms used to process and store information that allows organisms to adapt to their environment and survive; it is important to examine factors influencing learning and memory disorders, such as addiction and cognitive disorders. The current study focuses on non-associative learning using two well-established paradigms: habituation-dishabituation and social recognition tests. Non-associative learning refers to learning that occurs without any associations between stimuli. In other words, learning that results without any reinforcement or punishment when exposed to a stimulus. Two main forms of non-associative learning are habituation and sensitization. Habituation can be described as the decrease in responding following repeated presentations of a stimulus, while sensitization is when the reaction to the first stimulus causes an increase in response when exposed to a second stimulus. These paradigms have been tested in rodents, but there is little knowledge about how they apply to

Monodelphis domestica, a nontraditional animal model. The current study tested the habituation-dishabituation paradigm in *Monodelphis* by performing an olfactory test with five males and five females. Three different odor stimuli were presented in three 3-minute trials per stimulus for a total of nine trials for each animal. Results indicated that the *Monodelphis* can habituate and dishabituate to different odors, similarly to rodents. A social recognition paradigm was also used to examine whether *Monodelphis* are able to recognize social stimuli. Findings from the pilot experiment with two females suggest that *Monodelphis* are able to form social memory and recognize individuals. Our long-term goal is to develop animal models of learning and memory disorders that can contribute to the development of treatments and early interventions for neurological conditions such as Alzheimer's disease and autism spectrum disorder. These models have translational value and can extend research on the mechanisms that underlie learning and memory.

POSTER SESSION I, UG-012

CORTICOTROPIN RELEASING HORMONE RECEPTOR ISOFORMS IN THE INDUCTION ANIMAL MODEL OF ENDOMETRIOSIS

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Endometriosis is one of the most common gynecologic diseases, affecting approximately 10% of all women and yet it takes, on average, seven years for it to be diagnosed. Growth of endometriotic tissue outside the uterine cavity can cause various symptoms, such as dysmenorrhea, dyspareunia, infertility, gastrointestinal problems and chronic stress. Previous studies have shown that stress has a negative role on the development and progression of endometriosis. Corticotropic releasing hormone (CRH), the main regulator of the hypothalamic-pituitary-adrenal axis (HPA), is released when there are high levels of stress. Chronic activation of the HPA axis could cause CRH to be deregulated. Its receptors are not just present in the anterior pituitary but also in reproductive tissues: the uterus, ovaries, and placenta. There are two different subtypes of CRH receptors, CRH1 and CRH2, however CRH binds with greater affinity to CRH1. To date, there are eight variants of CRH1 in humans, and four known variants in rats. In this study, the expression of the CRH1 receptor isoforms were examined to determine their potential roles in the growth of endometriotic tissue. Endometriosis was induced in the rat model by suturing uterine tissue to the intestinal mesentery. An antagonist of the CRH1 receptor, antalarmin (20 mg/kg, i.p.), was administered for seven days immediately following endometriosis induction and then the disease was allowed to progress until day 60. Controls received vehicle Tween 80. We collected normal uterine and endometriotic vesicles from both groups. rt-PCR was performed, and preliminary results show that although isoform 3 is present in both treated and untreated vesicles (n=6-8), there appears to be more expression of isoform 2 in the treated vesicles. CRH1 isoforms could potentially be used as non-hormonal therapeutic targets to help reduce disease progression.

POSTER SESSION I, UG-013

ANY ON-GOING IMPROVEMENT OR DECLINE AND DIFFERENCES IN THE SURVIVAL FOR PATIENTS WITH COLORECTAL CANCER AMONG RACIAL GROUPS IN TEXAS

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In this study, we will investigate the main drivers of colorectal cancer (CRC) incidences as well as the survival rate of CRC patients in Texas. Colon and Rectum, or colorectal cancer, is classified as the third leading death in the US and is rising among young Hispanics. We would like to examine the factors associated with the disease with respect to race group. Some of these factors include insurance, stage, and grade of the cancer. Lifestyle-related factors are also examined, such as obesity and smoking. In addition, we would like to study any on-going improvement or decline in the survival for patients with colorectal cancer. The survival time of the cancer patients was studied from diagnosis time to a specified time. Chi-square test, logistic regression, and Cox proportional hazards regression are used to compare incidences of CRC among ethnics/races and age groups, to compute odds ratios, and to assess the survival rate, respectively. Data from Texas Cancer Registry will be used for this purpose. A 78,843 population-based colorectal cancer cohort was utilized. Among this population pool, 84.28% were White, 12.22% were Black, 0.27% were Hispanic. The remaining 3.23% were classified as other race. Survival for White race was the highest, with an 81.80% of the patients in this group resulting alive. On the other hand, survival for Hispanics were the lowest with a 0.26% of patients alive. Factors, such as insurance, were also analyzed. Patients with Medicaid resulted with the lowest survival in this study, with a 1.96% resulting alive at the end of the study. This paper is expected to provide a succinct overview of the disease and its factors.

POSTER SESSION I, UG-014

PURIFICATION AND CHARACTERIZATION OF SNAKE VENOM CYSTEINE-RICH SECRETORY PROTEINS (SVCRISPS) FROM 5 DIFFERENT SPECIES OF NORTH AMERICA VENOMOUS SNAKES

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Snake venom consists of many different proteins with varying characteristics and roles they play in aid of the snake against predators and prey. These proteins fall under two classifications, enzymatic or non-enzymatic proteins. A few examples of enzymatic proteins include metalloproteinases, serine proteinases and phospholipases A2. Non-enzymatic proteins consist of disintegrins, C-type lectins and cysteine-rich secretory proteins (CRiSPs). CRiSPs often found in mammalian reproductive systems and in the venoms of different venomous snakes. In snake venom CRiSPs inhibit both smooth muscle contraction and cyclic nucleotide-gated ion channels. However, remarkably little is known of the biochemistry and biology of the crotalid CRiSPs. The aim of this project is to purify and characterize CRiSPs in the snake venoms from five most medically significant species of North American vipers (the Rattlesnakes: Crotalus atrox, Crotalus adamanteus, Crotalus horridus, Crotalus scutulatus scutulatus and Cottonmouths: Agkistrodon piscivorus piscivorus).

CRiSPs were isolated using reversed-phase chromatography and identified by N-terminal sequencing. CRiSPs will continue to be purified and the characterization of their function will be identified. Studies on CRiSPs will not only give a better understanding of the pathology of snakebites, but also leads to the development of therapeutic treatment of different illnesses.

POSTER SESSION I, UG-015

GREEN SYNTHESIS AND MECHANISTIC INVESTIGATION OF TWO IMPORTANT PHARMACOPHORES: 1,3- THIAZOLIDIN-4-ONES AND BENZOTHIAZEPINONES

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Since mid-eighties of the past century, a huge number of microwave-assisted organic/organometallic/inorganic transformations have been published with a growing number in every year. It is well known that microwave directly heats the reaction mixture without heating the glass wall of the reaction vessel. Thus the 'local heating' is avoided in microwave-induced chemical synthesis. By the use of microwave-assisted irradiation technology the formation of the unwanted byproducts (wastes) is reduced/stopped and the desired product is obtained in high yield. Because of several advantages, the use of microwave to achieve various chemical transformations is considered as green technology (green technique). In our laboratory, we have developed a simple, expeditious, and scalable green method to synthesize two important pharmacophores namely, 1,3-thiazolidin-4-ones and benzothiazepinones concurrently from diversely substituted mono- and polycyclic amines, aldehydes and thioglycolic acid. All the reactions were carried out under neat conditions. Mechanistic investigation revealed that the reaction could follow both the ways: (i) condensation of the thioglycolic acid to the imine and (ii) condensation of an aldehyde to the amide derived from thioglycolic acid and the amine. Although both the routes have been proved to be effective, the later produced higher yield. The newly developed procedure satisfies most of the principles of green chemistry. An outline of our current investigation will be presented.

POSTER SESSION I, UG-016

EFFECT IF NICLOSAMIDE ON PROTEASOME INHIBITION-INDUCED CYTOTOXICITY IN SH-SHY5Y CELLS AND PC12 CELLS

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In present study, we investigated the neuroprotective mechanisms of niclosamide in both human and animal neuronal cells (SH-SY5Y and PC12 respectively) which are exposed to a proteasome inhibitor MG132. Our studies demonstrated that the exposure of the neuronal-derived cell lines SH-SY5Y and PC12 to the proteasome inhibitor MG132 markedly increased accumulation of intracellular ubiquitinated proteins. Dysfunction of proteasome leads to apoptosis with activation of caspase-3, cleavage of poly ADP-ribose polymerase (PARP), DNA condensation/fragmentation and endoplasmic reticulum (ER) stress with upregulation of CHOP/GADD153 levels. These events lead to severe cytotoxicity

along with upregulation of p53. Interestingly, all these events including the increment in ubiquitinated proteins were able to be prevented by exposing these cells to niclosamide. Furthermore, niclosamide like MG132 was able to promote autophagy, and Combination of both reagents further activates autophagy in SH-SY5Y cells. These results demonstrate that niclosamide could be a potential neuroprotective agent by repressing proteasome dysfunction-induced cytotoxicity.

POSTER SESSION I, UG-017

THE EFFECTS OF A-AMINO-3-HYDROXY-5-METHYL-4-ISOXAZOLEPROPIONIC ACID (AMPA) ON PRIMARY CULTURE DOPAMINERGIC NEURONS EXTRACTED FROM THE GRAY SHORT-TAILED OPOSSUM (MONODELPHIS DOMESTICA)

Gonzalo Cedillo (1), Oscar Maldonado (3), Mario Gil PhD (2,3), John L. VandeBerg PhD (4,5), Gabriel A. de Erausquin, MD, PhD, MSc (3)

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There is growing evidence that neuronal dysfunction of dopamine (DA) neurons (DANs) in the ventral midbrain is implicated in Parkinson's disease and schizophrenia. Research suggests that some of this dysfunction is caused by midbrain damage from excess glutamate. *Monodelphis domestica*, also known as the gray short-tailed opossum, is born at such an early stage that resembles a mouse embryo at 12.5 days and a human embryo at 6 weeks of gestation. Therefore, it is a powerful animal model that may offer insight into factors that influence the development of brain dopaminergic systems. Since we successfully developed a protocol to produce primary cultures from the mesencephalon of *Monodelphis*, here we investigate the effects of overstimulation of glutamate receptors on midbrain DAN survival. The ventral mesencephalon from newly born pups was removed and cultured for their DANs. When the neurons were 10 days old, excitotoxicity was induced using α- amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid (AMPA), a compound that binds to a type of glutamate receptor. Immunocytochemistry was used to stain for tyrosine hydroxylase, an enzyme required for the synthesis of catecholamine neurotransmitters such as dopamine. Images of DANs were captured using a Zeiss microscope, and ImageJ software was used to quantify DANs. We are currently comparing the number of DANs in AMPA-treated conditions to control conditions, to determine whether overstimulation by AMPA has excitotoxic effects on *Mondodelphis* DANs. Understanding the factors that influence dopaminergic systems of *Monodelphis* can open the door for exciting research and may offer new avenues to study dopamine-related disorders that afflict people all around the world.

POSTER SESSION I, UG-018

MUTATION IDENTIFICATION FOR ADHD IN THE US HISPANIC POPULATION

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Introduction: Attention Deficit Hyperactivity Disorder, also known as ADHD, is a psychiatric disorder that has become more prevalent due to higher rates of diagnosis. ADHD has become an important area of research due to it representing a major public health problem, economic burden, disabilities, morbidities inherent in the disorder, and the high degree of heritability. Recent advancements on molecular techniques have facilitated the discovery of genetic variants associated with ADHD on a primarily on the Caucasian population. A limited amount of research was conducted on the U.S. Hispanic population. Whole exome sequencing (WES), a cutting-edge technology, is a reliable technique that has been used to identify genetic variants for various diseases. Therefore, whole exome sequencing was used to identify gene mutations for ADHD from the U.S. Hispanic population.

Methods: 29 individuals (16 affected with ADHD) from 9 Hispanic families were recruited for this study. These subjects were recruited from the Departments of Psychiatry/Neurology and Pediatrics at the Texas Tech University Health Sciences Center. We performed whole exome sequencing (WES) on these individuals with Illumina Nextera Rapid Capture Exome Enrichment kits. Bioinformatics predictions were conducted afterwards.

Results: After filtering the data from each individual, a mutation (NM_175883.2:c.836C>T and NM_175883.2:c.661A>T) in OR7D2 (Olfactory Receptor family 7 subfamily D member 2) from chromosome 19 was found in 3 affected subjects from 2 families. A second mutation on STYL5 (Synaptotagmin Like 5) from the X chromosome. This gene was found to be homozygous on the parent of an affected child that has the heterozygous genotype. Further analysis is currently ongoing.

Conclusion: The use of whole exome sequencing in this study has led to the discovery of additional genes that cause ADHD in the U.S. Hispanic population. Further validation and analyses on larger samples are needed to confirm findings.

POSTER SESSION I, UG-020

EXPRESSION, PURIFICATION, AND CHARACTERIZATION OF THE NEW RECOMBINANT CROTAMINE ISOFORM FROM THE VENOM GLAND OF CROTALUS OREGANUS HELLERI ON ANTIMICROBIAL ACTIVITY

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Crotamine, a highly basic, non-enzymatic toxin, is the major toxic component found in the venom of the South American rattlesnake, *Crotalus durissus terrificus*. Based on the three-dimensional structure of crotamine, its cysteine-pairing pattern and folding structure is very similar to those of the other small toxins identified in different rattlesnake venoms and the antimicrobial peptide human β-defensins. Native, recombinant, and synthesized crotamine (YKQCHKKGGHCFPKEKICLPPSSDFGKMDCRWRWKCCKKGSG) has been found to contain antimicrobial activity against a wide variety of bacteria and fungi. In the present work, we aim to express recombinant crotamine-like protiens, helleramine, cloned from the venom gland cDNA library of *Crotalus oreganus helleri* and to characterize its antimicrobial activity against Gram-negative and Gram-positive bacteria. Mature helleramine 6O01 cloned into pGEX-4T-1 vector (6O01-pGEX-4T-1), were expressed in *Escherichia coli* BL21. The N-terminus Glutathione S-transferase (GST)-tagged fusion protein was purified using Glutathione Sepharose 4B resins. Purified tag-cleaved recombinant helleramine will be further investigated for its antimicrobial activity. The production of recombinant helleramine with biological activity may provide new and powerful antimicrobial peptides as scaffolds for potential therapeutic development.

POSTER SESSION I, UG-021

UNDERSTANDING CONSUMER BEHAVIORS TOWARDS MENTAL HEALTH SERVICES: A CROSS-NATIONAL STUDY

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(1) City University of New York – Brooklyn College, NYC, USA; (2) University of St. Thomas, Houston, USA; (3) University of Texas-Rio Grande Valley, Edinburg, TX; (4) Saigon Tech Institution, HCMC, Vietnam; (5) BRAC University, Dhaka, Bangladesh

The World Health Organization reported in 2017 that each year approximately one million people die from suicide, which represents one death every 40 seconds. These suicides serve (among other things) as evidence of the stigma that receiving mental health care is surrounded by. Usually, consumers spend more resources tending to their physical health than their mental health. The question thus becomes: why are consumers not seeking mental health services when needed? The issue becomes even more poignant when focusing on minorities in underserved areas, as they are prone to neglect their mental health even more than their wealthier counterparts. It is assumed that the lack of awareness, scarcity of monetary resources, and low quality of health-services in general influence lack of mental health care.

By employing the Theory of Planned Behavior, this study examines attitudes and intentions of underserved consumers when seeking professional care in times of psychological distress. Specifically, the independent variables explored include Psychological Openness, Help-Seeking Propensity (Perceived Behavioral Control), and Indifference to Stigma

(Subjective Norms); while our dependent variable is Behavioral Intention. Additionally, we include three moderators: Power Distance Belief, Self- Care, and demographic factors.

Given the focus on underserved communities, this cross-national study was conducted in the Rio Grande Valley and Vietnam; two locations where mental-health care remains relatively inadequate and the majority of the population lives in poverty. Survey questionnaires were distributed to 81 participants in the RGV, and 105 participants in Vietnam. Findings suggest that only Help-Seeking Propensity (Perceived Behavioral Control) influences Behavioral Intention, while no moderating effects were found. Our findings in underserved consumers' attitudes and intentions towards mental healthcare contribute to the stream of research on healthcare marketing. Practitioners can also potentially benefit from our findings to improve minority health and design appropriate psychological services.

POSTER SESSION I, UG-022

ANTIBACTERIAL ACTIVITY OF 24 DIFFERENT SNAKE VENOMS FROM FAMILIES VIPERIDAE AND ELAPIDAE

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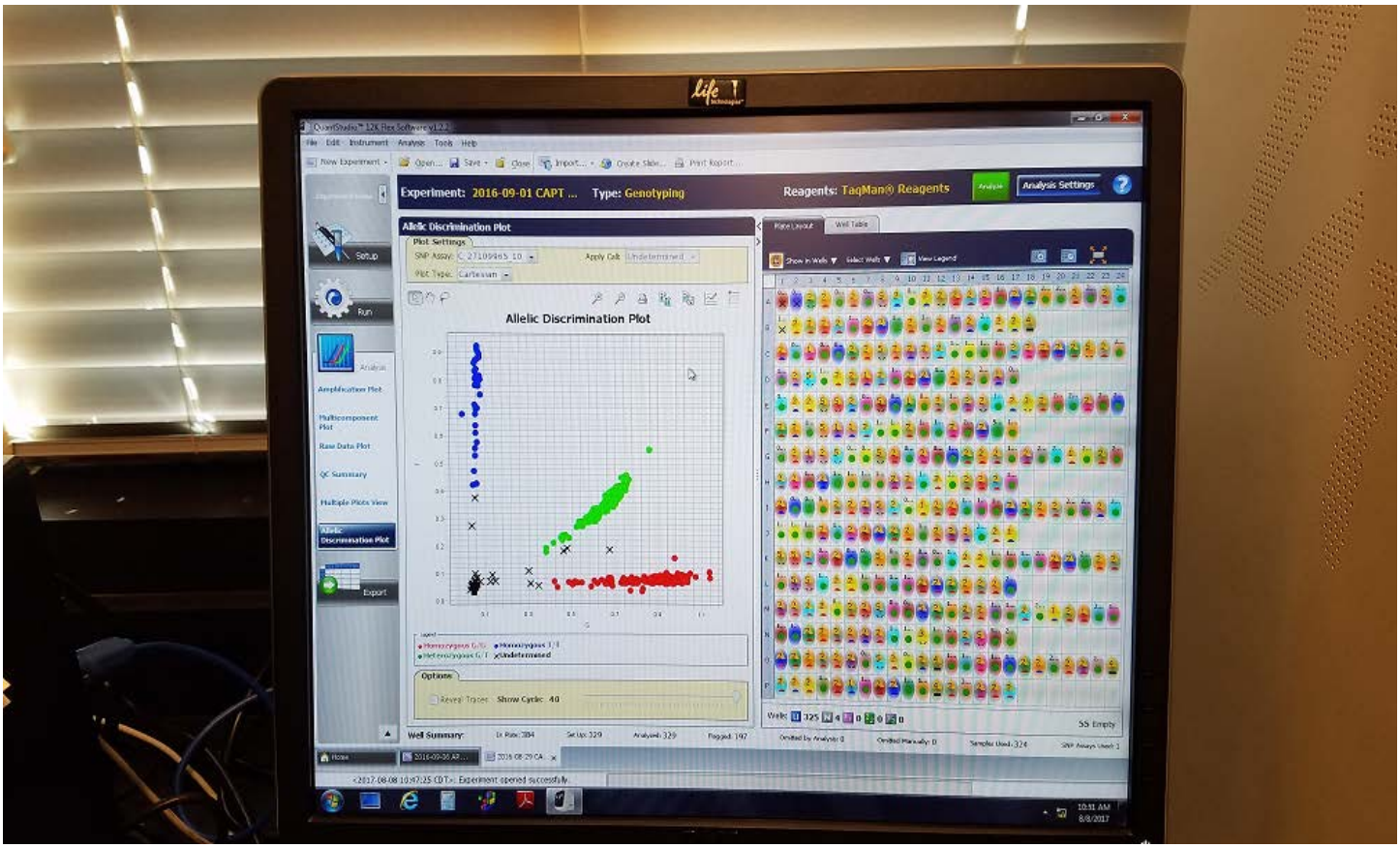
Bacterial infection is a leading cause of death worldwide. The gradual emergence of populations of antibiotic-resistant bacteria resulting from use, misuse and outright abuse of antibiotics has today become a major public health problem of global proportions. The development of new, potent, and less toxic agents from natural sources against various infectious agents is an urgent medical need. In the last decade, a wide range of diverse, novel classes of natural antibiotics has been isolated from different snake species. The aims of this study were to investigate antimicrobial activity of 24 different snake venoms from families Viperidae and Elapidae against 6 different clinical bacteria strains including *Staphylococcus aureus*, *Enterococcus faecalis* (Gram-positive bacteria) and *Escherichia coli*, *Salmonella enterica*, *Pseudomonas aeruginosa*, and *Klebsiella oxytoca* (Gram-negative bacteria) using the disc diffusion and determine the minimum inhibitory concentrations (MIC) of the most potent venoms in inhibiting the growth of the bacteria tested using broth microdilution assay. The most susceptibility bacterium was *S. aureus*. *Bothrops moojeni*, *Crotalus oreganus helleri*, and *Crotalus durissus terrificus* venoms exhibited the most potent activity against *S. aureus*. In vitro screening provides convincing evidence that several venoms have most promising antibacterial effects against gram-positive and gram-negative bacteria. The present findings indicate that viperid venoms have significant antibacterial effects, which may be the result of the primary antibacterial components such as L-amino acid oxidases and PLA2 enzymes. The results will be useful for further purification and characterization of antibacterial agents from snake venoms.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GRADUATE STUDENT CATEGORY

POSTER SESSION I, G-001

ANIMAL MODEL IN MOTOR LEARNING

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Animals have been studied to gain knowledge in different fields. Their involvement provides valuable information for enhancement in medicine, medical procedures, food industry, and other products that could and will benefit human kind. Although motor learning developed as a field associated with human behavior, animal model was adopted to explore different learning effects especially on brain functioning (Coker, 2017). This paper reviews results of animal model studies as how they pertain to motor learning as similar approach has been limited. Results showed that learning conditions incorporated for animal model of motor learning varied however required the animals to be put under stress or anxiety with food as rewards. Enhancement of learning as the results are positive with one exception due to the physiological circumstance of age. Testing consisted of a physical activity followed by an assessment of cognitive learning through gage. Testing procedures included either natural or surgical implant. Different species of animals, for example, rodents, fish, or dolphins were included in the different studies. With the evolving nature of motor learning the studies conducted provides evidence with learning in animals as well as how such results may be able to translate to facilitate human behavior modification.

POSTER SESSION I, G-004

CHARACTERIZATION AND TRIBOLOGICAL STUDY OF UHMWPE REINFORCED WITH SILICON NITRIDE NANOPARTICLES FOR BIOMEDICAL APPLICATIONS

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Ultra-high molecular weight polyethylene (UHMWPE) is extensively used in biomedical applications such as hip and knee implants. Recently, some efforts have focused on the addition of hard particles to further improve UHMWPE wear resistance. Silicon nitride is a promising candidate due to its biocompatibility. In the present study, UHMWPE composites reinforced with silicon nitride nanoparticles at different concentrations (up to 8 wt. %) were prepared using hot compression molding. The effects of silicon nitride nanoparticles on the wear resistance of the UHMWPE composites were studied by means of a pin-on-disc tribotester with reciprocating motion. As well as using a diamond stylus with a spherical tip as the pin under dry conditions. Surface roughness and the wear track were characterized with a stylus surface profiler. Scanning electron microscopy was used to analyze the composites microstructure and the worn surfaces after the tribological tests. It was found that the addition of silicon nitride nanoparticles to the UHMWPE

increases the mechanical properties, such as hardness. The impact of the different silicon nitride nanoparticle concentrations on the wear resistance of the composites is discussed.

POSTER SESSION I, G-005

ASSOCIATION OF VITAMIN D RECEPTOR GENE VARIANTS OF BSMI POLYMORPHISM WITH SUSCEPTIBILITY TO PULMONARY TUBERCULOSIS

Juan Carlos Hernández-Martinez (1), Cinthia Rubí de la Garza-Buentello (1), Mariana Abigail Galván- Aguilar (1), Gala Alondra Contreras-Mireles (1), Diana Patricia Rivera-Ramirez (1), José Francisco Flores-Gómez, Esperanza Milagros García-Oropesa (1).

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Significance: Vitamin D is one of the few mediators shown to impair the growth of Mycobacterium tuberculosis in the macrophage. The effects of vitamin D are exerted by interaction through vitamin D receptor (VDR). The polymorphism BsmI of the VDR gene has been proposed as a risk factor to develop this disease. Methods: The subjects were 181 patients with tuberculosis, 100 contacts and 151 healthy control. DNA was extracted from the peripheral blood white cells of patients, contact and control subjects, VDR gene polymorphism was studied using polymerase chain reaction (PCR) and restriction fragment length polymorphism. The BsmI enzyme-digested product was electrophoretically run on a 1.5% agarose gel containing 0.5g/ml ethidium bromide for 45–60 min at 80 V along. The frequencies of the genotypes in the groups were analysed using x2. Results: Significant increase of BB genotype of BsmI polymorphism ($p = 0.0014$) were observed in control group than patients group. There was more prevalence of b allele in tuberculosis patients in comparison to another group. Conclusion: It is suggested that the polymorphism BsmI of VDR gene to be considered as a risk factor of developing tuberculosis among Reynosa, Tamaulipas population.

POSTER SESSION I, G-006

MOLECULAR DETECTION OF *CANDIDATUS LIBERIBACTER ASIATICUS* IN CITRUS IN THE NORTHEAST AREA OF TAMAULIPAS, MEXICO

Santos Graciela Montemayor-Beltrán (1), Isidro Humberto Almeyda-León (2), María Genoveva Álvarez-Ojeda (2), Rosa Issel Acosta-González (1), Esperanza Milagros García-Oropesa (1)

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The Huanglongbing (HLB) citrus disease is one of the most devastating diseases known worldwide. HLB disease is caused by an alpha proteobacterium gramnegative of the genre ``*Candidatus*´´ Liberibacter spp. Seriously affecting all types of citrus species, being most prevalent in the sour citrus. As today, they have been reported three species of ``*Candidatus*´´: *Ca.* L. *asiáticus*, *Ca.* L. *americanus* y *Ca.* L. *africanus.* These bacteria are transmitted by two psyllid vectors: *Diaphorina citri* (América y Asia) y *Trioza erytrae* (África), spreading in a fast and efficient way. The infection in commercial citrus orchards causes high losses, as well as damage to the social sector due to the lack of employment and contamination to

the environment due to the excessive use of pesticides to manage the disease. The objective of this study was the molecular detection and characterization of "*Candidatus* Liberibacter asiaticus" present in the municipalities of Río Bravo, Reynosa, Valle Hermoso (ejido Empalme) y Camargo (ejido Comales) from the northesast of the state of Tamaulipas, Mexico. The detection of the bacteria was carried out using PCR techniques end point and real time PCR. The most effective it was the real time PCR since 100 % detection was obtained in all samples types used from different citrus species, while with the PCR technique end point only it was posible to obtain the 5. 81 % of positivity in leaf samples, but it was not detected in root samples. The result obtained in this study allowed us to make the first report of the presence of "*Candidatus* Liberibacter asiaticus" in the northeastern region of the state of Tamaulipas.

POSTER SESSION I, G-007

***BDELLOVIBRIO BACTERIOVORUS* A POTENTIAL ANTIMICROBIAL AGENT**

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With the increase of bacterial infections resistant to multiple drugs, new alternatives have been developed to treat antibiotic resistant bacteria. An alternative therapy under study is the potential use of predatory bacteria in human health. *Bdellovibrio* is a predatory bacterium of other bacteria, which enters through the outer membrane digesting the bacteria until death. In this work, we have evaluated the dynamic of a *Bdellovibrio bacteriovorus* strain with a microorganism of clinical interest such as *Pseudomonas aeruginosa* as a host. In order to observe the inhibitory effect of the *Bdellovibrio* strain on the host, the cell culture turbidity measurement, as well a count of colony forming units (CFU) from the host at the beginning 24hr and 48hr post-inoculation and double layer plates techniques for the counting of plaque forming units (PFU) were used, also the examination of pH range, the effect of rotation and static growth model were performed. The decrease in turbidity and logarithmic reduction of the culture media was observed at 24hr reaching a decrease from 1.5x109 to 4 x 105 CFU, the predatory capacity was similar at pH ranges of 4.5-7.5, also the predator was effective in reducing *P. aeruginosa* in both conditions in a rotating and static model having a remarkable decrease of up to 3 logarithmic units at 24hr. It is possible to observe the capacity of these strain in front of a host of clinical interest giving rise to seek the use of these predatory bacteria as a potential alternative in the clinical area.

POSTER SESSION I, G-008

A COMPARISON OF DENGUE INCIDENCES IN REYNOSA AND RIO BRAVO, TAMAULIPAS, MÉXICO

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Dengue is caused by any of four serotypes of DENV arbovirus which causes two types of diseases: dengue fever (DF) or dengue hemorrhagic fever (DHF); and constitutes a major health public problem in México. We analyzed DF and DHF incidences in Reynosa and Rio Bravo, Tamaulipas as well as their association with weather conditions, including data from nine years (2008-2016) provided by local health Institutions and CENAPRECE-México. In Reynosa, no significant associations between dengue incidences and weather conditions were found, while association with annual rainfall ($r \geq 0.65$**) was found in Rio Bravo. FD and FHD prevalence were similar among gender although the highest values were found in women in 2013 and 2012 (Reynosa) and 2010 and 2013 (Rio Bravo). When dengue incidences were analyzed through two time periods (2008-2012 and 2013-2016) we detected the highest values during October-November 2013-2016 (Reynosa) and August-November 2008-2012 (Rio Bravo). In both locations, dengue incidences near to zero were found in December-May. The highest incidences were found in men <20 years-old (FD) (Reynosa and Rio Bravo) and both gender <30 years (FHD) in Reynosa; in Rio Bravo women (31-50 years) showed the highest incidences during 2008-2012 and from 11 to 30 years (2013-2016). Lowest incidences were exhibited by both gender with <10 and >70 years-old in both locations. In conclusion, dengue (FD and FHD) incidences in Reynosa and Rio Bravo, are highly variable across years, months by year, gender, and ages. The highest incidences are found in rainy months and years, in women with 11-50 years-old. Our results reveal that efforts to control dengue vectors have not modified their outbreak cyclic patterns. Even worse FHD shows consistent increasing. It remains the need to study vector biology, serotype incidence patterns, and risk zones to improve control strategies, based on preventive education.

POSTER SESSION I, G-009

RACIAL DIFFERENCES AND IMPACT OF HEALTH CARE COVERAGE IN SELF-CARE MANAGEMENT AND QUALITY OF CARE FOR DIABETES IN TEXAS FROM 2008 TO 2013

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Diabetes is a chronic disease that can lead to serious complications if not properly managed. This paper focuses on the state of Texas, where diabetes is a growing epidemic that affects 11.2% of the population, according to a 2015 report from the Center of Disease Control. My main **goal** is to assess racial differences and the impact of health care coverage in self-care management and quality of care for diabetes patients in Texas from 2008 to 2013. I used Texas Behavioral Risk Factor Surveillance Survey data (BRFSS). My **results** indicate that Hispanics with diabetes in Texas are still struggling to improve their self-management and gain access to quality care compared to Black and White non- Hispanics. I find

that having health care coverage and taking a diabetes self-management class significantly improves self-management and considerably reduces the race disparity. However, it does not impact access to quality of care as much, and the race disparity still exists. I **conclude** then that self-care management and quality of care are heavily impacted by the race differential in Texas among diabetes patients. I find, however, that having health care coverage and taking a diabetes self-management course are contributing to the reduction of racial disparity in self-care management.

POSTER SESSION I, G-010

SCALING AND EXPANDING INTEGRATED BEHAVIORAL HEALTH SERVICES IN THE RIO GRANDE VALLEY

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UTRGV is a sub-grantee of "Sí Texas: Social Innovations for a Healthy South Texas," a federally funded initiative from the Social Innovations Fund (SIF) in partnership with Methodist Healthcare Ministries and Valley Baptist Legacy Foundation. The Sí Texas Project has completed a longitudinal research study at two UTRGV Family Medicine Residency Clinics(2)(3) where integrated behavioral health (IBH) services are provided, to measure the impact of IBH in primary care. This poster presentation will outline measures taken to sustain, scale and expand IBH services in the Rio Grande Valley.

Sí Texas is actively seeking further grant opportunities that will serve as stepping-stones in our efforts to sustain IBH. Additionally, the Sí Texas project has effectively implemented initiatives to harvest clinician abilities through IBH training from experts in the field of integration. Establishing foundations to adhere to model fidelity across all clinics will be a continued mission.

Efforts to create strong advocacy and stakeholder buy-in has assisted in the expansion of IBH to additional ambulatory clinics within the UTRGV system. Proactive strategies implemented to ensure and accelerate the journey toward scaling and expanding will be discussed. This poster presentation will name and describe these strategies and provide a framework for IBH implementation at ten ambulatory clinics within the UTRGV system outlining tentative start dates and prospective patients.

POSTER SESSION I, G-011

A SYSTEMATIC REVIEW: STRUGGLES OF MINORITY CHILDREN AND YOUNG COLLEGE STUDENTS WITH AUTISM SPECTRUM DISORDER (ASD)

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Individuals with Autism Spectrum Disorder (ASD) encounter numerous challenges in all social and institutional systems including health and education. These burdens and challenges are multiplied for marginalized populations and minorities with ASD. This systematic review addresses various aspects of the struggles minority children and young college students face such as health disparities, educational discrimination and limited resources. This review also provides strategies and recommendations to reduce the gap and facilitate growth and development of minority children and young college students with ASD. Lastly, the systematic review addresses the implications of cultural factors and differences that affect minority children and young college students with ASD.

POSTER SESSION I, G-012

SCHISTOSOMIASIS, INTESTINAL HELMINTHIASIS AND NUTRITIONAL STATUS AMONG PRESCHOOL-AGED CHILDREN IN SUB-URBAN COMMUNITIES OF ABEOKUTA, SOUTHWEST, NIGERIA

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Objective: Schistosomiasis and intestinal helminthiasis are major public health problems with school-aged children considered the most at-risk group. Pre-school aged children (PSAC) are excluded from existing control programs because of limited evidence of infections burden among the group. We assessed the prevalence of infections and effect on nutritional status of preschool aged children in Abeokuta, Southwestern Nigeria.

Results: A community-based cross-sectional study involving 241 children aged 0–71 months was conducted in 4 sub-urban communities of Abeokuta. Urine and faecal samples were collected for laboratory diagnosis for parasites ova. Nutritional status determined using age and anthropometric parameters was computed based on World Health Organization 2006 growth standards. Data were subjected to descriptive statistics analysis, Chi square, t-test and ANOVA. Of 167 children with complete data, 8 (4.8%) were infected with Schistosoma haematobium; Schistosoma mansoni 6 (3.6%); Taenia species 84 (50.3%); Ascaris lumbricoides 81 (48.5%) and hookworm 63 (37.7%). Overall, 46.7% of the children were malnourished, 39.5% stunted, 22.8% underweight and 11.4% exhibiting wasting/thinness. Mean values of anthropometric indices were generally lower in children with co-infection than those with single infection. We

observed low level of schistosomiasis but high prevalence of intestinal helminthiasis and poor nutritional status that calls for inclusion of PSAC in control programs.

POSTER SESSION I, G-014

CHEMOSELECTIVE CONCURRENT SYNTHESIS OF BENZIMIDAZOLES AND 1,2-DISUBSTITUTED BENZIMIDAZOLES: GREENER ROUTE AND IN VITRO ANTI-CERVICAL CANCER EVALUATION

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Azaheterocycles play important role in medicinal chemistry and drug discovery research among which benzimidazole, a fused bicyclic scaffold of benzene and imidazole, is considered as a privileged moiety. As a part of our ongoing research to develop greener methodologies targeted to pharmacologically relevant molecules, a new chemoselective greener route has been developed to synthesize substituted benzimidazoles and 1,2-disubstituted benzimidazoles concurrently in one-pot. Sonication was used as a green energy source to accomplish the synthesis of diversely substituted compounds with novel structures. Spectroscopic studies (FT-IR, NMR and HRMS) were carried out to elucidate the structures and in few cases X-ray crystallographic analysis was also performed. Some of these compounds demonstrated in vitro good to excellent anti-cervical cancer activity against SiHa cell lines.

POSTER SESSION I, G-016

ASSESSING THE GRAY SHORT-TAILED OPOSSUM (MONODELPHIS DOMESTICA) AS A POTENTIAL ANIMAL MODEL FOR AUTISM SPECTRUM DISORDER: CREATION OF AN ETHOGRAM AND DESCRIPTION OF DEVELOPMENTAL CHANGES IN SOCIAL BEHAVIOR

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The study of the link between genes, environmental factors, and disease is of particular interest in psychology, neuroscience, and the biomedical sciences; and it is important to identify basic research models to investigate the genetic and environmental factors that contribute to individual differences in disease susceptibility. The vast majority of basic neurodevelopmental research that focuses on autism spectrum disorder (ASD) is conducted with mice and rat models. However, other animals such as Monodelphis domestica, also known as the gray short-tailed opossum, may be good candidates for this type of research. Based on the pioneering work of Dr. John L. VandeBerg and his associates, it is

clear that the Monodelphis is a powerful model for development research. Our aim in conducting the current study is to fill the gap in the literature by conducting behavioral observations of Monodelphis pups with their littermates using a longitudinal approach starting with post-weaning age (PND 60) and ending at the age when they are separated from their littermates, which is the equivalent of an 8-year-old child (PND 120), and creating an ethogram of the behaviors. Fifty 30-min behavioral observation videos were recorded over multiple developmental time points and were scored according to the ethogram. The results indicate that there was a shift in the type of social behavior displayed by the pups as they aged. Prosocial behaviors for instance, play behavior, decreased as the Monodelphis domestica pups aged, while displays of aggressive open mouth behavior suddenly increased in older Monodelphis domestica pups. By focusing on the critical time period between PND 60 and PND 120, the research can be informative with regard to neurodevelopmental disorders that involve deficits in social behavior and that affect early childhood, such as autism spectrum disorder.

POSTER SESSION I, G-017

ASSOCIATION OF *VHL* MUTATION STATUS AND CLINICAL RESPONSE TO PAZOPANIB IN MEXICAN PATIENTS WITH RENAL CELL CARCINOMA

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Renal cell carcinoma (RCC) is the most common kidney cancer in Mexico, with around 4,000 new cases each year. The most common alteration that causes this neoplasia is associated to *VHL* gene (Von Hippel Lindau). The functional absence of VHL protein (pVHL) allows accumulation of the hypoxia inducible factor (HIF) and activation of genes that regulate angiogenesis, glycolysis and apoptosis, such as the vascular endothelial growth factor (*VEGF*) gene. This factor binds to its tyrosine kinase receptor (VEGFR) in vascular endothelial cells, inducing angiogenesis, tumor growth and survival. Over the past few years, different anti-angiogenic treatments that inhibit the tyrosine kinase activity of VEGFR have improved the clinical response. One of these treatments is pazopanib, an orally medicine approved as a first-line treatment for patients with metastatic RCC that works by inhibiting angiogenesis by competitive inhibition of ATP binding to VEGFR-1, VEGFR-2, VEGFR-3, PDGFR-α, PDGFR-β, FGFR-1, FGFR-3 and c-KIT. However, the relation between *VHL* mutation and response to treatment hasn't been established with accuracy. The aims of this study were to determine mutation frequency of the *VHL* gene and find an association to the clinical response in Mexican patients with RCC treated with pazopanib. In this retrospective study we included 30 formalin-fixed paraffin-embedded (FFPE) samples with histological and clinical information. Mutation status of the three *VHL* exons were analyzed by Sanger sequencing. The results of this study will allow to establish a new biomarker to predict the clinical outcome of pazopanib therapy in patients with RCC.

POSTER SESSION I, G-018

ISOLATION AND CHARACTERIZATION OF C-TYPE LECTINS FROM VENOM OF THE SOUTHERN PACIFIC RATTLESNAKE ON ENDOTHELIAL CELLS

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Crotalus oreganus helleri (Southern Pacific Rattlesnake) is responsible for the majority of severe envenomations in southern California. Bites cause local tissue damage including prominent edema and/or hematological abnormalities. The main components of *C. o. helleri* venom are enzymatic enzymes including metalloproteinases and phospholipases A2s, which play a major role in the pathogenesis of local tissue damage. On the other hand, non-enzymatic proteins (such as disintegrins, C-type lectins, cysteine-rich secretory proteins, and myotoxins) also play a role in the envenoming. C-type lectins are commonly found in low amounts in most snake venoms. They bind to plasma proteins, specific receptors on platelets, vascular or lymphatic endothelial cells and interfere in the prey's physiological processes. C-type lectins are also considered promising molecules for research tools and treatment of certain diseases. The goal of this project is to isolate C-type lectins from *C. o. helleri* venom to determine their biological activities. We have isolated C-type lectins using reversed-phase chromatography. Fractions 21 and 22 contained C-type lectins with molecular weights of about 26 kDa as determined by SDS-PAGE and N-terminal sequencing. The fractions were further purified using cation exchange chromatography and named hellericetin-1 and hellericetin-2. They were able to inhibit platelet function using the Sonoclot analyzer and inhibit platelet aggregation in the presence of ristocetin using the platelet aggregometer. Both hellericetin- 1&2 (5.6 µM) have shown mild cytotoxicity on human umbilical vascular endothelial cells (HUVEC) using the MTT assay. Hellericetin-2 (1.6 µM) also showed mild permeability activity on human dermal blood endothelial cells (HDBEC). Studies of these C-type lectins not only facilitated a better understanding of the snakebite pathology but also lead to the development of therapeutic agents.

POSTER SESSION I, G-019

ANALYSIS OF SPERMIDINE/SPERMINE N1-ACETYLTRANSFERASE GENETIC VARIANTS RS6627980 AND RS5925934 IN SUICIDE COMPLETERS

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Objective. Recent studies suggest that suicidal behaviors would have a genetic predisposition regardless of the increased suicide risk associated with diagnosis of mental health disorders such as affective disorders, schizophrenia or alcohol dependence. It is estimated that about 43% of the variability in suicidal behavior could be explained by genetics.

Alterations in the expression of several genes have been associated with suicidal behavior, including Spermidine/Spermine N1- Acetyltransferase (SAT-1). This gene encodes a key enzyme in the metabolism of polyamines and its expression has been decreased in the cortex of suicide completers. Because of that SAT-1 has been considered a candidate gene for suicidal behavior. Genotypification allows us to determine genetic variations in a population. The objective of this study was to determine the frequency of SAT-1 polymorphism rs5925934 and rs6627980 in a sample of suicide completers individuals in the Mexican population.

Methods. To observe the frequency of rs5925934 and rs6627980 in suicide completers, we evaluated 112 and 116 unrelated suicide completers and compared them to 52 and 64 non-suicidal individuals respectively reported in the 1000 Genomes Project database. SAT-1 rs5925934 and rs6627980 genotypes were analyzed using the Real Time - polymerase chain reaction method and two allele-specific probes to detect specific SNP targets.

Results. In both cases, we observed that the ancestral allele had the highest frequency (47.3% for rs5925934 and 50% for rs6627980). On the other hand, we observed that in our control group the highest frequency reported was heterozygous genotype for SAT-1 rs5925934 and homozygous for the variant allele.

Conclusion. In both cases, it appears that the homozygous ancestral genotype might be a risk factor associated with suicide. These results should be compared to an adequate control group to establish an association between the genotype and suicide.

POSTER SESSION I, G-020

DESIGN OF A BEDSIDE WALKER-CANE HYBRID TO AID SENIOR ADULTS AVOID FALLS DURING NIGHT WALKS

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The present investigation is about a bedside walker-cane hybrid device. The main objective of this investigation was the development of a walking aid device with the functionality of being providing aid and extra support for seniors during night walks. The secondary objective was to achieve a design that attached to the bedside for the device to be always available to the user. The developed walking aid device provides a physically impaired person the support in the process of getting out of the bed, standing up, and walking safely. The device is easily operated by solely the affected person. The apparatus includes a wheeled rigid frame that is capable of supporting the weight of the user. The device also included an anchor. This anchor was placed between the mattress and the base of the mattress and would allow the user to attach the device to the bed. The device was also fitted with two wheels on each side to allow ease of movement. Also, the wheels were customized to prevent or mitigate a fall in case of tripping. The method used to develop this investigation was the observation of similar products as well as the engineering design process to achieve the objective of helping a disabled person walk safely to their destination.

POSTER SESSION I, G-021

PURIFICATION AND CHARACTERIZATION OF CYSTEINE RICH-SECRETORY PROTEINS (CRISPS) FROM THE VENOM OF THE SOUTHERN PACIFIC RATTLESNAKE (CROTALUS OREGANUS HELLERI): THEIR ROLE ON BLOOD AND LYMPHATIC ENDOTHELIAL CELL PERMEABILITY

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Cysteine-rich Secretory Proteins (CRiSPs) have long been recognized as ubiquitous components of many snake venoms, however, no clear explanation has been provided for the role they play in venoms. Some CRiSPs have been shown to inhibit ion channel activities and have major effects on cell signaling pathways in vascular endothelial cells. We speculate that CRiSPs, via combined effects on cell signaling pathways and ion channel activities, disrupt normal interstitial fluid dynamics adjacent to the snakebite, accelerating the transfer of the macromolecular toxins in the venom into the lymphatic circulation, which plays a critical role in venom absorption and distribution into the systemic circulation. The rapid delivery of these toxins into the circulation contributes to the acute effects of envenomation and the rapid incapacitation and death of the snake's prey. The goal of our study is to characterize the cellular and molecular basis for the effects of Hellerin, a newly identified CRiSP isolated from the venom of the Southern Pacific rattlesnake, on the function of blood and lymphatic endothelial cells. Crude venom was characterized by reversed-phase HPLC fractionation, followed by analysis of chromatographic fractions by SDS-PAGE and N-terminal sequencing. Hellerin was isolated and characterized from *Crotalus oreganus helleri* venom. The N-terminal sequence of a 28 kDa protein band in fraction 13 was determined and identified as a CRiSP family. The preliminary results showed purified Hellerin dose-dependently inhibited human umbilical vascular endothelial cell proliferation with CC50 of 2.3 µM. Hellerin (1.5 µM) caused 45% increase in trans-epithelial permeability of human dermal blood endothelial cells after 60 minutes of incubation. Preliminary results demonstrate that Hellerin has cytotoxicity effect on HUVEC cells and permeability of monolayers of blood endothelial cells. Knowledge gained from these studies will contribute to a new level of understanding of the pathophysiology of snakebite.

POSTER SESSION I, G-022

EFFECT OF LUTEIN AND ZEAXANTHIN ON OXIDATIVE STRESS IN HUMAN RETINAL PERICYTES

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Significance: There is an 11.8% prevalence of type 2 diabetes in Hispanics, with Mexican Americans experiencing the greatest risk. Almost half of Mexican Americans with type 2 diabetes will experience diabetic retinopathy (DR). Early stages of DR are characterized by human retinal pericytes (HRP) apoptosis. HRP are vital for the health and vascularity of retinal epithelial cells. Increased glucose metabolism, as exhibited in diabetes, is hypothesized to increase reactive oxidative species. The protective carotenoids, lutein and zeaxanthin (LZ), found in the retina, absorb reactive oxygen species. Several studies have supported the positive effect LZ have on DR. Leafy green vegetables are rich in lutein and

zeaxanthin. The aim of this study is to measure the effect purified LZ and LZ crude extract from local vegetable crops will have on HRP cell survival, apoptosis and proliferation.

Methods: Primary HRP (Cell Systems) were cultured in special medium at 37 °C in a 5% CO2 incubator. Cells were seeded in 60mm culture plates until 90% confluence. A 100µM solution of a reactive oxygen species, hydrogen peroxide (H2O2), was used on HRP to induce apoptosis. Cells were treated with H2O2 as a positive control and compared with a negative control for apoptosis.

Results: Preliminary data using Flow Cytometry staining cells with Annex V shows a positive correlation between H2O2 and an increase in HRP apoptosis. HRP without H2O2 exhibit 5.76% events of apoptosis on Annex V staining while HRP with H2O2 show 11.07% events of apoptosis.

Conclusion: HRP cells undergo a 47.98% rate increase in apoptosis when treated with H2O2 as a reactive oxygen species as compared to none treated cells. Based on this data, future testing will include LZ in a time-dose dependent experiment to study their inhibitory effects on H2O2 induced apoptosis in HRP cells.

POSTER SESSION I, G-023

EXECUTIVE PERFORMANCE IN HYPERTENSIVE AND NORMOTENSIVE SUBJECTS

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Executive functions are part of the cognitive abilities that allow individuals to perform adequately multi-component tasks necessary in their daily life. Certain conditions associated with executive dysfunction are highly prevalent in aging, such as high blood pressure (BP), diabetes and cardiovascular diseases. Of particular interest, high BP rates are alarming among Hispanics, yet studies examining executive functions and high BP in Hispanics are scarce.

We aimed to explore the association between high BP and executive functioning among Hispanics. 245 subjects aged 37-89 years were selected from the Maracaibo Aging Study that fulfilled the following criteria: absence of Parkinson's disease, cancer, cardiac revascularization, Schizophrenia, coronary heart disease, glaucoma, and dementia. Participants were administered 9 subtests of the Cambridge Neuropsychological Test Automated Battery to measure executive function. Conventional BP was assessed by taking the patent's sitting BP on two separate occasions throughout 1-3 week periods. Daytime BP readings were taken at intervals of 15 min from 10am to 8pm. Nighttime BP readings at intervals of 30 minutes from midnight to 6am. Hypertension is defined by a systolic pressure of >140mm Hg, diastolic pressure of >90mm Hg, or by history of hypertension treatment. Statistical analysis included multivariate analysis of covariance (MANCOVA).

Results show a significant effect of conventional hypertension on Stockings of Cambridge (SOC) (3 moves), $F(1, 201) = 4.29$, $p < .05$ there was no significant effect of conventional hypertension on motor screening tasks (MOT). Significant effects of daytime hypertension on MOT (errors), $F(1, 193) = 7.23$, $p < .05$ and SOC (3 moves), $F(1, 193) = 4.50$, $p < .05$

were identified. Lastly, results show significant effects of nighttime hypertension on SOC (2 moves), $F(1, 192) = 4.13$, $p < .05$.

There are key significant differences of high BP on executive functions, specifically on spatial planning and problem solving abilities.

MEDICAL STUDENT CATEGORY

POSTER SESSION I, MS-001

AURICULAR FIBRILLATION AND ARTERIAL THROMBOSIS BY HYPERTHYROIDISM

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Auricular fibrillation (AF) causes major thrombo-embolic complications (TEC). TEC risk rate is upper than 2%. Here we report one clinical case about female patient with hyperthyroidism 22-years in evolution and AF, who developed arterial thrombosis at left thoracic limb as complication due the anti-coagulant medication withdrawal by undue time (18 days) and programmed for thyroidectomy. At 16th day patient showed arterial thrombosis, no blood-flux and pulses. Doppler ultrasound showed no pulses at humeral, ulnar and radial arteries, mainly the former; as well as cold skin, sensitive and motor alterations. After, we found multiple thrombosis and then applied an urgency vascular exploration (skin color and aspect, edema, tip temperature and pulses) and Fogarty thrombectomy (fast and highly successful procedure) for their extraction to obtain proper arterial flux. Then, we practiced arteriorrhaphy using Prolene 6-0 for suture by planes; after, we found good capillary filling and temperature and pulse recuperation. We followed post-surgical management using heparin, cefotaxime, ciprofloxacin, tapazol, digoxin, and analgesics. After surgical procedure blood transfusion was performed due hemoglobin was 9 g dL. Post-surgery Doppler ultrasound indicated humeral, ulnar and radial flux at limb. Echocardiogram registered cardiomegaly and expulsion fraction >50%. The patient was inspected and electro-cardiogram confirmed auricular fibrillation still present, diagnosis was corroborated by using Holter lengthy electrocardiographic registering during 24 h. In conclusion, patient developed AF by hyperthyroidism with chronic evolution as well as arterial thrombosis due anti-coagulant medication withdrawal by undue time. Our reports confirmed that patient recovered arterial flux and pulses; she not shows damages at her limb and thyroidectomy was not necessary. Finally, pharmacological treatment was supplied to maintain an euthyroid condition.

POSTER SESSION I, MS-002

ALTERED POST-PRANDIAL GLP-1 RESPONSE IS ASSOCIATED WITH NAFLD NOT PCOS STATUS IN OBESE GIRLS, ALTHOUGH ALL GIRLS WITH PCOS RESPOND TO ACUTE GLP-1 AGONIST THERAPY

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Obese girls with polycystic ovarian syndrome (PCOS) are at high risk for metabolic disease, including a 50% prevalence of non-alcoholic fatty liver disease (NALFD). In PCOS adults, therapy with glucagon like peptide-1 (GLP-1) agonists improves markers of PCOS and in adults with diabetes, decreases metabolic disease and NAFLD. However, the baseline GLP-1 response to a sugar challenge was unknown in girls with PCOS, as was the acute metabolic response to a GLP-1 agonist.

72 obese adolescent girls were enrolled (BMI 35.0 ± 6.1 kg/m2, 15.6 ± 1.8 years; 24 controls, 38 PCOS and 10 PCOS who received Exenatide). Participants underwent a six-hour oral sugar tolerance test (OSTT) with serum glucose, insulin, C-peptide, GLP-1, glucagon and free fatty acid (FFA) concentrations measured at regular intervals. Exenatide was given before dinner and 30 minutes prior to the OSTT. Fasting lipids, inflammatory markers and hormones were measured. Hepatic fat was measured with MRI. Groups were compared by PCOS or NAFLD status (NALFD = hepatic fat >5.5%, N= 25).

Whereas insulin, glucose, and FFA concentrations were significantly higher in PCOS girls compared to controls (P= 0.0268, 0.0074, 0.0362 respectively), GLP-1, glucagon and C-peptide were not different. However, in those with NAFLD, regardless of PCOS status, glucose, insulin, FFA were significantly higher and GLP-1 was significantly lower compared to girls without NAFLD. In PCOS girls treated with Exenatide, only glucose was significantly lower.

Obese girls with PCOS do not have altered GLP-1 secretion related to normally menstruating obese girls, rather post-prandial GLP-1 secretion is blunted in those with hepatic steatosis. However, glucose lowering effects are noted in all obese girls with PCOS suggesting that obese youth with PCOS may benefit from GLP-1 therapy even if they are not deficient in GLP-1, and that perhaps youth with PCOS have a degree of GLP-1 resistance.

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POSTER SESSION I, MS-003

ONE WAY TO HARVEST YOUR CROP

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Nationwide a variety of techniques are implemented to improve access and attract qualified physicians to rural and underserved areas, including the Rio Grande Valley. The method we will review further is the early acceptance to medical school programs in Texas.

Texas has at least seven programs offering acceptance to medical school while applicants are still in high school. The following programs each share a mission to help medically underserved regions.

The Pre-Medical Honors College aims to increase the number of physicians in South Texas. Currently, 38 of the 158 graduates have completed their residency and are now practicing physicians in South Texas.

The Partnership for Primary Care program is designed to address the shortage of primary care physicians in rural and underserved areas. A unique prerequisite is that applicants must have a legal residence in a rural or a health professional shortage area.

The Early Medical School Acceptance Program provides an opportunity for economically and educationally disadvantaged students to pursue a career as physicians.

Now, for tales from your authors, two Rio Grande Valley seeds if you will.

I, Chelsea Hook Chang MD, due in part to my acceptance into the Partnership for Primary Care program thirteen years ago, have returned home to the valley as Internal Medicine Physician Faculty at University of Texas Rio Grande Valley (UTRGV).

I, Sabrina Doffing, received my undergraduate degree from UTRGV and am now a second-year medical student at UTRGV School of Medicine. I aspire to practice in the underserved community where I was raised, the Rio Grande Valley.

The next generation of physicians are our future; thus, we must employ every technique to harvest our crop by considering a pre-acceptance program. Let us attract and retain physicians passionate about improving the health of our community in the Rio Grande Valley.

POSTER SESSION I, MS-004

STUDENT RUN CLINICS IN TEXAS BORDER CITIES

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Medical student run clinics (SRCs) are clinics defined as clinics where medical students are responsible for the maintenance, operation and organization of patient care. These clinics often open to serve those in underserved areas, and constitute a significant percentage of healthcare delivery in these areas. Though a growing phenomenon, little information has been gathered and analyzed about these SRCs. Services offered at these clinics include blood work, wellness checks, mammograms and medication distribution or refills at a reduced or no cost. Funding for such clinics usually comes from private grants. SRCs in underserved, border cities provide care to patients where the most prevalent illnesses are diabetes and hypertension. These clinics are becoming a staple in such communities as they are becoming more specialized at serving a population that is mostly afflicted by these diseases. Moreover, these clinics are often the only locations where disadvantaged patients gain access to medication and treatment that is affordable for them. The role of SRCs in their respective communities is of growing importance. This is particularly true of SRCs in border cities. The role of SRCs in medical education is also worthy of note. Experience in these clinics adds an unprecedented facet to medial education. Again, the role of these clinics is even more drastic at schools in underserved, border communities; they constantly address the burgeoning role of community health and preventative medicine. This review will investigate the role and impact of SRCs in Texas, especially in border communities, as it is quickly becoming an integral part of healthcare delivery as well as medical education.

POSTER SESSION I, MS-005

A CASE REPORT OF AUTOIMMUNE THYROID DISEASE IN BEHCET'S DISEASE

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Background: Evidence linking Behcet's Disease (BD) to autoimmune thyroid disease (AITD) has been contradictory or lacking. BD presents as a systemic inflammatory disease with recurrent aphthous ulcers of the oral and genital mucosa, uveitis, and cutaneous manifestations. BD has long been known to have an association with HLA-B51, and recently has been suggested to be a "MHC I-opathy". Furthermore, current research has suggested BD may be mediated by aberrant reactions from NK and Th17 cells. The multifactorial etiology of AITD has been well documented. Additionally, research continues to support that Th17 cells as well as MHC classes I and II have a role in AITD.

Case: A 27-year-old Caucasian female with an eight-year history of BD, managed with colchicine, presented with complaints of palpitations and periodic anxiety. The patient reported symptoms of hair loss, dry skin, and profound fatigue before her anxiety and palpitations began. The patient noted there was a period of tenderness in the neck. With suspicion of AITD, a TSH, free T4, and thyroid autoantibodies were obtained. It was found TSH and free T4 were within

normal limits however thyroid peroxidase (TPO) and thyroglobulin antibodies were elevated. The patient was treated conservatively with propranolol and expectant management, with follow up blood work requested. T4 and TSH levels remained within normal limits. Months after initial follow up the patient reported diminished symptoms of palpitations and blood work showed a downward trend in autoantibody titers.

Discussion: With advancements in our knowledge of both BD and AITD, it is important to reexamine connections between these two autoimmune diseases. To continue the discussion, we presented a case of a patient with known BD presenting with AITD. Reviewing the relationship between these two diseases may lead to further understanding of their autoimmune pathogenesis.

POSTER SESSION I, MS-006

EVALUATION OF NUTRITIONAL IMPROVEMENT IN CHILDREN WITH HISTORY OF MALNUTRITION AFTER PARTICIPATION IN "EL COMEDOR" PROGRAM

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Background: High rates of malnutrition in children under five years old has been a chronic issue in Peru. "El Comedor" program was founded with the objective of providing nutritional rehabilitation for children in the Independencia district of Lima. Follow-up on children after leaving this program is currently undocumented. This study aims to assess the nutritional improvement of children who attended "El Comedor" program between January 2015 - December 2017 and identify factors associated with nutritional health.

Methods: A retrospective study was conducted of clinical charts from 45 children who were enrolled in "El Comedor" program between January 2015 - December 2017. Nutritional status was determined by calculating z-scores for weight-for-age (WAZ), height-for-age (HAZ), and weight-for-height (WHZ) at the start, end, and up to 12 months after the program. Z-scores of < -2 were considered underweight, stunted, or wasted, respectively. The effect of maternal age, number of program attendances, child age at program initiation and hemoglobin levels on the nutritional status were assessed. The data was analyzed with a Mann-Whitney U test and linear regression modeling using GraphPad Prism 7.02. All statistical analyses were conducted with an experiment wise error rate of a=0.05

Results: The group average WAZ and WHZ (but not HAZ) improved between the start and end of the program and remained improved at all assessed follow-up time points. Children with mothers under the age of 20 have lower WAZ, HAZ and WHZ than with those with mothers over 20 years-old. Children who began the program before 12 months of age have a higher WAZ at all assessed points than children who began the program after 12 months of age.

Conclusions: "El Comedor" program is effective at improving the acute and wasted components of malnutrition but not chronic malnutrition. Furthermore, maternal age may be a predictor of malnutrition risk.

POSTER SESSION I, MS-007

DIAGNOSTIC OVERSHADOWING A HEALTHCARE DISPARITY: DELAYED DIAGNOSIS OF LUPUS IN PATIENTS WITH MENTAL ILLNESS

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Misattribution of medical disorders to mental illness- and the challenges faced by primary care physicians in the diagnostic process: a health care disparity that is often overlooked. Whether the gap is in the structure or in the process- patient outcome is invariably compromised.

Case: A 34-year-old Hispanic female with bipolar disorder was evaluated for agitation and pain. The patient started experiencing joint pain for several years ago. She had multiple emergency room visits secondary to poorly explained pain accompanied by agitation. She was treated with multiple pain injections. Clinical examination was remarkable for antalgic position of hands, synovitis of small joints of hands, abnormal gait with poorly defined pattern. Patient's condition was considered as secondary to hip arthritis. After multiple visits to the hospital, an Ultrasound of right hip performed and was remarkable for mild joint effusion. ANA was positive which then lead to a diagnosis of SLE. Patient was started on corticosteroids with marked symptomatic improvement.

Discussion: Medicine is programmed to decipher symptom causality; thus, agitation may be falsely attributed to an established psychiatric diagnosis and ignore the possibility of a somatic illness. The stereotypical identity of a psychiatric patient may impact physician judgement to look further than the psychiatric affliction. While this is a more common occurrence in nursing home residents with dementia, it is also true in outpatient setting and younger patients. Numerous factors can play significant role, but much consideration is needed to identify the fact that misrepresentation may be the result of complex presentations, or aspects related to challenging behaviors of patients or even may be miscommunication between patient and clinician. Increasing awareness of psychiatric patient with concurrent somatic disease may positively impact the outcomes of this disadvantaged group. The concept has been coined as "diagnostic overshadowing".

POSTER SESSION I, MS-008

WHEN IMAGING HIDES THE TRUTH

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3-year-old female presented with a chief complaint of maroon diarrhea for three days along with fever, abdominal pain, and vomiting. Subsequent abdominal ultrasound, bacterial, helminthic, parasitic, abdominal CT scan, and Meckel's scan

studies were negative for causes of gastrointestinal bleeding or significant abnormality. The patient continued to have bloody bowel movements so an explorative laparoscopy was performed and resulted in the visualization and resection of the diverticulum. Symptoms resolved with the patient having a normal bowel movement on the third day after procedure and was discharged.

Meckel's Diverticulum (MD) is the most common congenital malformation of the gastrointestinal tract. MD is the result of incomplete obliteration of the Vitelline duct leading to a true diverticulum of the small intestine. The abnormality of this case is that the Meckel's scan was negative. Meckel's scan is a test that searches for gastric mucosa in the diverticula and highlights it to be seen on the scan. Only 25% of Meckel's cases have gastric mucosa in the Diverticulum in which cases, the Sensitivity is 85- 97% Specificity is 95%. The emphasis of this case highlight the importance of clinical knowledge and physical exam over laboratory testing.

POSTER SESSION I, MS-009

THE EFFECTS OF GREEN SPACE ON OBESITY AND DIABETES RATES AMONGST CHILDREN WITHIN THE WATTS COMMUNITY OF LOS ANGELES, CALIFORNIA

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Currently, more than half of the worlds population resides in urban areas and the number is only expected to increase in the near future. Taking this rapid increase of urbanization into consideration brings the attention to the creation and use of green spaces. Green spaces are designated areas set aside within urban areas for the sole purpose of providing residents with parks, hiking areas, and natural landscapes for recreation and aesthetics. The benefits and impact of green spaces within urban areas on an individual's health and wellbeing have not been studied extensively. Watts, Los Angeles, California is an underserved urban community in very close proximity to refineries and rail yards that constantly pollute the surrounding area. The community has a low income lifestyle and high crime rate which brings much concern towards the health of the residents. This ongoing study will take a look at the effects of green space within Watts on rates of obesity and diabetes amongst children under the age of 18. These findings may assist community leaders to vouch for the creation of more green spaces in urban areas to promote healthier lifestyles in areas that have little to no access to natural landscapes.

POSTER SESSION I, MS-010

QUANTIFICATION OF PATIENT-LEVEL COSTS IN OUTPATIENT TOTAL SHOULDER ARTHROPLASTY

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Background: Patient-level costs of inpatient and outpatient total shoulder arthroplasty (TSA) irrespective of payer status are seldom reported. The purpose of this study was to compare patient-level costs for primary elective TSA between inpatient and outpatient surgery centers.

Methods: Using the Texas Healthcare Information Collection (THCIC) database, inpatient and outpatient TSAs performed between 2010-2015 were identified according to billing codes. Patient-level costs (total charges and itemized charges) were analyzed according to type of surgery center (inpatient, outpatient) and inpatient volume (high volume, low volume). Statistical comparisons were performed using one-way ANOVA and two-sample independent t-tests. Mixed-model ANOVA was used to compare the rate of cost change between inpatient and outpatient TSA from 2010-2015. $P<0.05$ represented statistical significance.

Results: There were 21,331 inpatient TSAs and 1,542 outpatient TSAs performed from 2010-2015 in the State of Texas. Inpatient TSA costs were significantly higher than outpatient TSA costs ($76,109 [SD $48,981] versus $22,907 [SD $13,599]; $p<0.001$). After exclusion of inpatient-specific charges, inpatient TSA remained 45.5% more expensive than outpatient TSA ($32,330 [SD $24,221] versus $22,907 [SD $13,599]; $p<0.0001$). High volume inpatient TSA was less expensive than low volume inpatient TSA; however, high volume inpatient TSA remained 29.5% more costly than outpatient TSA even after exclusion of inpatient-specific charges ($38,845 [SD 41,932] versus $22,907 [SD $13,599]; $p<0.0001$).

Conclusions: In the State of Texas, the patient-level costs for primary elective inpatient TSA was significantly higher than the equivalent outpatient procedure. This difference persisted after exclusion of low volume inpatient TSA centers and inpatient-specific ancillary charges.

Level of Evidence: Level II.

Keywords: shoulder arthroplasty; cost analysis; outpatient surgery; ambulatory surgery; inpatient surgery; hospital volume

POSTER SESSION I, MS-011

ADDITION OF CAFFEINE OR CHOLINE IN THE PRESERVATION SOLUTION IMPROVE THE VIABILITY OF STEATOTIC GRAFTS IN LIVER TRASPLANTATION

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Introduction and objectives: The lack of optimal organs suitable for liver transplantation has led transplant centers to accept marginal organs, such as steatotic liver grafts. However, in comparison with optimal liver grafts, steatotic ones show poor tolerance to ischemia-reperfusion (I/R) injury associated with liver transplantation and a high risk of initial poor graft function. Reducing the susceptibility of steatotic liver grafts to the I/R injury, could favor its use in liver transplantation. Considering that lipid content is responsible for the increased susceptibility of steatotic grafts to I/R injury, one possible therapeutic strategy would be to reduce hepatic lipid content. In the present work, it was investigated whether the addition of drugs regulating lipid metabolism (caffeine or choline) in the HTK preservation solution is able to reduce hepatic lipids in steatotic grafts and then to protect them against the I/R injury. **Material and methods:** Wistar rats were fed with high-fat diet for two weeks and developed moderate hepatic steatosis. Liver grafts from such rats were preserved at 4°C during 6 hours. The grafts were preserved only in HTK preservation solution, or in HTK solution enriched with caffeine or choline. After the preservation period, transaminases were determined, and also were evaluated the lipid content in liver tissue. **Results:** The addition of caffeine or choline to the HTK preservation solution reduced transaminases levels when compared to liver grafts preserved only in HTK. The addition of caffeine or choline in HTK solution also reduced the triglyceride content in liver tissue in comparison with steatotic grafts preserved in HTK solution unmodified. **Conclusions:** The preservation of steatotic liver grafts in HTK preservation solution enriched with caffeine or choline reduced hepatic triglyceride content and protect them against I/R injury. These therapeutic strategies could be useful to increase the use of marginal grafts in liver transplantation.

POSTER SESSION I, MS-012

PEER-MENTORSHIP PROGRAM: A STRATEGY TO SUPPORT SUCCESSFUL TRANSITIONS INTO MEDICAL SCHOOL

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Medical schools across the country welcome diverse classes of students to their campuses each year. First year can leave students facing many stressors such as curricular changes and separation from family. Unfortunately, there is a gap in the transition process that can lead to incoming students feeling lost and unnecessarily behind early in the program.

A peer-mentorship program aims to address this gap by pairing incoming students with an upperclassman mentor before matriculation. This allows them an opportunity to ask questions, acquire knowledge and better prepare themselves for success. This project aims to investigate the impact and potential future directions for a peer-mentorship program at a new medical school.

A student-mentorship program (Big Sib-Little Sib) was initiated in 2017 at the University of Texas Rio Grande Valley School of Medicine. At the end of the first year of implementing the mentoring program a feedback questionnaire was administered. A mixed-methods approach was used to gauge the impact of the program and assess its effectiveness in helping students' transitions into medical school.

Fifty-five students from the Class of 2021 were randomly matched with 36 upperclassmen from the Class of 2020 (16 1:1 pairs, 20 2:1 pairs). Thirty-one students (56.4%) from the Class of 2021 completed the survey. Sixty-five percent of students enjoyed the program and over half thought the program helped them transition into medical school. Students also found that the program helped them develop study resources and successful habits (58%) with 35.5% of ‘little siblings’ asking their ‘big sibling’ for help or information multiple times.

These results demonstrate that this type of peer-mentorship program is promising to aid transition and maintain well-being of first-year students into medical school. However, larger, longitudinal studies, of all students as well as student mentors are needed to evaluate program effectiveness.

POSTER SESSION I, MS-013

RECOGNIZING COMORBID MENTAL HEALTH CONCERNS IN THE TREATMENT OF DIABETES

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The Rio Grande Valley has among the highest incidence rates of type II diabetes in the country. In 2014, the prevalence rate of diabetes among adults within the region was ~16.5%, significantly higher than the overall prevalence rate in Texas (11%) and the US (9.4%). Recent studies have shown a link between Post-Traumatic Stress Disorder (PTSD) and diabetes. We present our 60-year-old Veteran patient with self-reported PTSD and type II diabetes that illustrates the issues surrounding the treatment and continued healthcare of these individuals.

The patient presented to the emergency department with a diabetic foot ulcer on the right hallux and second toe. The patient reported a past medical history of Diabetes Mellitus type II. His initial blood glucose was 440 mg/dL and an HbA1c of 11.5. The patient reported a history of non-adherence with his diabetes regimen due to unmanaged PTSD. X-ray results revealed soft tissue swelling. Empiric vancomycin and piperacillian-tazobactam was started for a diabetic foot infection. The patient was discharged after two days with an updated diabetes regimen including long- and short- acting insulin and detailed instructions and education for his continued care at home.

As with our patient, infected or ischemic diabetic foot ulcers account for up to 25% of hospitalizations for diabetic patients. Furthermore, such ulcers account for ~66% of all non-traumatic amputations performed within the United States. Recent studies have suggested a positive correlation between PTSD and poorly controlled diabetes. Special attention should be directed towards these individuals, as traditional diabetes management programs may not be sufficient in aiding these individuals. Further discussion will delve into the basics of social determinants of health and focus on the options to address mental and physical health through an interprofessional approach.

POSTER SESSION I, MS-014

EXPLORING THE ROLE OF G6PC2 IN THE REGULATION OF FASTING BLOOD GLUCOSE

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G6PC2 encodes a glucose-6-phosphatase catalytic subunit that is highly expressed in pancreatic islet beta cells. Genome wide association studies (GWAS) have shown that single nucleotide polymorphisms (SNPs) in the *G6PC2* gene are associated with variations in fasting blood glucose (FBG), a parameter linked with risk for type 2 diabetes (T2D). Studies in mice have complemented these GWAS data by showing that deletion of *G6pc2* abolishes islet glucose-6-phosphatase activity and lowers FBG. We hypothesize that G6pc2 forms a substrate cycle with glucokinase that determines the sensitivity of glucose-stimulated insulin secretion (GSIS) to glucose. In support of this hypothesis we have previously shown that deletion of G6pc2 enhances GSIS at sub-maximal glucose concentrations and abolishes glucose cycling in isolated islets. More recently we have demonstrated that deletion of G6pc2 enhances glycolysis in isolated mouse islets, and that high rates of glucose cycling are also detected in human islets. To extend these observations we have developed a novel intact cell assay for G6PC2 activity. This assay relies on the observation that CREB and ChREBP bound to the rat *G6PC1* promoter are highly glucose responsive in the rat islet-derived 832/13 cell line and the fact that endogenous G6PC2 is absent. In the presence of catalytically-dead G6PC2, glucose stimulates *G6PC1*-luciferase fusion gene expression. However, this induction is blunted in the presence of wild type G6PC2. We are using this assay to determine the effect of non-synonymous *G6PC2* SNPs on G6PC2 activity and then examining the association between SNPs that markedly affect G6PC2 activity with their effects on human health as assessed using Vanderbilt's BioVU biobank. Our broad hypothesis is that the results of these studies will strongly suggest that G6PC2 inhibition should be considered as a novel therapeutic strategy for lowering FBG and thereby preventing T2D.

POSTER SESSION I, MS-015

ASSOCIATION OF NEUROPEPTIDE Y (NPY) GENE POLYMORPHISMS WITH SUBSTANCE USE: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Neuropeptide Y (NPY) is a highly conserved and expressed neuropeptide in the central nervous system with diverse functions that are not fully elucidated. High levels of NPY expression and affinity in brain regions associated with mood, anxiety, and substance use disorders suggest a potential role in their pathophysiology that should be explored. Associations between NPY gene polymorphisms (such as Leu7Pro) and substance use, especially alcohol use have been demonstrated in numerous clinical studies, providing support for NPY system involvement. However, these result findings are inconsistent and mixed.

We evaluate the association between substance use and NPY gene polymorphisms while highlighting potential sources of interstudy variability by: (1) performing a systematic literature search and appraising relevant clinical studies; (2) identifying study heterogeneity to inform future study methodology; (3) quantifying the current strength of relationship between alcohol use and NPY gene polymorphisms by synthesizing the data in a meta-analysis.

The systematic literature search was done using PubMed, SCOPUS, Cochrane, ProQuest, PsychINFO, EBSCO and other databases quality was assessed using the Newcastle–Ottawa Scale. A random-effects model was used to calculate the odds ratio (OR) with a 95% confidence interval (CI) and a Z-test was used to calculate the P-value. We found an association between alcohol use and the Leu7Pro (rs16139) polymorphism and do not report any other significant single nucleotide polymorphisms. The significant association between alcohol use and the Leu7Pro polymorphism identifies it as a risk factor and provides evidence for NPY involvement in alcohol use.

POSTER SESSION I, MS-016

A HARD TO CYST SWALLOW

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Thyroglossal duct cysts (TGDCs) are the result of epithelial remnants of the thyroglossal tract that presents as a midline neck mass. Patients with this condition often develop ectopic thyroid glands, predisposing them to a risk of acquiring infections and hypothyroidism.

One day old neonate was born at 37 weeks gestation to a 41-year-old Gravida 5 Para 5 with no gestational complications via caesarean section. The mother of the child had an unremarkable past medical history and maintained adequate prenatal care. A physical exam of the newborn consisted of a head to toe check with no remarkable findings except for minor skin tags on the neck and a cleft palate. Upon further examination, the skin tags were found as a midline mass on

the neck at the level of the suprasternal notch. A clinical diagnosis of a thyroglossal duct cyst was suspected as it has a tendency to occur with cleft palates. TGDC was later confirmed with ultrasonography. The cyst formation occurs from a persistent thyroglossal duct and may occur anywhere along the path of the thyroid gland. The patient was referred to a pediatric surgeon to evaluate the patient for surgical resection of the mass via Sistrunk procedure.

This case illustrates the how early intervention via surgical resection can help to minimize the risks posed by TGDCs. TGDCs represent the most common kind of congenital cysts found on the neck. While there are usually no symptoms, the mass may be tender. If elective surgery is not undergone, the patient faces increased incidence of infection and risk of developing hypothyroidism. Therefore, interventional methods serve as a way to avoid further complications of the cyst.

POSTER SESSION I, MS-019

THE EFFECT OF VALPROIC ACID PRENATAL EXPOSURE ON THE NEURODEVELOPMENT OF CHICKEN EMBRYOS

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Valproic acid (VPA) is one of the most commonly used antiepileptic drugs. It is also a teratogen that causes birth defects in humans, such as neural abnormalities in the offspring. Recent study also demonstrated that VPA prenatal exposure increases the risk of autism in children. However, the underlying molecular mechanisms of these defects remain unclear. N-methyl-D-Aspartate receptor (NMDAR) is one type of glutamate excitatory receptors. NMDAR and NMDAR endocytosis are involved in normal neurodevelopment, learning, and memory formation. We aimed to investigate if and how NMDARs play a role in VPA-induced neurodevelopmental anomalies. This study was carried out in fertile White Leghorn chicken eggs. VPA was injected in different dosages (50 µg and 100 µg) into chicken embryos at stage HH4 before the process of neurulation occurred. The brains of embryos were dissected and primary neuron culture was carried out at day 9 or day10 post-injection. Neuron development and NMDAR activity were analyzed from day 1 to day 28. Our data showed that prenatal exposure of VPA causes neurons to develop faster at earlier stage and fail in continued development at later stage. VPA increased the expression of NMDAR in neurons of embryos and NMDAR endocytosis stimulated by NMDA and glycine co-application was not influenced by VPA exposure. The potential role of NMDARs in the neurodevelopment of chicken embryos will be further studied. And more work needs to be done to unveil the mechanism underlying the failure of neuron development in embryos exposed to VPA prenatally.

POSTER SESSION I, MS-020

EFFECTS OF ENVIRONMENTAL ENRICHMENT ON MU OPIOID RECEPTORS AND BETA ENDORPHIN WITHIN THE PERIAQUEDUCTAL GRAY IN THE RAT MODEL OF ENDOMETRIOSIS

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Endometriosis is a gynecological condition characterized by chronic pelvic pain. The brain periaqueductal gray (PAG) is one of the key structures that modulates pain signaling. While the dorsal PAG is involved with coping mechanisms related to nociception and processing of anxiety and fear, the ventral PAG has been implicated with immobility and depressor responses. Previous work from our laboratory has shown a shift in mu opioid receptors (MORs) within the PAG in the rat model of endometriosis. Here, we aim to map the immunohistochemical localization of MORs and the opioid peptide beta-endorphin in the brain of rats with endometriosis. We also measured whether exposure to environmental enrichment (EE) modifies MORs and beta-endorphin localization. The autotransplantation rat model of endometriosis was used in all animals. Sprague Dawley female rats were exposed for 8 weeks to EE (larger enclosure, increased social interaction and novelty) or normal housing conditions (NE) prior and during the progression of endometriosis. After 60 days of endometriosis, the brains were collected and examined for MOR and beta endorphin immunoreactivity. The dorsal PAG of rats with endometriosis (n=4) exposed to EE expressed a 3.7% increase in MORs immunoreactivity compared to the NE group (n=4). The percent area occupied by MORs ir in the dorsal PAG of EE group compared to the NE group was also increased by 2.8%. Within the ventral PAG, an 11.7% decrease in MORs ir was observed in the EE group vs. NE group. Qualitative analysis of beta-endorphin in dorsal PAG showed positive immunolabeling in the EE group vs. the NE group. No changes in beta-endorphin were observed in the ventral and lateral PAG. Results suggest that non-pharmacological interventions such as EE can directly affect the expression and localization of MORs within the PAG, which we postulate could lead to changes in nociceptive perception.

POSTER SESSION I, MS-021

RECURRENT ACUTE PANCREATITIS: AUTOIMMUNE VS GENETIC PREDISPOSITION

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Pancreatitis is an inflammatory disease characterized by necro-inflammation of the pancreas, resulting in dysfunction of its exocrine and endocrine capabilities. Classic presentation includes abdominal pain radiating to the back with elevated lipase and amylase. Common etiologies of pancreatitis involve choledocolithiasis and alcohol abuse, with some cases being labeled as idiopathic. Rarely, cases present with recurrent disease. Familial pancreatitis has been associated with genetic mutations including PRSS1 (cationic trypsinogen gene on 7q), SPINK1 (serine protease inhibitor Kazal type 1), and CFTR (cystic fibrosis transmembrane conductance regulator). However, the disease may or may not be associated with an identifiable genetic defect.

We present a 28 year old male, with a past medical history of recurrent pancreatitis s/p cholecystectomy, and surgical repair of common bile duct, who presented to the Emergency Department for abdominal pain. Further work-up revealed extensive peripancreatic fluid on the abdominal CT. His amylase was 235, and lipase of >2800. Upon further interrogation, it was disclosed that the patient has a long history of acute pancreatitis episodes, with the first episode occurring at a very young age. Patient reports an average of 2 episodes per year. His mother, maternal grandfather, three maternal uncles, maternal sister, and his cousin on his mother's side have a similar medical history. MRCP was negative for relevant findings.

Genetic factors can predispose individuals to recurrent episodes of pancreatitis. Early diagnosis and treatment as well as genetic counseling at the time of the diagnosis are instrumental to prevent future complications associated with the increased risk of pancreatic cancer and diabetes mellitus. The mortality rate does not seem to increase without these factors in the clinical picture.

POSTER SESSION I, MS-023

A CONSCIENCE REVIEW OF CLINICAL STEM CELL APPLICATIONS

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TECNOLOGICO DE MONTERREY, SCHOOL OF MEDICINE AND HEALTH SCIENCES

In general terms, Stem Cells are unspecialized cells capable of renewing themselves during development and differentiating into many cell types under proper stimulation. Transplanted Mesenchymal SC (MSC) have been proven to be sources of a myriad trophic factors modulating the immune system (for example to avoid graft rejection and to reset it in autoimmunity) and inducing local SC to repair damaged tissues. Currently, many researcher centers and biotech companies are pushing their different clinical applications on a vast amount of settings.

The objective of the present review is to make a systematic analysis based on the synthesis of the results of original studies focusing on different stem cells' clinical applications. This is a relevant issue given the fact that there is a broad potential for further development that may lead to the creation of therapies which could save thousands of lives, soon.

Until now the following criteria have been used to select and synthesize the information provided by different articles: (1) SC type, (2) the method used for obtaining them, (3) the pathology or therapy of interest, (4) patient selection and follow-up, (5) adverse effects and other risks, (6) grade of response, (7) Immune factors that may affect the procedure or therapy, (8) other factors that may affect the procedure or therapy, (9) Ethical considerations, (10) Employed treatment technique, (11) Limitations, and (12) Type Stem Cell-Storage, mainly.

50 plus carefully selected studies have been analyzed so far and following these criteria, it will possible separate speculation form truth regarding the therapeutic potential of these cells and the applications that are ready or soon will be to offer it in the hospital setting. Until now a vast amount of applications of this remarkable cell seem promising because they have proven to be versatile and with a wide range of clinical therapies.

POSTER SESSION I, MS-024

CHRONIC KIDNEY INSUFFICIENCY AND SOME RISK FACTORS IN PATIENTS FROM ISSSTE HOSPITAL 'BAUDELIO VILLANUEVA MARTÍNEZ' FROM REYNOSA, TAMAULIPAS, MÉXICO

Jesús Emiliano Lozano-Juárez MD Student (1), Juan Reynaldo Joya-Ramos MD (2), Andres Arredondo- Mijares MD (2), Antonio Gutiérrez-Sierra, MD (1), Netzahualcoyotl Mayek-Pérez, DrSci (1)

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Chronic kidney insufficiency (CKI) is the progressive and irreversible loss of kidney function, the affection degree is based on glomerular filtration (GF) <60 mL/min/1.73 m2. CKI is associated with poorly-controlled chronic-degenerative diseases as Diabetes mellitus and arterial hypertension, which show high prevalence in México (7.2 and 16.3%, respectively). In this work we characterized anthropometric and physiological-biochemical traits of CKI diagnosed patients at ISSSTE´s Hospital 'Baudelio Villanueva Martínez' of Reynosa, Tamaulipas, Mexico from 2013 to 2017 as well as risk and complications related with CKI. We included 55 CKI cases and then measured 5 anthropometric, 18 physiological-biochemical traits as well as 26 risk and complications associated with CKI. Study included 25 women and 30 men with CKI. Men were older than women, but women showed higher height, weight and body mass index (BMI). Women exhibited the highest means of leucocytes and glucose while men presented the highest values of creatinine. Patients with 40-49 years-old showed the highest heart rate (HR), BMI, medium corpuscular volume, and sodium blood while those with 50-59 years had highest values of glucose, urea; and patients with 30-39 years the highest creatinine. Traits Diabetes mellitus, HR, urea and creatinine were negatively related with GF estimated by CKD-EPI method but chlorine blood (Cl) was positively associated. BMI, Cl and weight were positively, and urea, creatinine and potassium blood negatively associated with GF calculated by Cockcroft-Gault method. Complications (digestive tube hemorrhage, hypovolemic shock, anemia, heart attack) variables were positively related with FG estimation methods, while infections at catheter was negatively associated. Our results indicated the increasing of CKI in patients of ISSSTE's Hospital from Reynosa, Tamaulipas, due the inappropriate management and care of associated chronic-degenerative diseases as Diabetes mellitus, arterial hypertension, among others as well as their consequences and complications.

POSTER SESSION I, MS-025

OVARIAN AND ENDOMETRIUM CANCER: MEXICO´S PANORAMA

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Ovarian and endometrial cancer are two of the most common cancers in women, although the two most common are mama and cervix, is expected that its incidence will decrease in the coming years, which will result in the most deadly gynecological cancer (ovarian) and one of the most frequent (endometrial) increase its global relevance.

Mexico´s scarce epidemiology literature and the growing interest in these two neoplasms lead us to describe the current panorama about them.

The aim of this work is to describe a sample of Mexican women, in whom a neoplasm of these pathologies has been suspected.

We carried out a cross-sectional, descriptive, observational, ambispective study; 403 who were scheduled for diagnostic or therapeutic surgery due to an ovary or endometrium tumor were recruited.

Variables that would allow us to evaluate the risk factors for these neoplasms were collected, also to know the perception of pain in the procedures most commonly used during their in-hospital journey a survey was applied.

The participants came mostly from Mexico´s northeast (23%) central (22%).

According to histopathological diagnosis we found 202 endometrium cases, Benign 57 (27%), and malignant 148 (73%). From 168 Ovary cases, 98(68%) were diagnosed as benign and 70 (41%) with malignant characteristics.

The statistical analysis was through Student's T and $X2$ using the R Studio software taking $p \leq 0.05$ as statistically significant, Shapiro test for normality verification, and logistic regression were made to obtain the OR.

Some results are: Women with a malignant Endometrium diagnosis compared to those with a benign diagnosis are older (mean age 55.9 years ± SEM 10.22, p = 9.96-09), have a higher number of relatives with cancer (p = 0.04) and are mostly menopausal (p = 8.54-05) finally we could establish that in women with menopausal the OR = 3 to present a malignancy.

POSTER SESSION I, MS-026

INTERACTION OF INTEGRIN AND PRO-APOPTOTIC PROTEIN BIGH3 IN HUMAN RETINAL PERICYTES

Edgar Serrato (1), Cristian Mercado (1,2) Victoria Gonzalez (1,3) Laura Valdez (1,4) Dr. Brenda Bin Su (1,5) Dr. Andrew Tsin (1,6)

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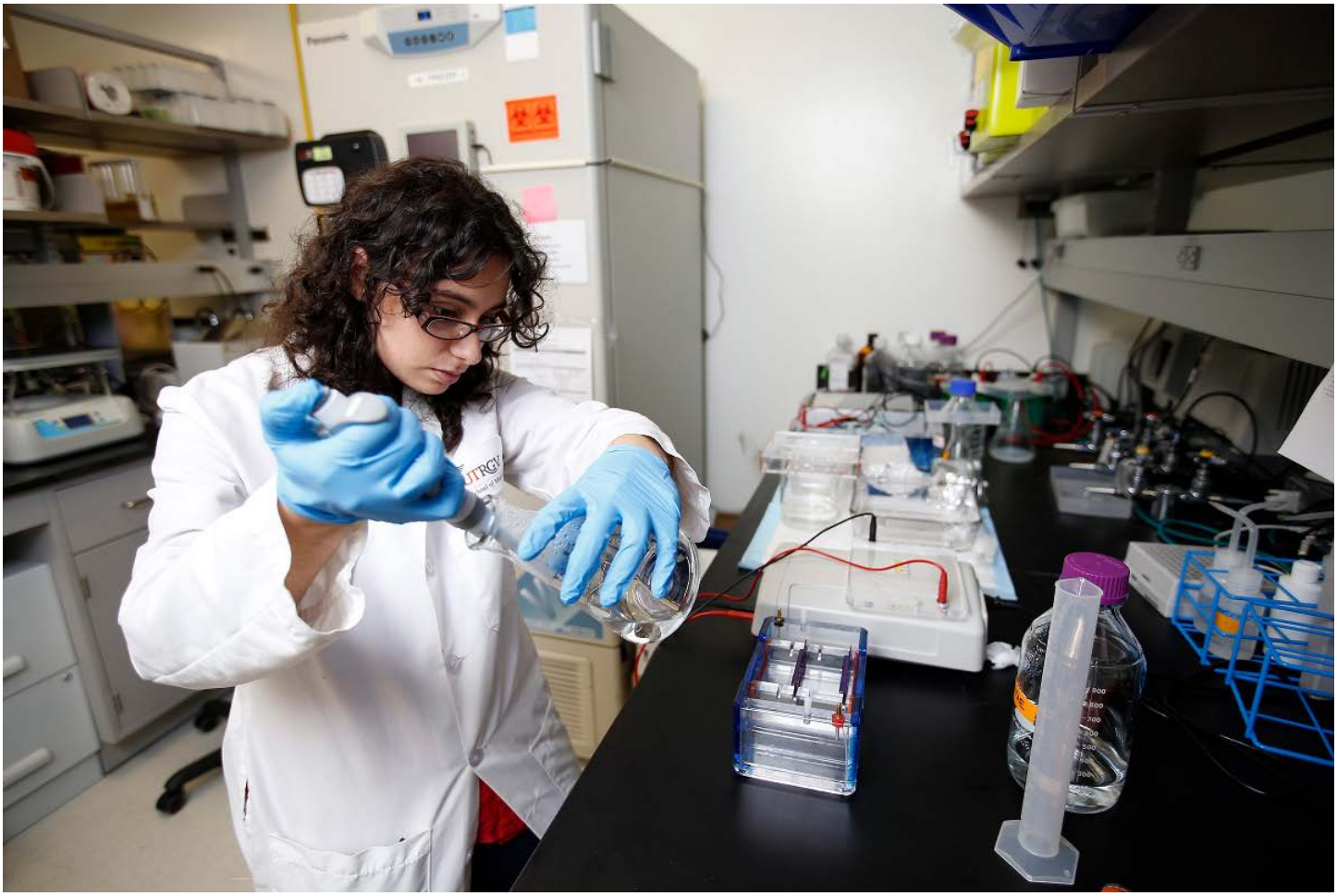
Significance: Pericytes are contractile cells found within vascular beds that envelope endothelial cells. They maintain the integrity of blood vessels and regulate internal hydrostatic pressure. The retina has the highest pericyte density in the human body. Studies have shown that high glucose induces apoptosis in human retinal pericytes (HRP) which leads to blindness by a progressive loss of pericytes. BIGH3 is a pro-apoptotic protein that causes pericyte dropout and is known to interact with α3β1 integrin isoform. Studies have shown an overexpression of α3β1 integrin isoform cell surface receptor in pericytes that have been under stressful conditions. Therefore, the aim for this study is to determine the role and interaction of the cell surface receptor integrin (α3β1) and BIGH3 in human retinal pericytes.

Methods: HRP were acquired from (Cell Systems) at passage 3 and cultured in classic complete serum media in a humidified 5% CO2 environment at 37°C. Using passage 6, HRP were seeded at a 50,000 density into 24 well plate once reached 85% confluency. Cells were then placed in normal glucose (5.5mM), hypoglycemic (0mM), and hyperglycemic (30mM) environment for 36 hours. Isoform (α3β1) integrin and BIGH3 pro-apoptotic protein were visualized using immunofluorescence. Reverse Transcriptase PCR was used to measure the mRNA expression of α1, α3, β1, β-actin and BIGH3 using a 1% agarose gel.

Results: We observed the expression of α1, α3, β1, β-actin and BIGH3 in HRP using RT-PCR. By immunofluorescence we were able to visualize BIGH3 protein in human retinal pericytes that were exposed to a hyperglycemic environment. These finding suggest a possible involvement of BIGH3 with α3 and B1.

Conclusion: Furthers studies will be conducted to understand the mechanism of the integrin cell surface receptor with BIGH3 in HRP using co-immunoprecipitation.

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HIGH SCHOOL STUDENT CATEGORY

POSTER SESSION II, HS-001

EFFECT OF SURFACE AREA:VOLUME ON *BACILLUS THURINGIENSIS* GROWTH

Brisa Barrientos (1), Sebastian Acosta (1), Anapaula Lopez (2) Nalley Perez (2) Anthony Bailey (3)

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Humans can become infected with the Zika virus from mosquito bites. Thus, controlling the mosquito population is important. Most forms of controlling insect populations, including mosquitos, are through chemical pesticides. However, exposure to chemical pesticides has been linked to short- and long-term health problems affecting almost every organ system in the human body. Efforts to identify natural or organic pesticides have led to the finding that *Bacillus thuringiensis* (Bt), a bacteria found in the soil has pesticidal properties. Bt produces a crystal protein that make it toxic to mosquito larvae.

The purpose behind this project is to design a closed system prototype that will result in the largest amount of bacteria growth. We investigated the surface area to volume ratio (SA:V) for growing *Bacillus thuringiensis*. Containers with different SA:V were designed using SolidWorks and created with a 3-D printer. It was hypothesized that the container with the largest SA:V ratio will have more bacteria growth.

The hypothesis is partially supported by the evidence as the largest surface area to volume ratio gave the greatest amount of Bt growth. However, the relationship between SA:V and mass of Bt was not linear, as the trendlines indicated a polynomial function as indicated by the R^2 value.

POSTER SESSION II, HS-002

EFFECT OF HUMIDITY ON GROWTH ON BACILLUS THURINGIENSIS

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Humidity is the measure of water vapor content of the air. Water is a main factor for bacterial growth, water helps bacteria dissolve food to produce energy for growth.

According to NASA, the greatest humidity rate in the Hidalgo county where from the months March - November, reaching a maximum rate of 96% humidity. There is a mosquito problem that has been spreading diseases around the world like Malaria, Zika, Ebola, etc. Understanding the effects of humidity on Bt growth has the potential to improve the pesticidal properties of Bt and control mosquito growth.

The purpose of the project was to design and build a closed system humidity chamber and to test how humidity affects growth of *Bacillus thuringiensis* (Bt). It was hypothesized that Bt growth will be greater if the relative humidity is higher. Samples were collected from from 5 plates in the control and 5 plates in the humidity chamber. The average mass at 60% (control) humidity was 110.2 mg and the average mass at 110% (experimental) humidity was 121.4 mg. Prior research states spores swell in response to higher relative humidity. Water is a main factor for bacterial growth, water helps bacteria dissolve food to produce energy for growth. The next step will to culture bacteria in liquid broth. Liquid cultures can be placed in desiccator or drying chamber and allowing for more accurate mass measurements.

POSTER SESSION II, HS-003

OXYGEN VS CARON DIOXIDE AND THE GROWTH OF BACILLUS THURINGIENSIS

Sergio Acosta (1), Alejandro Ibarra (1), Denisse Gonzalez (2), Christian Reyes (3) Anthony Bailey (4)

(1) La Joya ISD, La Joya, Texas, USA; (2) Vanguard Academy, Alamo, Texas, USA; (3) Texas High School for Health Professions, Mercedes, Texas, USA; (4) College of Education, UTRGV, Edinburg, Texas, USA

Bacillus thuringiensis (Bt) is a facultative anaerobe, rod-shaped, gram-positive spore-forming bacteria. A Japanese biologist name Ishiwatari isolated Bt when he was investigating a disease that kills large amount of silkworms. Over the years, new findings for Bt gave rise to a new form of biological pesticide. Scientists discover that Bt can act as pesticide, because it produces the cry protein which is an insecticidal toxin including mosquitos.

This research is important because it helps find new ways for Bt to kill mosquito larvae and other pesticides. Mosquitos can pose serious health problems as they carry the Zika and other viruses. Given that Bt is a facultative anaerobe, the purpose of this experiment was to investigate the growth of Bt under different O^2 and CO^2 ratios.

YT agar plates were inoculated with Bt and placed in a closed chamber. After 72 hours the average mass of Bt was 55.5 mg for the control and 117.3 mg for the experimental group. The average O2:CO2 for the control group was 1.51 and 20.6 for the experimental group. The data from this experiment support our hypothesis because the group with more CO2 and a lower O2:CO2 produced more Bt. Because Bt is known to be a facultative anaerobe, it does not require O2 to carry out normal processes. However, in the presence of oxygen they would “switch” to an aerobic process. This finding is significant because it suggests that large scale production of Bt as a biological pesticide might be improved by adjusting the level of CO^2.

POSTER SESSION II, HS-004

EFFECTS OF TEMPERATURE ON SYNTHESIS OF BACILLUS THURINGIENSIS

Angel Lopez (3), Agustin Lara (2), Eduardo Villalpando (2), Lisa Solis (1), Emannuel Matamoros (3), Anthony Bailey (4)

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Bacillus thuringiensis (Bt) is a soil-dwelling bacteria. It is commonly used as a biological pesticide as an alternative to chemical pesticides. Bt is able to produce a type of toxin that can kill specific types of pests, such as mosquito larvae. Bt is used as a pesticide in some environments that have large populations of mosquitoes in order to prevent a disease outbreak, for example, the Zika virus. Bt is used as a pesticide because it is able to kill pest such as mosquito larvae it is also used in that way because it is made up of natural components, not chemicals and it will not disturb the crops or the health of the consumers.

The purpose of the research was to identify what is the optimum temperature to grow Bacillus thuringiensis and grow the most toxic cry proteins. This could help farmers control pests that damage the crops with an organic pesticide instead of harmful chemical pesticides that contaminate crops and further causing human health problems. It was hypothesized that Bt will grow faster at higher temperatures.

The data from the experiment partially supports the hypothesis that increased temperature will increase the growth rate of Bt. The final mass of Bt in both trials was greatest at higher temperature of 37oC. However, the cold temperature showed the greatest growth rate over 72 hours. One explanation is that as the bacteria are being produced at higher temperatures. We are not certain why the cold temperature showed a greater growth rate, but is something we plan to investigate in the future.

POSTER SESSION II, HS-005

TRADITIONAL CHINESE MEDICINE ON DIABETIC RETINOPATHY PREVENTION AND TREATMENT

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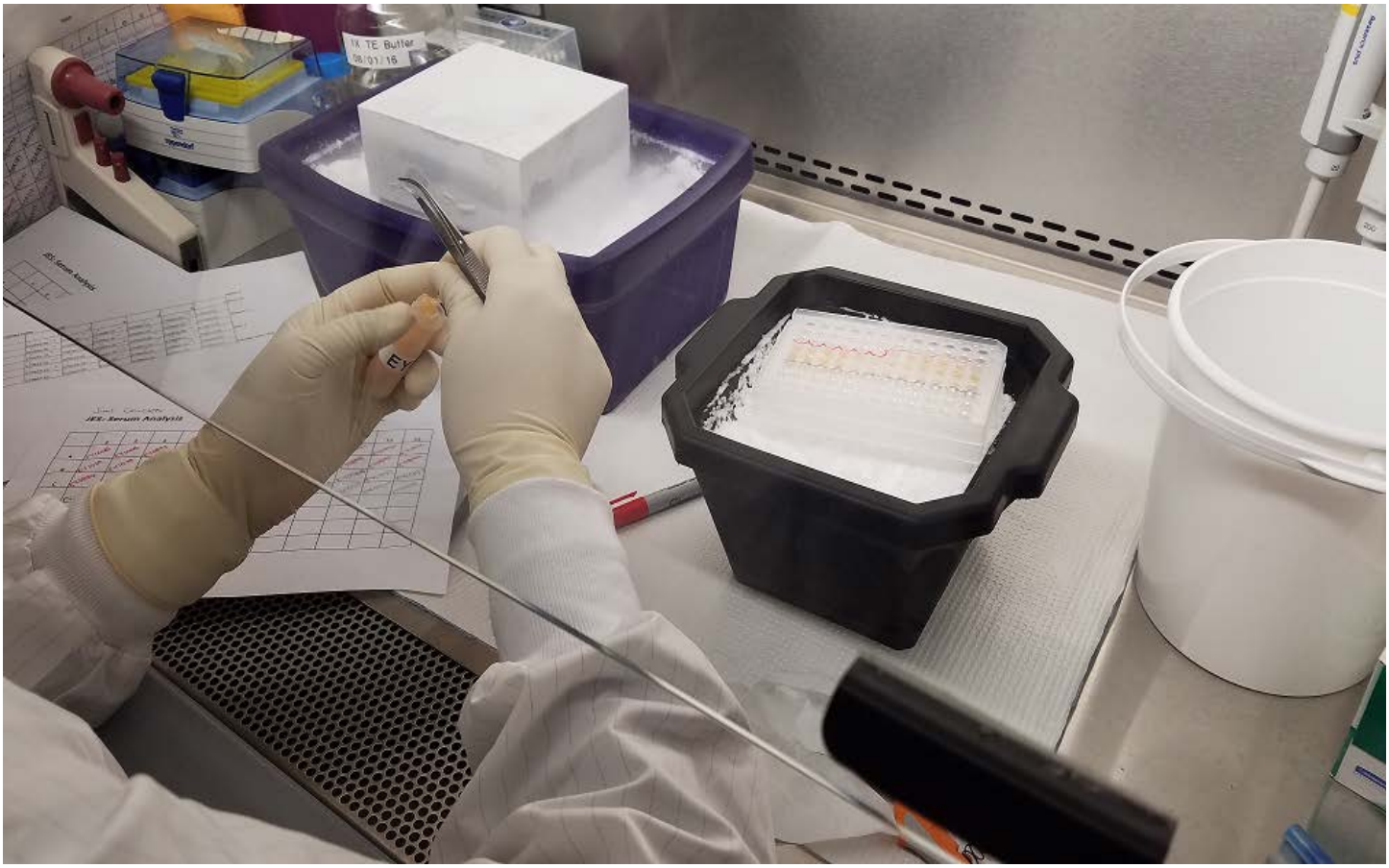
Diabetic Mellitus (DM) is a highly common complication that affects a large part of the world population. An estimated 60-70% of the developing world's population still relies on traditional medications to treat complications like DM. DR development is more prevalent in Mexican Americans with estimation of 34% as compared to non-Hispanic White Americans (26.4%), in individuals with type 2 diabetes. The current prevention strategy is to control glucose using insulin or metformin drugs. With the diabetes management recommended by modern medicine and also depending on diabetic patients' lifestyle, DR is actually the most common cause of new cases of blindness in adults who live in developed countries and are between the ages of 20 and 74. Therefore, more effective treatment and prevention are needed urgently. The aim of this study is to summarize the literatures on preventing and treating DR using traditional Chinese medicine (TCM). Based on the theory of TCM, the pathogenesis of DR is due to blood stasis that damages collateral vessels in the eye. Retrospective cohort studies showed that TCM can work in some diabetic complications such as diabetic retinopathy, diabetic gastroparesis and diabetic kidney disease. The data from animal models and clinical trials in DR patients have demonstrated that Chinese medicine named compound Danshen Dripping Pill (CDDP) can improve the condition of DR. In addition, CDDP has been shown with a good safety record. A randomized, double-blind, placebo-controlled multicenter clinical trial (10 hospitals in China) of 223 patients with non-proliferative diabetic retinopathy were divided to treatment group and placebo group. The results demonstrated that danshen-containing Chinese herbal medicine (CDDP) is able to delay the progression of early-staged diabetic retinopathy. The application of TCM may also provide benefits to Mexican American who has risk to develop diabetes and to prevent diabetic complication.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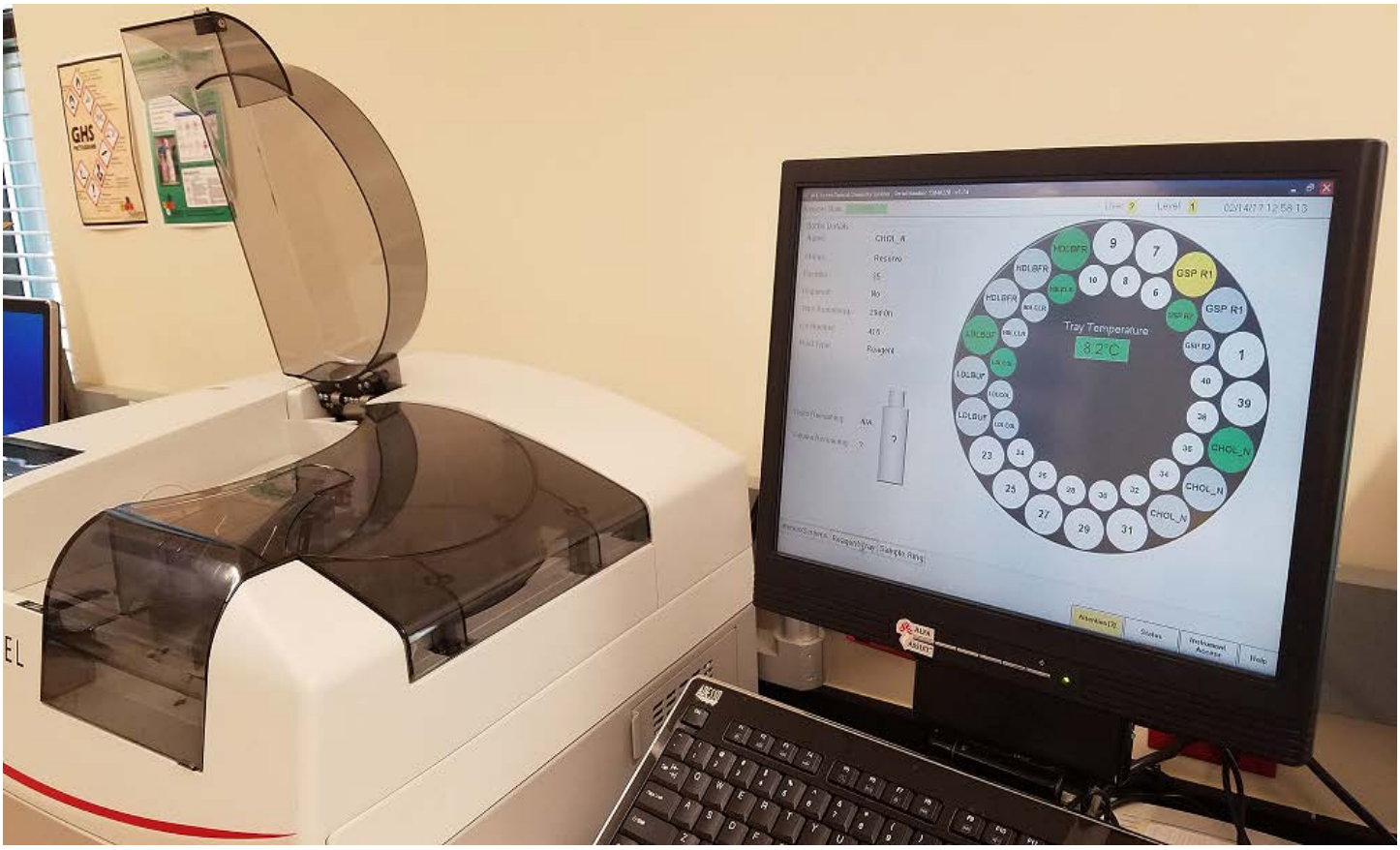
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POSTER SESSION II, R-001

COMBINED USE OF ELECTROCONVULSIVE THERAPY AND ANTI-PSYCHOTICS (BOTH CLOZAPINE AND NON-CLOZAPINE), IN SCHIZOPHRENIA PATIENTS: META-ANALYSIS

Ali Mahmood Khan (1), Saeed Ahmed (2), Hema Madhuri Mekala (3), Mustafa Qureshi (4)

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Objective: To assess the relative efficacies of different treatment methodologies, Clozapine plus ECT and common typical and atypical antipsychotics plus Electroconvulsive Therapy (ECT), against Treatment Resistant Schizophrenia and provide evidence for therapeutically superior drug.

Design: Systematic review and meta- analyses of information generated from the different studies and medical trials that have assessed the efficacies of Clozapine and other antipsychotics in concurrence with ECT treatment for patients with symptoms of Treatment Resistant Schizophrenia. The present study attempted at refining previous meta-analysis studies on Schizophrenia, by including more number of studies, and comparing them statistically, taking a step further from only the systematic reviews.

Subjects: 1184 patients in 24 studies reporting the usage of ECT augmentation either for Clozapine or common antipsychotics such as Flupenthixol, Chlorpromazine, Risperidone, Sulpiride, Olanzapine, and Loxapine.

Results: The present meta-analysis drew its conclusions from the pre- and post-treatment scores of psychometric scales, from 17 studies selected out of the 24 studies in systematic review, upon which the results were reported by the studies. The studies reporting, the pre and post treatment scores using either BPRS or PANSS scales were selected. Such an analysis yielded important information about the extent of improvement shown by the participants subjected to the augmentation treatment across different studies. The analysis was conducted separately for the clozapine and non-clozapine group of studies, to compare their treatment efficacy. The effect size values were used to assess the difference between the pre and post test scores, which indicated the efficacy and sensitivity of the treatment (Durlak 2009).

Conclusion: ECT augmentation technique was found to be effective in reduction of psychometric scale scores, and the resultant improvement was better. ECT augmentation with Clozapine showed promising results in treatment of Treatment Resistant Schizophrenia followed by Flupenthixol.

POSTER SESSION II, R-002

USING THE BRIEF DISCRIMINATION QUESTIONNAIRE TO EXAMINE AND PREDICT HISPANIC INVOLVEMENT IN HEALTH PROGRAMS BELIEFS AND BEHAVIORS

David Gomez

Department of Preventive Medicine, School of Medicine, UTRGV, Edinburg, Texas, USA

Hispanics face many health disparities [1]. Non-communicable diseases (NCD), i.e., cardiovascular disease, cancer, and diabetes represent a significant health crisis in the United States, which is elevated in the Hispanic population of South Texas. Hispanics in South Texas have a diabetes prevalence of twice that of non-Hispanic whites [2,3]. Previous literature has studied perceived discrimination in Hispanics[4,5]. Other studies have revealed a direct relationship between perceived discrimination and perceived poor health [6]. Perceived discrimination has been associated with numerous noncommunicable diseases, i.e., diabetes, substance abuse and causes in part for health disparities [7]. There are many types of discrimination, and people react to discrimination differently [7]. Hispanics on a national level report experiencing discrimination at a prevalence of 52% [8]. For adequate health promotion on noncommunicable diseases and health disparities, it is essential to understand how this population perceives discrimination.

The data for this cross-sectional study will be assessed with the Brief PEDQ-CV Lifetime Exposure to Discrimination Scale [9]. This scale consists of seventeen items that can be combined into a total score assessing lifetime exposure to discrimination. The Brief PEDQ-CV Lifetime Exposure Scale also includes four subscales that assess different dimensions of discrimination, including experiences of social exclusion, stigmatization, discrimination at work/school, and threat/harassment. Response options are presented on a five-point Likert scale, ranging from 1 (never) to 5 (very often). The Brief PEDQ-CV has also been used in a 5000 participants population-based study of Latino(s) from different ethnic backgrounds [10] and demonstrated excellent reliability. Results are still being collected for the study and will be added and the conclusion at the end of 2018.

1.Hertz RP, Unger AN, Ferrario CM. Diabetes, hypertension, and dyslipidemia in Mexican Americans and non-Hispanic Whites. Am J Prev Med. 2006;30(2):103-110

2. Vega-López, S., Calle, M. C., Fernandez, M. L., Kollannoor-Samuel, G., Chhabra, J., Todd, M., . . . Pérez-Escamilla, R. (2013). Triglyceride screening may improve cardiometabolic disease risk assessment in latinos with poorly controlled type 2 diabetes. Journal of Health Care for the Poor and Underserved, 24(4), 1739.

3. Wehrly, R. A., Mier, N., Ory, M. G., Prochaska, J., Hora, K., Wendel, M., & John, J. S. (2010). Confronting the diabetes disparity: A look at diabetes, nutrition, and physical activity programs in the lower rio grande valley. Health Promotion Practice, 11(3), 394-399. 10.1177/1524839908321488

4. Benjamins MR, Whitman S. Relationships between discrimination in health care and health care outcomes among four race/ethnic groups. J Behav Med. 2014; 37(3):402–413. doi: 10.1007/ s10865- 013-9496-7. [PubMed: 23456249

5. Perez DJ, Fortuna L, Alegria M. Prevalence and Correlates of Everyday Discrimination among U.S. Latinos. J Community Psychol. 2008; 36(4):421–433. doi: 10.1002/jcop.20221. [PubMed: 19960098

6. Brondolo E, Hausmann LRM, Jhalani J, et al. Dimensions of Perceived Racism and Self-Reported Health: Examination of Racial/Ethnic Differences and Potential Mediators. Annals of Behavioral Medicine. 2011;42:14-28.

7. Williams DR, Mohammed SA. Discrimination and racial disparities in health: evidence and needed research. Journal of Behavioral Medicine. 2009;32:20-47.

8. Personal experiences with discrimination. (2016, June 27). Retrieved July 5, 2018, from http://www.pewsocialtrends.org/2016/06/27/5-personal-experiences-with-discrimination/

9. Brondolo E, Kelly KP, Coakley V, et al. The Perceived Ethnic Discrimination Questionnaire: Development and Preliminary Validation of a Community Version. Journal of Applied Social Psychology. 2005;35:335-365.

10. Arellano-Morales L, Roesch SC, Gallo LC, et al. Prevalence and Correlates of Perceived Ethnic Discrimination in the Hispanic Community Health Study/Study of Latinos Sociocultural Ancillary Study. Journal of Latina/o psychology. 2015;3:160-176.

POSTER SESSION II, R-003

THE ROLE OF LAY COMMUNITY HEALTH WORKERS IN DIABETES MANAGEMENT PROGRAMS FOR UNDERSERVED COMMUNITIES IN LOW RESOURCE SETTINGS

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Significance: The newly established Preventive Medicine Residency Program at UTRGV focuses on the preventing disease and promoting health, rather than simply treating disease, with an emphasis on underserved populations. This is achieved through evidence based lifestyle interventions delivered in low resource settings. We assessed the role of lay Community Health Workers (CHW) in delivering lifestyle management content to undeserved communities.

Methods: We theorized that CHWs can be effective in delivering and reinforcing components of lifestyle management (such as food choices, activity and stress management) to underserved populations. We undertook a mini review of the literature to assess the effectiveness of CHWs. Since diabetes is a major health problem faced by underserved communities in the Rio Grande Valley, we limited our question to the impact of CHWs on diabetes. We searched PubMed with the terms Diabetes Mellitus and Community Health Workers, both terms as MESH terms, looking at articles from 2016 forward.

Results: There are very few studies that describe the characteristics and training of CHWs in any detail. In general, interventions using CHWs were either group classes, home visits and/or telephone follow-up. For diabetic participants, the CHW intervention is often focused on diabetes management and education, with participant knowledge and satisfaction as endpoints. A1c and weight changes are also common endpoints. Most studies find that the CHW intervention groups show more improvement than the control groups, however the differences are often small. Most studies of CHW interventions related to diabetes use either the National Diabetes Education Program or the Diabetes Prevention Program.

Conclusions: Community health workers can provide valuable services to underserved communities to assist with diabetes management. More research is needed on the characteristics and training needed to ensure success of CHW interventions.

POSTER SESSION II, R-005

TAKOTSUBO CARDIOMYOPATHY VS CORONARY ARTERY DISEASE

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Takotsubo Cardiomyopathy (Stress induced cardiomyopathy) is a condition which characterizes with sudden severe chest pain with mildly elevated biomarkers and mild left ventricular dysfunction on echocardiogram. This pathology more often affects postmenopausal women and has been associated, with high levels of emotional or physical stress. Most common presenting symptom chest pain, although some patients may present with dyspnea or syncope.

A 50-year-old woman presented to the ED complaining of chest pain. Her chest pain started 2 days before while grocery shopping. Pain was midsternal and pressure-like, with severity of 8/10 and radiating to her left arm. EMS was called, and patient was treated initially with ASA and sublingual nitroglycerine, which resolved her pain partially. She was subsequently taken to a Hospital where she was advised to have a cardiac catheterization due to myocardial infarction, however patient disagreed and decided to come to our institution for further evaluation. On admission to our hospital there was no ST changes, and a troponin of 0.25 was found. Upon further interrogation, patient admitted she has been under high levels of stress due to worrying about her family back home and due to a recent death of a close relative. Patient was initiated enoxaparin, aspirin and metoprolol. CT angiography showed small trivial 10% plaque at left anterior descending artery with otherwise normal arteries. Echocardiogram was performed which showed mild ventricle hypokinesis with mild left ventricular dysfunction. Patient's chest paint resolved a few hours after admission and was discharged with medical therapy.

Due to the similarities of Takotsubo symptoms with those of acute myocardial infarction, it is imperative to understand its presentation and proper treatment to prevent unnecessary and invasive interventions.

POSTER SESSION II, R-006

OSTEOMYELITIS AND LOWER EXTREMITY AMPUTATIONS IN PATIENTS WITH DIABETES IN THE RIO GRANDE VALLEY

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Osteomyelitis as a complication of diabetes is a well-recognized risk factor for lower extremity amputation. Diabetes-related lower-extremity amputations (LEA) prevalence rates are higher in the Rio Grande Valley compared to the state of Texas and Hispanics are more likely to undergo LEA than non-Hispanic whites and other minority groups in Texas.

A 35 year old man with uncontrolled type 2 diabetes mellitus of six years duration presents to Internal Medicine Residency Clinic for follow up after hospitalization for osteomyelitis. The recurrent foot infections required frequent hospitalizations and amputations of two toes.

Despite his young age, this outcome was in part because of lack of health insurance, low medical literacy and poor medication adherence. His HgA1C of 14% is partly because he ran out of insulin three months prior to admission for example.

Couldn't this have been prevented? Public health policies and diabetes treatment efforts in the Rio Grande Valley should include effective strategies to reduce health disparities affecting Hispanics. Let's delve in to diabetes education as one evidence-based strategy.

Data shows that optimal diabetes management requires patients to actively participate in their care. Help them learn how to self-manage their diabetes and prevent long term complications. Educate early in the disease process, not waiting for comorbidities or complications. Help them identify barriers to wellness, facilitate problem solving, and develop coping skills. Diabetes education allows patients to work more effectively with their clinicians, all culminating in better outcomes.

The UTRGV Internal Medicine and Family Medicine Residency clinics are expanding primary care services to the underserved region, addressing health disparities. We need to ascertain that access to and use of evidence-based diabetes education is the standard of care for our residents with diabetes as part of the solution to prevent outcomes like our patient experienced.

POSTER SESSION II, R-007

TOUGH DECISIONS REGARDING HEMODIALYSIS IN PATIENTS WITH HEPATORENAL SYNDROME

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Thirty to fifty percent of patients with Hepatorenal syndrome and renal failure require dialysis prior to liver transplantation. It is imperative to identify the requirements for hemodialysis in patients with hepatorenal syndrome with special attention to liver transplant enrollment. Indications for hemodialysis in hepatorenal syndrome are the same as without hepatorenal syndrome - severe metabolic acidosis and signs of uremia. Living in an underserved region such as the Rio Grande Valley adds a level of complexity with many patients, such as ours, still necessitating over 200 miles of travel to his liver transplant center. Additionally, Cirrhosis is more prevalent in the Hispanic population and has a higher mortality than in non-Hispanic whites.

A 38 year-old-male with alcoholic cirrhosis and a Model for End Stage Liver Disease (MELD) score of 29 on liver transplant list presents with a hemoglobin of 5. Resuscitation was attempted with blood products yet he went in cardio-pulmonary arrest. He required mechanical ventilation and survived to the intensive care unit. Over his stay, hepatorenal syndrome, severe metabolic acidosis and hepatic encephalopathy developed. Upon hemodynamic stability, we transferred him to San Antonio for consideration of liver transplantation with a MELD score of 40, placing him higher on the waitlist.

The decision to initiate hemodialysis in our patient was a difficult one and ultimately, we decided to defer initiation to the receiving hospital. In hepatorenal syndrome requiring hemodialysis, six-month mortality is 84 percent on those not listed for liver transplant and the median survival is only 21 days. In contrast with a six-month mortality of 39 percent in those listed for transplant. The benefits of hemodialysis depend largely on whether the patient receives a liver transplant or not and our patient's outcome is still to be determined.

POSTER SESSION II, R-008

A CASE OF SOCIAL UNDERPRIVILEGE: A YOUNG WOMAN WITH ACTIVE LUPUS NEPHRITIS AND IRREGULAR ACCESS TO MEDICAL CARE

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Background: Systemic lupus erythematosus (SLE) in Hispanic population has worse prognosis than Caucasians. The disease presents with early onset aggressive disease and major organ manifestations including lupus nephritis that can lead to abrupt renal failure. SLE and lupus nephritis affect young female patients that can rapidly develop end stage renal disease and require renal transplantation or dialysis. Socio-economic costs of complications outweigh the cost of early and judicious management of these patients. Medical illiteracy, poor care coordination, and living in a poor neighborhood may contribute to bad outcomes.

Case: A 32 year old hispanic woman presented with fever of unknown origin in September 2016. She was initially diagnosed with polymyositis and started on immunosuppressive medications, but subsequently stopped the medications and was lost for follow up due to economic reasons. In May 2017 she presented with pericardial effusion and cardiac tamponade which required pericardial window. A diagnosis of SLE was established. Upon discharge she followed up in the outpatient clinic and was started on mycophenolate mofetil via patient assistance program. Patient had proteinuria on urinalysis and could not afford further workup. She was subsequently hospitalized with anasarca and underwent kidney biopsy confirming lupus nephritis in May 2018, almost 2 years after initial presentation. She was started on IV cyclophosphamide. The patient continues to remain without affordable medical care despite vast documentation of her illness.

Discussion: Residence in a poor neighborhood has been previously associated with progression of lupus nephritis even after adjustment for age, sex, creatinine, hypertension, cyclophosphamide treatment, and race/ethnicity. Poor care coordination and medical illiteracy are other factors contributing to poor outcomes. SLE is a costly disease that disproportionately affects the unprivileged population. Difficult access to care may increase the economic burden of an already expensive disease.

POSTER SESSION II, R-009

SIGNET-RING LIKE CELL ADENOCARCINOMA OF UNCLEAR PRIMARY PRESENTING WITH ASCITES, A CASE REPORT

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We present the case of a 51 year old man with no documented past medical history who presented to our ED because of abdominal pain and distention which started 3 weeks prior to presentation accompanied by weight loss over the course of one year. The patient being a truck driver had recently undergone a yearly physical where he voiced his concern about abdominal pain. He was sent home and an US of the abdomen had been ordered. This study showed increased nodularity of the liver and minimal ascites. He was referred to the gastroenterologist where given his pain and distention it was though that he had acute abdomen and thus he was sent to the ED.

He was found to have ascites of 10L which was subsequently found to be malignant in nature. He underwent CT scan with findings of omental caking and posteriorly had surgical laparocopic biopsy of peritoneal seedings which revealed Signet Ring Cell Adenocarcinoma of possible GI primary. He underwent EGD and colonoscopy with no findings of neoplasms. He subsequently developed bowel obstruction and was unable to eat or drink and required initiation of TPN while inpatient. He needed a surgical palliative bypass in order to be able to tolerate feeds but surgery refused because he was a poor candidate. Palliative services were offered but the patient refused. He went to a regional cancer center trying to seek help. Over there upon further workup they were unable to offer any treatments. He returned to our hospital for one last time due to severe dehydration. Once more, he received TPN and he refused palliative services in favor of pursuing treatment. He was subsequently lost to follow up. He went home and is presumed to have passed away likely from severe dehydration and starvation.

POSTER SESSION II, R-010

WHAT IN SEIZURES NAME IS GOING ON?

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34-year-old Hispanic woman with PMH of breast cancer with metastasis to the brain. Status post chemotherapy and radiation, with finished therapy and in possible remission diagnosed 4 months ago. Presents to the hospital for direct admission with a 1-week history of worsening headache and vomiting. Later during 1st day of admission developed seizures to status epilepticus to seizures. Patient was sedated and intubated and placed in NICU due to status epilepticus, after what seemed adequate control was transferred back to the wards. Patient was started and placed on maximum dose of Keppra and Ativan for breakthrough seizures. Due to persistent seizures multiple attempts to get imaging where done. Finally, imaging was obtained showing improvement on 3 brain lesions compared to prior images, and daily blood work returned negative. The patient continued to have breakthrough seizures despite maximum medication control. Patient was transferred several times to NICU due to breakthrough seizure activity. Neurologist and oncologist could not explain the source of acute persistent seizures confirmed on EEG. Ativan q5 minutes was used to

control seizure activity to obtain final imaging and LP. After pathological evaluation she was found to have breast cancer metastasis to the meninges. Patient was evaluated by neurology and oncology and due to advanced stage recommended hospice care only. After 3 weeks of hospitalization the patient was sent to hospice care and died 1 week after discharge.

POSTER SESSION II, R-011

CHARACTERIZATION OF HISPANIC DIABETIC POPULATION WITH HIGH PHQ-9 IN THE RIO GRANDE VALLEY

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Depression and diabetes are both common diseases and important in the Latino population. Approximately 35% of Latinos diagnosed with diabetes also report significant levels of depression. Depression in ethnic minorities remains understudied partly due to a lack of measures with established psychometric properties. Collaborative care models are effective for depression, with a growing body of evidence for other chronic diseases. However, it was shown that Latinos did not obtain the same results with this approach. This study will examine a sample of Latinos who were participants in a collaborative care model, Salud y Vida program, in the Rio Grande Valley. We want to examine the association between A1c and PHQ-9 and describe the demographics characteristics. We will use a multivariable mixed model regression. Results will indicate if there is an association between PHQ-9 and A1c and will provide some important features regarding this population. Providers treating those with high A1c, may need to further consider systematic screening for depression as part of the standard of care.

POSTER SESSION II, R-012

DIFFICULTIES MANAGING IDIOPATHIC THROMBOCYTOPENIC PURPURA RELAPSE IN A PATIENT WITHOUT MEDICAL INSURANCE: A CASE REPORT

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Idiopathic Thrombocytopenic Purpura (ITP) is an autoimmune, hematological disorder that presents with isolated thrombocytopenia. ITP is classified as primary or secondary based on the etiology. Most adults recover within weeks, however; some progress to a chronic form. ITP is commonly treated with steroids and intravenous immunoglobulin (IVIG). Splenectomy is reserved for those refractory or intolerant to steroids. Patients without insurance face the risk of improper steroid taper, less frequent laboratory testing, and even acute hemolytic events that put their lives in jeopardy.

A 39-year-old Mexican male patient with ITP since the age of three presents to the emergency department because of a skin rash affecting all four limbs, chest, abdomen, under the lower lip, without any active bleeding. The patient was admitted due to a platelet count of 2,000 and hematology was consulted. We initiated Decadron and IVIG infusion for four and two days respectively. After three days, the platelet count went up to 70,000, being stable for discharge, with steroid taper.

At Internal Medicine Residency Clinic followup, he presents with scattered petechiae and bilateral forearm ecchymoses. We desired to work-up incidentally found elevated liver enzymes and hyperlipidemia. Work-up would include serologies and an abdominal ultrasound to assess the spleen size and liver morphology. We recommended reducing prednisone dose until hematology follow-up. Unfortunately, due to lack of insurance, the patient stated that he could not pursue any of our suggestions.

In our case report, ITP relapse was treated successfully with Decadron and IVIG infusion. However, due to lack of insurance, it's not possible to evaluate the etiology of the relapse, elevated liver enzymes or hyperlipemia. Additionally, the compliance with the steroid taper is also at risk due to patient declining to purchase smaller milligram tablets, putting him at risk of either adrenal crisis or hypercortisolemia.

POSTER SESSION II, R-013

EVALUATION OF THE SALUD Y VIDA DIABETES SUPPORT GROUPS

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Significance: Individuals diagnosed with diabetes is estimated to increase over the next decades. Diabetes disease management is therefore more needed than ever. Social support can increase the self-efficacy of patients to monitor their condition and improve their quality of life. Less is known about the impact of social support or of support groups on disease management in diabetic populations with diabetes.

Methods: Our study population was Hispanics residing in the Rio Grande Valley who are a part of the Salud y Vida program, a chronic disease diabetes management program. This program is geared for participants with uncontrolled diabetes and offers diabetes support groups along with other interventions. We conducted six focus groups. Three categories of participants were included in the focus groups: those who are currently attending the support groups (2 focus groups), those who previously attended (2 focus groups), and those who have never attended 2 focus groups). We also examined the structure of the diabetic support groups and how to improve them. Data were collected with a brief survey and discussion questions. Each focus group session was audio recorded, transcribed, and analyzed for common threads or any differences between the groups.

Results: Results provide insight into the strengths and weaknesses of peer led support groups. The strengths included for those with ongoing participation a sense of social support and a motivation to share their successes of diabetes management. Some weaknesses of peer led support groups were included the logistics of attending. A full description of

strengths and weaknesses will be described including the participants' expectations of support groups, other barriers to attendance, and level of support obtained.

Conclusions: Designing peer led support groups that meet patients' needs could be a cost-effective disease management approach. These results help guide the diabetic support groups structure to increase participation and outcomes.

POSTER SESSION II, R-014

CHALLENGES IN EVALUATION OF LIVER MASS DUE TO LACK OF INSURANCE

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Cancer is the second leading cause of death in the United States. Lack of health insurance leads to lack of access to health care and contributes to increased morbidity and mortality in patients with cancer. Here in Hidalgo county 29% of our community is uninsured. Evaluating symptoms suspicious of cancer in an uninsured patient poses unique challenges.

A 62- year old Hispanic gentlemen presents for abdominal pain of four months duration, fever, night sweats and 35 pounds weight loss during this time. Physical examination reveals an underweight man, guarded abdomen and tenderness to palpation on right upper quadrant. Abdominal ultrasound shows a mass in the right hepatic lobe. Computed tomography of the abdomen with contrast reveals a peripherally enhancing thick-walled heterogeneous mass measuring 7 x 6 x 7 cm. White blood count is 23,000, serology for hepatitis B and C are negative, an Alpha Fetoprotein level is negative. We ordered fine-needle aspiration due to suspicion of malignancy.

It is known that insurance status at diagnosis of certain types of malignancies affect mortality rates. In this case, we have seen some diagnostic challenges and health disparities. First, patient presented many months after onset of symptoms likely worsening his outcomes. Second, our ability to order more specific testing such as Dynamic Magnetic Resonance Imaging and other tumor markers was restricted due to cost. Lastly, due to health illiteracy there are concerns whether the patient understands his evaluation and prognosis. These are three ways health disparities affected our patient in evaluating his liver mass. Charity programs such as one by UTRGV and our social workers are assisting in bridging these gaps as we work hand-in-hand with our patients.

POSTER SESSION II, R-015

NEVER TRUST YOUR GUT

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20 year old Hispanic man presents to the clinic with a 7 month history of bloody diarrhea, fecal incontinence, and approximately 70 lbs weight loss leading to depression quantified by a PHQ-9 score of 27. The diarrhea began suddenly 7 months ago and it became bloody approximately 6 months ago. The patient had been seeing a physician in Mexico since the diarrhea began, and was started on multiple medication trials ultimately ending up with over 30 different medications. Despite the multiple medications, the patient had no long term improvement of his symptoms. The patient also mentioned he had white strings in his stool. An endoscopy was performed, the patient was found to have advanced Ulcerative Colitis, the white strings being pieces of intestine walls which had sloughed off. The patient was started on steroids and 5-Aminosalicyclic-Acid derivative. The small pharmacy he was previously ingesting was discontinued, and the patient began to improve on the new regimen. Upon follow up with his primary care physician, the patient's PHQ-9 improved to 6.

In this case I would like to focus on the chronic disease of Ulcerative Colitis, and some of the resulting comorbidities caused by the symptoms. Ulcerative Colitis is a subtype of Inflammatory Bowel Disease which causes an autoimmune attack of the intestinal wall involving the mucosa and submucosa layer of the large intestine. Ulcerative colitis has frequently been associated to depression as well as agoraphobia secondary to fecal incontinence. The goal of this case report is to exhibit the importance of a multidisciplinary care team approach to a patient with a chronic disease.

POSTER SESSION II, R-016

OSTEOMYELITIS IN DIABETIC FOOT

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Osteomyelitis can occur in the setting of a diabetic foot wound with or without local soft tissue infection. Some clinical features that are associated with the presence of underlying osteomyelitis include ulcer size >2 cm2, visibly exposed bone or ability to probe to bone. The presence of a "sausage" toe, along with erythema and nonpitting edema has been associated with underlying osteomyelitis in diabetic patients.

34- years old un-insured patient with history of DM type 1 presented with 1-month history of non-healing ulcer secondary to an accidental trauma to the left 4th toe. Associated symptoms were chills without fever prior to injury. Patient had 10 days history of self-prescribed antibiotics which helped partially. Upon presentation to ED, the patient was admitted to the hospital due to concerns of the non-healing ulcer. Physical examination of the toe revealed swelling, redness, warmth, sausage toe deformity and dry non- healing, irregular shaped ulcer. Lower extremity sensation was preserved. Labs results showed WBC 5.9, ESR: 26, HbA1c 9.4, negative blood culture, wound culture grew *staphylococcus aureus*. MRI of the toe showed extensive signal abnormality in proximal and distal phalanx, soft tissue

edema and skin ulceration. Diagnosis of osteomyelitis with fracture of 4th toe was made. Patient was treated with appropriate antibiotics based on the current guidelines. Surgical team was consulted. Risk and benefits of surgical intervention versus medical management were discussed. Patient finally undergone amputation of the 4th toe.

Risk of osteomyelitis increases in diabetic foot. It is usually a complication of uncontrolled DM, missed trauma, medication incompliance, lack of patient education, lack of health insurance and poor socioeconomic status.

POSTER SESSION II, R-017

CASE PRESENTATION: TOLOSSA-HUNT SYNDROME

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Tolosa-Hunt Syndrome is rare with an estimated annual incidence of one case per million per year. It's characterized by painful ophthalmoplegia caused by idiopathic granulomatous inflammation of the cavernous sinus. This syndrome was first described in 1954, with exquisite responsiveness to glucocorticoid treatment

Case Report: 28 y/o Female complaining of headache for the past 2 weeks that has progressively worsened. Describes headaches as left-sided with persistent throbbing, associated with left eye tearing, double vision, photophobia, diminished hearing on left ear and nausea.

Initial Physical Examination: No ophthalmoplegia present. Cranial Nerves intact. Only pain to palpation on left side of head. During hospital course, headache worsened with presence of 4th, 5th and 6th cranial nerve palsy. Pupils were equal, reactive to light. No papilledema, visual fields intact.

Imaging and Laboratory work up was done to rule out Autoimmune, Infectious, or Space Occupying Lesion. MRI, MRA and MR venogram of the head was normal, MRI of left orbit shows proptosis of the left eye, no evidence of space-occupying lesion or thrombosis of venous sinuses. CSF and Lab studies were normal.

Patient was started on Prednisone 60 Mg daily, showing improvement of symptoms. Dose was continued for 3 days and tapered the following 3 weeks.

Discussion: Tolosa-Hunt Syndrome consists of painful ophthalmoplegia with periorbital or hemicranial pain combined with ipsilateral ocular nerve palsies, sensory loss of the ophthalmic and the maxillary division of the trigeminal nerve. Various combinations of these cranial nerve palsies may occur. Over the past quarter century there has been no progress in understanding the pathogenesis of this syndrome. Tolosa-Hunt Syndrome is a self limited illness. It does cause considerable morbidity, residual cranial nerve palsies persist. With the institution of corticosteroid therapy, there is dramatic reduction of pain and natural course is altered.

POSTER SESSION II, R-018

TO SEIZE, OR NOT TO SEIZE, THAT IS THE QUESTION

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A 48-year old female with a known history of epilepsy was admitted to the medical intensive care unit for evaluation of recurrent seizures. Increased dosage of anticonvulsants failed to prevent new seizure activity and benzodiazepine administration failed to terminate said seizures, prompting transfer to the neurosurgical intensive care unit for continuous EEG monitoring. Seizure activity while on video-EEG monitoring revealed no epileptiform activity and abortive benzodiazepine administration was discontinued for future seizure-like activity. A psychiatrist was consulted who diagnosed the patient with conversion disorder, seizure type. Seizure-like activity decreased soon afterward, and the patient was agreeable with outpatient psychiatric follow up and therapy. Despite the patient's initial acceptance of her conversion disorder diagnosis and recommended treatment plan, her significant other's declared denial of the patient's psychiatric diagnosis created a unique barrier to providing the patient with optimal treatment. To date, the current first line treatment for conversion disorder is providing the patient with nonjudgmental, sincere education about conversion disorder. Family members are often encouraged to help participate in a patient's treatment. This case report demonstrates the initial presentation and diagnosis of conversion disorder, seizure type, with a review of the current recommended lines of treatment, including the role family members play in a patient's treatment.

POSTER SESSION II, R-019

TO ANTI-COAGULATE OR NOT TO ANTI-COAGULATE

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Nationwide, 15% of strokes are attributable to atrial fibrillation. It is vital for physicians to address such risk as ischemic strokes as a significant cause of morbidity and mortality. Anticoagulation has been demonstrated by 67% relative risk reduction in the incidence of ischemic stroke as evidenced by the SPAF trial.

A 64 y/o male with PMH of coronary artery disease, ESRD, history of CVA (with residual lower extremity weakness), hypertension, and atrial fibrillation (on amiodarone and ASA 81 mg) presented with confusion, and aphasia during a session of hemodialysis. He was determined to have an ischemic stroke, given tPA at Mission Health, and transferred to the neuro intensive care unit at Doctors Hospital. CT of the head demonstrated a L anterior MCA occlusion likely secondary to thrombus. Shortly after arrival, the patient was found to have atrial fibrillation with rapid ventricular response, however he spontaneously converted to sinus bradycardia. He was noted to have a CHADSVASC score of 5. Anticoagulation was held for the proceeding 24 hours after tPA. Three days after admission, as the patient's heart rate improved he was restarted on amiodarone and was started on warfarin as future stroke prophylaxis.

While stroke prevention is key in the setting of atrial fibrillation, the inherent subjectivity regarding whether to start anticoagulation in patients with bleeding or fall risk poses a challenge for healthcare practitioners. Our parameters for assessing bleeding risk overestimate the severity of all bleeds by grouping all bleeds together. Comparatively, the rate intracranial hemorrhage in patients on rivaroxaban was approximately 0.4% per year compared to 2.2% risk of stroke per year in patients with a CHADSVASC of >2. This encounter highlights the necessity for stroke prophylaxis in patients with atrial fibrillation.

POSTER SESSION II, R-020

THE GRAIN OF SAND IN YOUR SHOE: A CASE FOR THE COMPREHENSIVE DIABETIC FOOT EXAMINATION

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Type 2 diabetes mellitus, hereafter referred to as diabetes, affects 12% of adults nation-wide, 30% of adults in the Rio Grande Valley, and is the leading non-traumatic cause of lower-limb amputations among adults. We must treat diabetes in a cost-conscious and effective manner. The comprehensive diabetic foot examination exemplifies high value care by identifying risk factors to prevent ulcers and amputations at little-to-no cost and, unfortunately, is underutilized.

A 48-year-old man presents to the Internal Medicine Residency clinic for an acute care visit. He was diagnosed with diabetes three years ago and has not been to the doctor since that visit.

American Association of Clinical Endocrinologists guidelines recommend a detailed foot examination at the time of diagnosis and then annually thereafter. Start in a well-lit room by assessing the footwear. Next, a dermatological assessment - focus on ulceration, paronychia and temperature differences between feet. Perform a musculoskeletal assessment evaluating for gross deformities, increased plantar pressure and associated skin breakdown. Assess vascular status by palpating posterior tibial and dorsalis pedis pulses.

Finally, a neurologic examination with monofilament to identify the loss of protective sensation, highly predictive of subsequent ulceration. Proper technique includes the patient, with eyes closed, affirming when the monofilament is sensed in prespecified regions of the feet. Finish with pinprick sensation, ankle reflexes, vibratory sensation and vibration perception threshold.

Our patient’s list of evidence-based needs are long - lipid profile, insulin titration for his A1C of 14, diabetes education, retinal and nephropathy screenings, immunizations- nevertheless, a diabetic foot examination should not be forgotten. Comprehensive diabetic foot examination is a pivotal component of risk assessment and is needed to bridge the health disparities in the Rio Grande Valley. So, next time you feel a grain of sand in your shoe, be thankful - not everyone is so lucky.

POSTER SESSION II, R-021

ACUTE NONRHEUMATIC MYOPERICARDITIS PRESENTING WITH ELEVATED CARDIAC ENZYMES AND ST ELEVATION ON A 20-YEAR-OLD MAN WITH STREPTOCOCCAL PHARYNGITIS

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Acute nonrheumatic myopericarditis is an entity that has been previously underreported. We present a case of concurrent streptococcal infection and acute myopericarditis.

A 21-year-old Male who presented to the emergency department complaining of a 6-hour history of acute chest pain. The EKG was remarkable for widespread concave ST elevation without reciprocal changes accompanied by marked elevation of cardiac biomarkers. Urine tox screen was negative. Echocardiogram showed normal ejection fraction, without wall motion abnormalities, valvular disease or pericardial effusion. A CT angiography of the heart was requested to rule out acute coronary syndrome, and it was negative for significant stenosis. Further history reported that 24 hours prior to admission the patient had presented to another hospital due to sore throat and fever. He had been diagnosed with strep throat with a positive rapid strep test and he was started on oral amoxicillin-clavulanate. Revised Jones Criteria for rheumatic fever were negative on admission. He was started on IV penicillin, colchicine and indomethacin. Over the next 72 hours, the patient had clinical and cardiac markers improvement and he was discharged to follow up as an outpatient.

Jones criteria for the diagnosis of rheumatic fever codify an association between antecedent streptococcal pharyngeal infection and sequelae, such as carditis, arthritis or chorea. These processes are caused by molecular mimicry. Multiple investigators identified cases of myocarditis in the setting of acute streptococcal tonsillitis that did not fit the Jones criteria. The cases were labeled nonrheumatic because they occurred during or just days after a streptococcal infection, rather than the 2- to 3-week latency period observed with acute rheumatic fever. Although the natural history of rheumatic fever complicated with carditis is well established, the incidence, pathophysiology and clinical course of nonrheumatic myopericarditis has not been well defined but it is felt to be toxin mediated.

POSTER SESSION II, R-024

DOUBLE WHAMMY: A CASE OF ADVANCED DIABETIC NEUROPATHIC ARTHROPATHY AND SEVERE PERIPHERAL VASCULAR DISEASE IN A HISPANIC MAN

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Introduction: Diabetic neuropathic arthropathy (Charcot foot) and peripheral arterial disease (PAD) are known manifestations of the diabetic foot disease spectrum. We present a rare case of advanced Charcot foot with rocker bottom deformity (RBD) and severe PAD.

Case Presentation: A 55-year-old man with a history of diabetes mellitus (DM) with neuropathy, hypertension, and PAD presented with new onset blisters of 3 days on the left foot and chronic feet ulcers. Physical examination was significant for skin changes, multiple bullae and foul-smelling ulcers and reduced sensation as well as diminished position and vibration sense. Dorsalis pedis (DP) and posterior tibialis (PT) pulses were absent. HbA1c was 7.4% and wound cultures were positive for Enterococcus faecalis. MRI of the left foot was significant for advanced Charcot foot with RBD, cellulitis and osteomyelitis of the cuboid. Doppler revealed absent flow in the peroneal artery and decreased flow in the anterior and posterior tibialis arteries. Although, the multiple collaterals were deemed to be sufficient to aid the process of healing, the feet ulcers persisted in our patient. He was commenced on IV antibiotics and continued aspirin and statin. Patient continues to decline amputation.

Discussion: Diabetic foot disease is one of the common manifestations of poorly controlled DM. Charcot foot affects approximately 0.12% of individuals with type 2 DM. It is more prevalent in obese individuals, individuals with type 1 DM and long-standing type 2 DM usually in the 6th decade of life. Although our patient was in the 6th decade of life, his unique presentation with RBD preceding the ulcers and the absence of other relatively common microvascular or macrovascular complications is rare.

Conclusions: Primary and secondary prevention of diabetes are pertinent in reducing complications. Increased community awareness and well-designed health policies may improve quality of life and reduce morbidity and mortality.

POSTER SESSION II, R-025

RENAL REPLACEMENT THERAPY OPTIONS IN THE RIO GRANDE VALLEY OR LACK THEREOF

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Would you agree to spend four hours per day three days per week immobilized in a chair? What if your life depended on it? This is a question far too many of our Rio Grande Valley residents with End Stage Renal Disease (ESRD) are facing.

ESRD incidence in the Rio Grande Valley (RGV) is one of the highest in the country. Despite this, therapeutic options are limited. Once renal replacement therapy (RRT) is needed, in-center hemodialysis is often the only option, reducing quality of life and productivity.

Objective: To evaluate the prevalence, incidence, morbidity and mortality of ESRD and RRT modalities in the RGV compared to nationwide.

Methods: Review of literature.

Results: The prevalence of >2,212 per million and incidence of >398 per million of ESRD in RGV is over the national prevalence and incidence of 2,128 and 378 per million. Home dialysis is being more frequently prescribed in the USA, however the incidence of this modality in RGV is <6.2% while in the country it is 8.4% with some regions having an incidence of >14.5%. In-home dialysis offers more independence and no significant difference in morbidity and mortality compared to in-center hemodialysis.

Discussion: The best modality of RRT is the one that fits the patient lifestyle and provides quality of life. Unfortunately, our community is faced with high rates of ESRD and one option: in-center hemodialysis. A significant disparity of RRT modalities used exists in the RGV compared to other regions in the country. We need to make the RRT modality that best suits the patient an available option.

Conclusions: RRT modalities that are growing in popularity nationwide are sparse in the RGV. Further research in to the barriers are needed to open access for our patients to have the choice of RRT that best fits their lifestyle.

POSTER SESSION II, R-026

DIABETIC CARE IMPROVEMENT INITIATIVE THROUGH THE LEARNING/TEACHING OF QUALITY IMPROVEMENT METHODS

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CONTEXT: Medical education is changing at both the undergraduate and graduate levels with new methods being introduced and taught to provide the learner with skills needed for lifelong learning with the ultimate goal of improving the care provided to our patients. The skills learned in scholarly research and quality improvement are essential in dealing with the increasing complexity of providing medical care. Family medicine physicians are well suited to benefit from learning these skills.

OBJECTIVE: This study was undertaken for the purpose of improving diabetic care in our population of patients. Diabetes is serious disease and has a high prevalence in our patients. The process, skills, and methods of quality improvement were thought and learned during this study.

DESIGN/PATIENTS/INTERVENSION: The researchers were able to determine that there was substantial opportunity for improvement after reviewing baseline data collected from 126 diabetic patient charts. The research team studied the problem and suggested several interventions to improve care. The implementation of standardized work with a checklist as the primary interventions for improvement yielded dramatic results. The Plan Do Study Act approach to improvement was utilized to conduct our study. Both descriptive and inferential statistical methods were used to support conclusions. The methods used demonstrated the resourcefulness of the research team in overcoming obstacles to success.

OUTCOME/RESULTS/CONCLUSION: The goal of improving compliance in meeting diabetic care guidelines were accomplished and supported by the study. The simple implementation of a checklist dramatically improved care provided. The importance of scholarly work in teaching family medicine residents was strongly accepted by our residents and faculty as a result of their participation in this quality improvement research. Working with data collection and the participation in this team effort was instrumental in the researcher/learner buy in. Efforts to sustain the project beneficial effects with the use of the checklist have been successful.

POSTER SESSION II, R-027

MAJOR GI, URINARY TRACT AND PULMONARY BLEEDING IN A PATIENT WITH RIVAROXABAN

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Significant bleeding is a well-known side effect of new oral anticoagulants. It was estimated that rivaroxaban can cause an increase in the risk of bleeding by approximately 20% (1). Other medications in this group have higher risks of major bleeding. It is recommended that rivaroxaban is held for 48 hours prior to any surgical procedure. It should generally be avoided in patients with high risk of bleeding. (2)

We present the case of a 78-year-old patient with alcohol abuse admitted for hematemesis requiring blood transfusion, complicated by concurrent anticoagulation with rivaroxaban for atrial fibrillation. He required ICU admission for impending hemorrhagic shock, requiring vasopressors, and was intubated for airway protection. He had an esophagogastroduodenoscopy (EGD) which showed a Mallory- Weiss tear at the esophagogastric junction with active bleeding, alleviated by epinephrine injection. He underwent bronchoscopy due to concerns of hemoptysis but it was determined that he only aspirated blood. He developed hematuria with urinary retention requiring continuous bladder irrigation. It was determined that all of these occurred as a result of this patient's rivaroxaban use.

Our patient took his medication as usual and subsequently developed a severe esophageal hemorrhage that could not be controlled using prothrombin complex concentrate, fresh frozen plasma, cryoprecipitate, and platelets. The unexpected finding of an INR of 3.01 is usually not seen with rivaroxaban use, and he had no history of liver disease. The INR under this therapy normally ranges between 1.2-1.8 (3), although there have been case reports of higher values under standard therapy (4). As of May of 2018, Andexxa was recently FDA approved for the reversal of anti-Xa inhibitors. However, we had no access to this medication due to its very limited supply. (5) Rivaroxaban has a half-life of 5-9 hours, and this drug was eventually excreted with complete resolution of his anticoagulation issues.

POSTER SESSION II, R-028

WHEN A CARDIAC “PLOP” CAN BE A SIGN OF STROKE

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Introduction: Atrial myxomas are rare primary cardiac tumors. When located in the Aortic valve or left atrium, the embolization risk for stroke in young adults increases. Healthcare disparity can interfere in the proper management of these patients. To highlight this issue, we are presenting 2 cases of stroke secondary to myxomas and the outcomes of each in light of health care disparity.

Case 1: A 54-year-old man presented to the ED c/o tachycardic with a diastolic plop in left parasternal border, right eye lateral beating nystagmus and left eye not crossing the midline on right lateral gaze. Brain MRI: Multifocal acute

ischemia in both cerebellar hemispheres and left occipital lobe. Bubble TEE showed left atrial myxoma. CT Surgeon performed atrial myxoma resection and reconstruction successfully with biopsy confirming myxoma. He followed-up with his cardiologist/neurologist and has resumed his normal life as a teacher.

Case 2: A 44-year-old woman presented to the ED with an acute onset of numbness, tingling, decreased strength in the left upper and lower extremities associated with slurred speech. Physical exam: left hemiparesis and left foot hypoesthesia. Brain MRI showed a posterior cerebral acute non-hemorrhagic ischemia. TTE positive for RT atrial mass, TEE revealed a right atrial mass located posteriorly adjacent to the septum with extension to the aortic valve apparatus. No surgical intervention was done. Unfortunately, the patient was uninsured and she was lost to follow up.

Conclusion: Suspicion of atrial myxoma in young patients with multiple strokes is very important for early cardiothoracic surgery. These cases are examples of the need to continue improving the health care system according to the unique reality of the population in the Valley to offer the same medical care to everyone in need.

POSTER SESSION II, R-029

GEOGRAPHICAL DISPARITIES WITH ORGAN DONATION IN SOUTH TEXAS

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Significance - The need for organ donation continues to outpace available donors despite educational programs, outreach and awareness. Approximately 125,000 people are on the waiting list for an organ and 80% of those needs are for kidneys. The Donate Life America program was founded in 1992 with the mission of increasing community awareness of organ donation. The Donate Life Texas Registry was established in 2005, a legal consent for organ donation. In 2016, there were nine-million registrants, with 1,338 of those becoming organ donors. The purpose of this study is to show the rates of organ donation in the southern region (Rio Grande Valley) as compared to central and northern regions of Texas. Additionally, we identify barriers that may contribute to a disparity in organ donation.

Methods – Five-year retrospective study based on data from the Texas Organ Sharing Alliance (TOSA) database of potential organ donors. The data collected include: reasons for family decline, authorization rates of the northern, central and southern Texas organ procurement service areas.

Results - The northern region population consists of 2,691,553 individuals with 272 organ donors, 212 registered donors and 1,070 organs recovered .The central region population consists of 2,641,805 individuals, with 323 organ donors, 111 registered donors and 1,254 organs recovered. The southern region population consists of 1,861,122 individuals with 99 organ donors, 23 registered donors and 365 organs recovered.

Conclusion - The southern region lags behind the central and northern areas in organ donors, registered donors and total organs recovered. The Texas registry continues to increase donors in the central and northern regions, while the

results remain unchanged in the southern area. Future investigation into cultural beliefs, reason for family declines should be undertaken to understand the disparity in this region.

POSTER SESSION II, R-030

ASEPTIC MENINGITIS: A CASE OF 10-DAY ENCEPHALOPATHY

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Aseptic meningitis is a diagnosis of exclusion. Patients usually present with clinical and laboratory evidence of meningeal inflammation, pleocytosis on CSF, and negative gram stain and cultures. We present a case of a patient admitted with encephalopathy secondary to aseptic meningitis.

An 85-year-old man with a history of Parkinson's dementia was admitted for acute encephalopathy. History was notable for a 12-hour history of progressive confusion, inability to ambulate, and a decreased level of consciousness. On admission the patient had a fever of 101.9 degrees F. He was obtunded and had significant nuchal rigidity on exam. CT head, EEG, MRI brain, and C-spine were unremarkable. Initial laboratory exams, including CBC, CMP and UA were normal. The patient was admitted for suspected meningitis. A lumbar puncture (LP) was obtained revealing a protein count of 453 mg/dL with other lab values being normal. He was empirically started on broad spectrum antibiotics. Viral serologies, syphilis, TB and HIV on CSF were negative. Blood and urine cultures were also negative. There was no change in the patient's status and on day six a repeat LP was obtained revealing a protein count of 63 mg/dL. Repeat microbiology studies were negative and on day 10 the patient opened his eyes and his mental status spontaneously improved and in the next two days he returned to his baseline and was subsequently discharged.

The most common cause of aseptic meningitis is enterovirus infection. Patients usually present with symptoms similar to bacterial meningitis, including fever, headache, altered mental status, neck stiffness and photophobia. Assessment of patients with aseptic meningitis is usually complicated by a limited number of etiologies, as well as a limited number of diagnostic tools currently available for identifying pathogens. In contrast to bacterial meningitis, patients with aseptic meningitis have a limited course that resolves without specific therapy.

POSTER SESSION II, R-031

DOES A COMMUNITY HEALTH CARE WORKER INTERVENTION DESIGNED TO DECREASE A1C ALSO DECREASE BP IN THE HISPANIC POPULATION?

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Significance: Hypertension (HTN) and diabetes mellitus Type 2 (DM2) are diseases of the vascular system. Both occur more in the older population. These illnesses share a similarity in their risk factors which include obesity, having an unhealthy diet and a sedentary lifestyle. As such the lifestyle modifications proposed to aid in the control DM2 are similar to those used to manage HTN. There have been several studies to investigate if management of HTN will concurrently improve blood sugar. On the other hand, studies to evaluate for effect of DM2 management on HTN has been very few and far between, despite their similarities. The aim of this study is to find out if a community health care worker intervention designed to decrease A1C also decrease BP in the Hispanic population.

Methods: Our study population are Hispanics who reside in the Rio Grande Valley and are part of the Salud y Vida program. This program is focused on helping individuals with diabetes mellitus maintain the goal A1C using several interventions that include the community workers, diet recommendations, diabetes classes (DSME) and home visits. Participants will be divided into control and experimental group. The control is those who did not complete their SYV requirements which includes attendance to the DSME class. The cutoff for those who were included in the experimental group would be attendance to more than 4 DSME classes. We will use data of pts who have at least 3 A1C's. They include, the initial, any middle and at least a final A1C within a 12-month period.

Results: Data include over 4000 applicants and results are still being analyzed and as such are pending.

Conclusions: It is anticipated that methods used to decrease A1C will also decrease HTN. This will in turn help guide treatment.

POSTER SESSION II, R-032

PHIMOSIS IN ADULTS

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The purpose of this case study is to remind the community on the importance of genitourinary hygiene in males of all ages. Second, to remind physicians of the significance of a careful physical examination and inquiry into recurrent symptoms.

A 56-year-old man with type 2 diabetes mellitus and multiple urinary tract infections presented to the emergency department with a 1-week history of difficulty urinating and urinary retention He reported never being able to retract the foreskin of his penis. He reported being seen by multiple health care practitioners in the area with no resolution of the problem. A Foley catheter insertion was attempted at another institution but was unsuccessful. While in the emergency department, a bladder scan revealed 900 CC of urine in the bladder. On physical exam, he had a phimosis. Attempts to insert a Foley catheter in the ED were unsuccessful. Urology evaluated the patient and performed a meatotomy, circumcision, and inserted a Foley catheter in order to empty the bladder. The patient's symptoms resolved after these interventions.

Phimosis is defined as a tight foreskin that cannot be retracted to expose the glans penis. Phimosis is normally seen in children. In older adults, recurrent infections and other inflammatory conditions may result in scarring and pathologic phimosis that requires urologic referral. Acute kidney injury can result from urethral obstruction. This case illustrates the importance of a careful genitourinary exam in patients with urinary retention.

Educating the community is a public health matter. This case stresses the seriousness of genitourinary cleanliness and self-inspection in males of all ages.

POSTER SESSION II, R-033

FOOD SECURITY IN COLONIAS OF HIDALGO COUNTY, TEXAS: A NEEDS ASSESSMENT ANALYSIS

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Significance: Colonias are high-poverty residential communities near the Texas-Mexico border which often lack basic living necessities. Residents have limited availability to fresh produce and quality foods due to complex socioeconomic and geopolitical factors, including income inequality, lack of public transportation, safety concerns, and fear surrounding uncertain legal status. We hypothesize that residents of the colonias have limited access to healthy food options and desire more affordable and accessible produce options.

Design/Methods: We conducted a cross-sectional survey of a convenience sample of 80 individuals within four colonias of Hidalgo County. Health promoters from Proyecto Azteca, a housing program with established presences and trust within the community, administered the surveys in the respondent's preferred language. Anonymous data was gathered including demographics, eating habits, barriers of access to produce, and interest in access to fresh produce. We additionally utilized geospatial analysis to map locations of food sources in relation to the four colonias surveyed.

Results: We identified high rates of food insecurity (82.5% identified as food insecure), barriers of access to fresh produce (including transportation, cost, taste, and lack of knowledge about preparation), and high levels of interest in increasing fruit/vegetable consumption if there were more affordable (95%) and convenient (92.5%) options to purchase fresh produce. Furthermore, 23.8% of respondents admitted to feeling fearful of traveling outside of their colonia, the majority of whom identified immigration enforcement as the primary source. Fear was significantly associated with screening positive for food insecurity ($p < 0.05$).

Conclusion: This study demonstrates many of the impediments to accessing fresh, healthful, affordable produce, and highlights some of the major effects of these barriers--especially the alarmingly high rate of food insecurity. It also identifies fear of leaving one's colonia (due to fear of immigration enforcement) as significantly associated with food insecurity.

POSTER SESSION II, R-034

URETERAL STEINSTRASSE-STAGHORN CALCULI

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Nephrolithiasis is the presence of renal calculi in the urinary tract system caused by a disruption in the balance of solutes and precipitants. Staghorn calculi present a clinical challenge because of their size and difficulty with treatment. Most of these stones are composed of struvite. We present a case of a patient with bilateral, large struvite, staghorn calculi. The patient is 45-year-old woman with a history of recurrent nephrolithiasis, admitted for a four-day history of altered mental status with severe generalized body weakness, abdominal pain, nausea, vomiting, and fever. On physical exam she was in moderate distress with tachycardia, tachypnea, and confusion. She had generalized abdominal tenderness in all quadrants and bilateral CVA tenderness. Laboratory work up revealed WBC 25.9 th/uL, hemoglobin 7.8 g/dL, and platelet count of 511 th/uL. Urinalysis was suggestive of infection. Creatinine was 9.3 mg/dL with a baseline of 3.3 mg/dL. ABG was significant for severe metabolic acidosis. CT abdomen revealed a massive left staghorn calculus in the left renal pelvis with severe bilateral hydronephrosis. She received broad spectrum antibiotics and was discharged with an outpatient appointment to urology. Staghorn calculi are large, branched stones that often fill all or part of the renal pelvis and extend into the majority of the renal calices. Most are composed of struvite, a combination of magnesium, ammonium, and phosphate. These stones are related to recurrent urinary tract infections because they form from urea-splitting organisms. When left untreated staghorn calculi may lead to worsening renal function and possibly end stage renal disease. Some patients present with life-threatening sepsis. Treatment is surgical with the goal of complete stone removal. Patients unable to undergo surgery typically undergo percutaneous nephrolithotomy.

POSTER SESSION II, R-035

AUSTRIAN SYNDROME IN AN IMMUNOSUPPRESSED WOMAN WITH LUPUS SECONDARY TO MULTI-DRUG RESISTANT STREPTOCOCCI

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Abstract: First described in 1957 and known as the Austrian syndrome, the triad of meningitis, pneumonia and endocarditis all caused by Streptococcus pneumoniae is a rare condition typically described in middle-aged alcoholic males.

Case: Here we describe a case of a 36-year-old female with systemic lupus erythematosus on prednisone and mycophenolate who presented with fever, rigidity and photophobia. Kernig and Brudzinsky's signs were positive and initial lactate was 9.8. Immediate empiric treatment was started for meningitis and septic shock. CSF and blood cultures were positive for multi-drug resistant Streptococcus pneumoniae and XR and CT scans of the chest showed multifocal areas of consolidation at the bases. An echocardiogram was not acquired due to her rapid deterioration and endocarditis could not be confirmed. Despite early recognition and aggressive treatment for meningitis and sepsis, the patient died within hours of presentation to the ED due to multi-organ failure.

Conclusion: Although the presence of a cardiac valve vegetation was not determined, the simultaneous presence of meningitis and bacteremia due to Streptococcus pneumoniae raises concern for hematogenous spread most likely from an infected valve. Early recognition and treatment is critical especially in immunocompromised hosts and mortality is high (17%) despite treatment.

POSTER SESSION II, R-036

RELATIONSHIP OF HEMOGLOBIN A1C AND MEDICAL HOME STATUS IN SALUD Y VIDA PARTICIPANTS

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Significance: The healthcare costs of diabetes in the US and the Rio Grande Valley (RGV) continue to increase. Identifying means to reduce costs and make treatment of diabetes more cost-effective is a high priority. Community health worker outreach programs like Salud y Vida may prove cost-effective, particularly by helping individuals establish medical homes.

Methods: The study population are individuals enrolled in the Salud y Vida program, a chronic care management program for those with uncontrolled diabetes (hemoglobin A1c (HbA1C) ≥ 9). Enrollees were asked to self-report whether they had a medical home at baseline (n=2,754) and at each subsequent visit at 6 and 12 months. Data on

demographics, and hemoglobin A1C (HbA1C) were collected. We used a cross sectional approach to ascertain the percent of participants reporting a medical home and if an association exists between medical home status and diabetes control.

Results: At baseline, 75% of Salud y Vida participants reported having a medical home. The median HbA1C among those with a medical home (HbA1C=9.9, SD=1.68) did not statistically differ from those who reported not having a medical home at baseline (HbA1C=10.1, SD=1.66). A significant difference in HbA1C was not observed at 6 or 12 months; however this may be due to a missing HbA1C measurements at 6 and 12 months. We observed having a medical home was associated with increasing age and gender ($p<0.001$). Females (80%) had a medical home more than males (65%).

Conclusions: Although results do not demonstrate differences in HbA1C hemoglobin among Salud y Vida participants with a medical home or without a medical home, results should be interpreted cautiously due to missing data. Regardless, participants of Salud y Vida program have a medical home and this is a resource that intervention programs can leverage to help improve diabetes control.

POSTER SESSION II, R-037

PANCREATIC ASCITES

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Pancreatic ascites is an uncommon entity that should be considered when large collections of fluid are detected on abdominal imaging. Chronic pancreatitis is reported in 3.5% of cases and is the most common cause of pancreatic ascites.

We present a case of pancreatic ascites in a patient with history of pancreatitis.

A 55 year-old woman with history of right hemicolectomy secondary to colon adenocarcinoma and pancreatitis was admitted for abdominal pain and distention. She had chills, fatigue, weakness, nausea, and decreased oral intake. Physical exam was notable for jaundice, scleral icterus, and abdominal tenderness and distention. Significant labs included AST 73 IU/L, ALT 57 IU/L, ALP 1,236 IU/L, albumin 3.7 gm/dL, total bilirubin 6.8 gm/dL, and lipase of 150 IU/L. An abdominal and pelvic CT on admission demonstrated a large cystic mass measuring 31x17x26cm occupying the entire abdomen and pelvis. Percutaneous drainage was performed and the fluid was sent for analysis. No malignant cells were identified on cytology of the fluid. The amylase of the fluid was 267IU/L. ERCP demonstrated a pancreatic duct disruption that was subsequently stented with a 5cm 4F straight plastic stent without complications. Patient was managed with total parenteral nutrition and intravenous octreotide during hospitalization and eventually tolerated oral diet. Abdominal pain and distention eventually subsided and patient was discharged home.

Conservative management for pancreatic ascites includes administration of octreotide in combination with frequent drainage. Successful treatment using endoscopic therapy has also been reported. Surgical management is often used when conservative therapy fails or when pancreatic ascites is due to trauma. As in our patient, a combination of conservative and endoscopic management was an effective approach that has been emphasized in prior case reports.

POSTER SESSION II, R-039

THE DOMINO EFFECT OF ECONOMIC DISPARITY AND SUBSEQUENT NON-ADHERENCE

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Low economic status can lead to non-adherence of prescription medications and subsequently, drug discontinuation syndromes, poorer health outcomes, more hospitalizations and increased mortality. Persistence of economic limitations prevents access to adequate care and leads to a cycle of successive inappropriate management; a domino effect.

We describe a case where a 48 year old woman who presented with confusion, URI-like symptoms, fevers, chills, paraesthesias and new-onset seizures. On physical exam, patient had mild confusion, numbness, hyperreflexia, difficulty controlling extraocular movements. Subsequently, patient developed significant nausea/vomiting and severe headaches.

Next day, patient improved and family denied convulsions but instead reported tremors that occurred after ingestion of sublingual nitroglycerin, which was taken due to left arm paresthesias and diaphoresis. Patient reported discontinuing venlafaxine 1 week prior due to financial constraints. Venlafaxine was initiated and patient's symptoms resolved the day after. Patient was assessed to have serotonin discontinuation syndrome, with worsening of hemodynamic parameters due to inappropriate self-treatment with nitroglycerin.

This case demonstrates how the inciting event of reduced access leads to a chain of negative outcomes. Nitroglycerin easily converts to nitric oxide, which has been shown to be a potent "off" signal for serotonin release. Symptoms of venlafaxine discontinuation led to inappropriate use of sublingual nitroglycerin and hospitalization. This shows the impact of economic disparity on the patient and consequent financial burdens on the health care system. Non-adherence is also compounded by poor health literacy in the Rio Grande Valley. With improved access to community clinics and community education on drug safety, we can minimize the adverse domino effects from non-adherence.

POSTER SESSION II, R-040

ATYPICAL PRESENTATION OF HEPATIC ENCEPHALOPATHY

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Hepatic encephalopathy is a reversible neurological and psychiatric condition seen in patients with liver dysfunction and/or portosystemic shunting. The most common cause is cirrhosis. We present a case of a patient admitted with hepatic encephalopathy without radiographic evidence of cirrhosis.

The patient is an 82-year-old man with a history of advanced Parkinson's dementia, stage 3 CKD, systolic CHF, and paroxysmal atrial fibrillation, admitted for acute encephalopathy. History was significant for 3 months of progressive visual hallucinations. He was previously evaluated by a neurologist, who was concerned for possible Lewy Body Dementia. Physical exam was significant for altered mental status with a Glasgow score of 8. Initial workup with CT head revealed no acute intracranial abnormality. Laboratory work-up included Na 130, glucose 145, AST 92, albumin 3.5, T. bili 1.7, INR 1.7, NH3 68, TSH 22.7, T4 0.92, and folate 12.2. Urine analysis demonstrated bacteriuria and pyuria but negative leukocyte esterase, urine culture and blood culture negative. He was started on lactulose and the following morning had resolution of his visual hallucinations, aggression, and confusion. He was switched to oral lactulose but refused the medication and became more encephalopathic. Lactulose was then administered rectally with resolution of his symptoms. He was successfully transitioned once again to oral lactulose and was discharged home.

The main characteristic and presentation of hepatic encephalopathy is alterations in mental status. These may progress to profound neurologic impairment and/or coma. While overt hepatic encephalopathy can be easily detected, mild and subtle forms occur in up to 80% of patients with cirrhosis. When combined with other neurodegenerative conditions such as Alzheimer's or Parkinson's disease, differentiating between the two entities may become significantly more challenging.

POSTER SESSION II, R-041

AN INCIDENTAL FINDING IN AN UNINSURED HISPANIC WOMAN WITH PRESUMABLE CHEST PAIN ON ADMISSION. WHAT'S NEXT?

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Introduction: Hidalgo County is one of the poorest counties in the state of Texas, having a median household income of $36,094 with a poverty rate of 32.8%. A median age is 28.8 years old and mostly are Hispanics (91.8%). Rate of uninsured people is 32.9%, 1.7 times the Texas average and 2.8 times the national average. People in this area, mostly Hispanics and many of them with no legal residency are more vulnerable to acute and chronic diseases than people in

any other county of the USA. **Description:** This is a case report of an uninsured 62 years old Hispanic woman, immigrant from Guatemala who fled with her family from the violence in her country and was living in the Hidalgo County for about 10 years. No medical care for about 10 years. Patient was admitted on a local hospital due presumable chest pain, 2 hours of duration, intensity 8/10, localized to the middle of the chest with radiation to the back. No medications. This was the first episode. Acute cardiac event was ruled out. Six days after admission patient indicated pain was localized in the RUQ, intensity 9/10, no associated to nausea or vomiting. CT Abdomen showed cholecystitis with cholelithiasis. Laparoscopic cholecystectomy was performed.. Patient tolerated well the procedure. Patient showed grateful for the surgery, even knowing her limitations to pay for services. However, an unexpected pathology report came, a Gallbladder Adenocarcinoma was found in the surgical piece. **Conclusion:** Some diseases can be prevented with adequate timely health care access. However uninsured people, mostly Hispanic and immigrants, are more vulnerable than others groups to have disproportionate burdens of disease, disability, and premature death. Is important to increase access to health care through more charity clinics and health projects to improve health care access to our community.

POSTER SESSION II, R-042

PREVALENCE OF DIABETES AND DIABETIC NEPHROPATHY AT THE ALAMO FLEA MARKET SCREENING PROJECT

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The Alamo flea market diabetic screening project has reported screening 900 individuals for diabetes by determining HA1C levels and testing for nephropathy via the presence of microalbuminuria in those diagnosed diabetic patients. The prevalence of pre-diabetes (HA1C 5.7-6.4) is reported at 20%. The prevalence of Diabetes mellitus (HA1C > 6.5) is reported at approximately 25% of participants, of which 50% have never been previously diagnosed with diabetes and 40% tested positive for microalbuminuria. The large percentage of newly diagnosed diabetic patients with signs of nephropathy is quite alarming. It highlights the importance of preventive medicine and public health interventions in diagnosing those individuals earlier in the course of their disease, with the goal of reversing nephropathy or salvaging remaining kidney function. Early detection is imperative to turn the tide on health-care costs associated with complications of diabetes and fundamental to decreasing morbidity and mortality.

POSTER SESSION II, R-043

HYPOCALCEMIA: BACK TO THE BASICS

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Hypoparathyroidism is an uncommon condition potentially leading to dangerously low calcium levels. It has multiple etiologies with anterior neck surgery being the most common cause. We are presenting a case of hypoparathyroidism causing severely low calcium levels manifesting as seizures, hypotension, and cardiac arrhythmia.

A 60-year-old man with history of low calcium and dementia was admitted to our hospital due to oxygen desaturation. He was unable to give a history due to altered mental status. Tetany was present on physical examination. He developed a seizure, hypotension, and desaturation requiring intubation and vasopressors. Labs revealed calcium 3.7mg/dL, ionized calcium 0.42mmol/L, albumin 3.8gm/dL, lactate 2.57mmol/L, vitamin D 52.9ng/mL, magnesium 1mg/dL, phosphorus 6.6mg/dL, and intact parathyroid hormone 1.6pg/mL. Electrocardiogram showed QT prolongation. Patient was started on an IV infusion of calcium gluconate, calcium carbonate, and calcitriol with goals of reaching serum calcium levels of 8-8.5mg/dL and ionized calcium level of 1mmol/L. The patient was eventually extubated and discharged with ionized calcium level of 0.98mmol/L and total calcium level of 7.5mg/dL.

Primary hypoparathyroidism is commonly a postsurgical finding. However, patient denied any thyroid, parathyroid, or radical neck surgery. Other potential etiologies included genetic, infiltrative, or autoimmune causes. Ultrasound of neck showed a normal thyroid gland. HIV status was negative. Ferritin levels were normal. Polyglandular autoimmune syndrome type 1 was ruled out. No obvious facies leading to a genetic component were found. We suspected that the patient had activating antibodies to the calcium-sensing receptor (CaSR) but could not confirm due to cost. He was treated with high dose intravenous calcium supplementation; his calcium levels stabilized, and he was transitioned to oral calcium supplementation. This case serves to illustrate the spectrum of severe hypocalcemia, from physical exam findings to electrocardiographic changes.

POSTER SESSION II, R-044

GLYCAEMIC VARIABILITY IN DIFFERENT TREATMENT MODALITIES IN TYPE 1 DIABETES MELLITUS

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Introduction: We evaluate glycaemic variability through coefficient variation because recent publications in the literature are looking for reasons to achieve better control and prevent cardiovascular complications in patients with type 1 diabetes and the glycaemic variability is considered a risk factor due to the exaggerated glucose fluctuations.

Objective: Evaluate glycaemic variability through coefficient of variation in patients with type 1 diabetes mellitus using different modalities of treatment and monitoring in Hospital Infantil de Tamaulipas, Mexico.

We reviewed the reports in 10 patients, 7 using self-monitoring glucose capillaries levels, 3 using continuous self monitor glucose levels. We registered the following data: age, sex, weight, stature, IMC, HbA1c and the type of treatment. We calculated standard deviation and coefficient of variation preprandial and postprandial. We compared the glycaemic variability according to the type of treatment, type of glucose monitoring used and correlated with the level of HbA1C with theses values. According to Monnier below 36% of the coefficient of variation represents good control.

Results: 6 patients were female and 4 were males, average age 13.9 ± 3.54, 5 were overweight, average duration of there diabetes 4 years ± 2.47, 7 patients with intensive treatment (3 with insulin pump) ,1 with conventional treatment, and 2 patients with basal insulin (honey moon period). 4 patients were in good control according to HbA1c and 2 of these patients had a cofficient of variation less or equal to 36%.

In the modality of intensive treatment and basal insulin their coefficient variability was higher than 36% and the patient with conventional treatment had a coefficient varibility of 17.49%. No correlation between HbA1c and coefficient of variation was found.

Conclusion: The assessment of glycaemic variability is a potential future parameter that needs further research to improve control and preventions of complications in type 1 diabetes.


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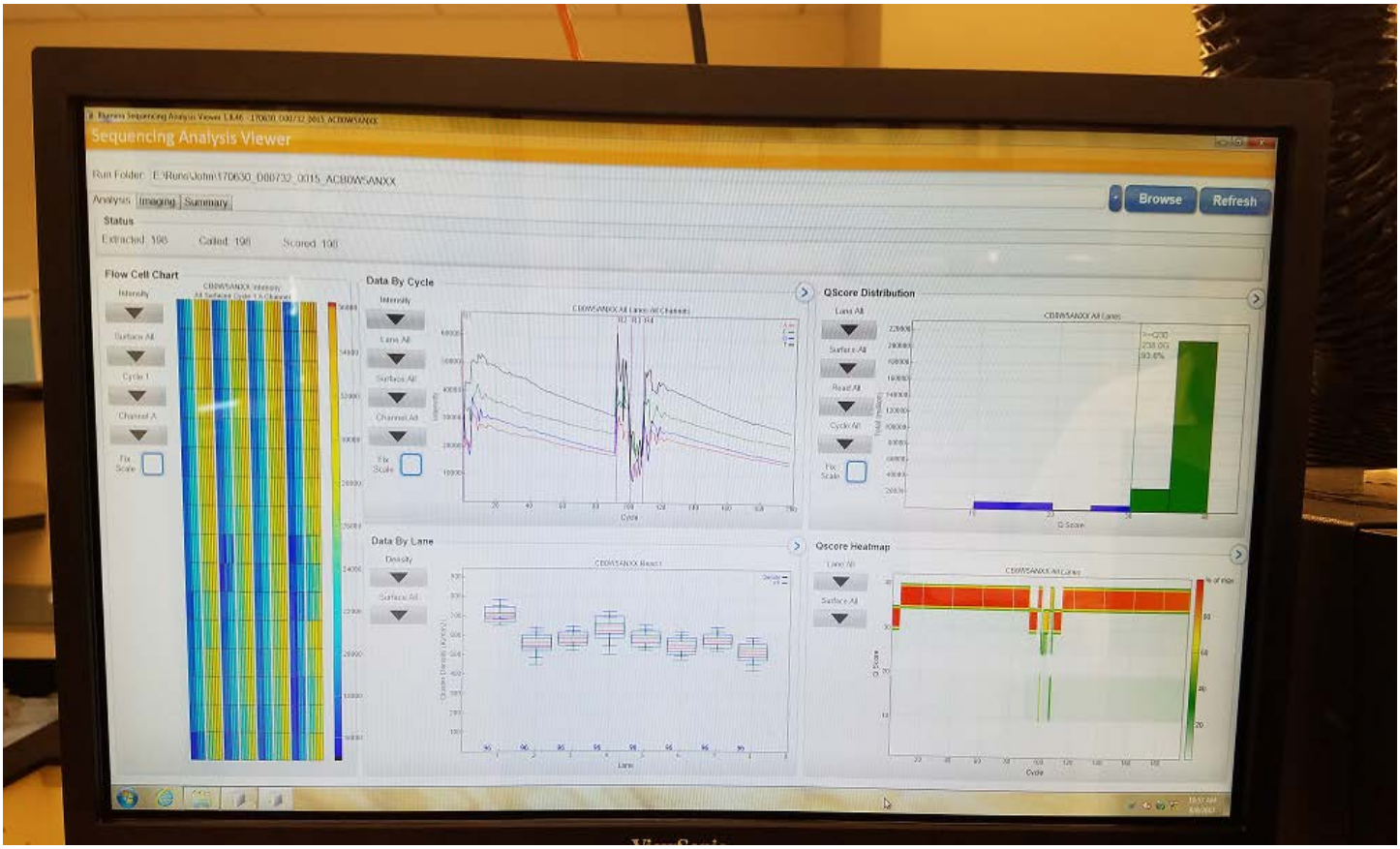
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POSTDOCTORAL RESEARCHER CATEGORY

POSTER SESSION III, P-002

TACKLING A TURTLE TUMOR THREAT – AN RGV COMMUNITY PARTNERSHIP TO RESEARCH SEA TURTLE FIBROPAPILLOMA

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Fibropapillomatosis (FP), a tumor-promoting disease in sea turtles, is a major wildlife health problem affecting sea turtles locally in the Rio Grande Valley (RGV, South Padre Island, SPI) and worldwide. Most commonly affecting green sea turtles (*C. mydas*), FP presents as both external and internal neoplastic tumors affecting the skin, shell, eyes, oral cavity and internal organs of turtles. Mostly benign the location of the tumors has a large effect on the health of affected turtles, including their ability to navigate and forage for food, swim and avoid predation. The current therapy for FP is CO2 laser surgery to remove tumors. However, FP tumors occur at anatomical sites for which surgery is not a viable option, and tumors do reoccur on previously treated turtles.

Fibropapilloma has been observed in all seven endangered species of sea turtle and is therefore an important priority for sea turtle conversation. In the RGV alone the prevalence of FP in green turtles observed at SPI has progressively increased from 15.25% in 2010 to 37% in 2017. Research into this growing wildlife health problem is sorely needed to better understand tumor biology with a view to identify targets for chemotherapeutic intervention.

We established a community based partnership to study fibropapilloma using genomic technologies. Our study will use transcriptome sequencing to compare the expression of genes in FP tumors to healthy tissue to identify genes altered in FP. We have obtained tissue samples (including blood, healthy tissue and tumor tissue) from 12 turtles, including three affected by FP at the time of collection, three turtles in remission following FP treatment and six healthy sea turtles never affected by FP. Transcriptome sequencing is currently underway and current results will be presented. This project was funded through a competitive proposal process by the UTRGV Transforming Our World Strategic Plan.

POSTER SESSION III, P-003

EFFECT OF SOMATOTROPINS IN RETINAL ENDOTHELIAL CELLS

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Expression of growth hormone (GH), prolactin (PRL), and placental lactogen (PL) and their respective receptors have been found in retinal cells and its main function has been postulated to confer neuroprotection and regulate blood vessels growth. Unbalance of these hormones has been described in some eye pathologies being diabetic retinopathy (DR) the most important one, because it's the leading cause of blindness in many parts of the world. In conditions with excess of GH, like; acromegaly, exogenous GH administration and pregnancy, DR has been found to have a more serious behavior which improves after GH levels return to normal. Also, higher levels of PL have been found in patients with a rapidly progressive DR. No study has aimed to analyze the influence that these hormones have on DR progression. This project aims to identify the potential pathogenic events that these hormones have on DR progression. The main objective of this study is to establish the effect of somatotropins in retinal endothelial cells (REC) viability and their effect on promoting the secretion of VEGF, IGF-1, and TGF-β by Müller cells, REC, and retinal pigment cells. For this purpose, we expanded and maintained the following cell lines: adult retinal pigment epithelial cells (ARPE19), Rhesus monkey retinal endothelial cells (RhRECs), and spontaneously immortalized human Müller cells (MIO-M1). After achieving complete cell confluence, cells were treated with (0 ng/µL, 5 ng/µL, 50 ng /µL y 500 ng/µL) of GH, PRL, IGF-1, and PL and VEGF, IGF-1 and TGF-B were measured with ELISA multiplex beads. We will be presenting and discussing the results in cell viability and expression of distinct cell growth factors induced by these somatotropins.

POSTER SESSION III, P-004

DISCOVERY OF NOVEL PHTHALOYL DERIVATIEVS OF 3-AMINO-3-ARYL-PROPIONIC ACID AS POTENTIAL TRANS-SIALIDASE INHIBITORS OF TRYPANOSOMA CRUZI FOR THE PHARMACOLOGICAL TREATMENT OF CHAGAS DISEASE

Muhammad Kashif, PhD (1) , Lenci K. Vazquez-Jimenez, MC (1), Julio Cesar Lopez-Cedillo, MC, (2) Benjamín Nogueda-Torres, PhD (2), Esther Ramírez-Moreno, PhD (3), Alma D. Paz-González, MC (1), Carlos Garcia-Perez, PhD (1), Muhammad Ashfaq, PhD (4), Gildardo Rivera, PhD (1)

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In the last two decades, *trans*-sialidase of *Trypanosoma cruzi* (TcTS) has been an important pharmacological target for developing new anti-Chagas agents. In a continuous effort to discover new potential TcTS inhibitors, 3-amino-3-arylpropionic acid derivatives (series A) and novel phthaloyl derivatives (series B, C and D) were synthesized and molecular docking, TcTS enzyme inhibition and determination of trypanocidal activity were carried out.

From four series obtained, compound D-11 had the highest binding affinity value (-11.1 kcal/mol) compared to reference DANA (-7.8 kcal/mol), a natural ligand for TS enzyme. Furthermore, the 3D and 2D interactions analysis of compound D-11 showed a hydrogen bond, π-π stacking, π-anion, hydrophobic and Van der Waals forces with all important amino acid residues (Arg35, Arg245, Arg314, Tyr119, Trp312, Tyr342, Glu230 and Asp59) on the active site of TcTS. Additionally, D-11 showed the highest TcTS enzyme inhibition (86.9% ± 5) by high-performance ion exchange chromatography (HPAEC). Finally, D-11 showed better trypanocidal activity than the reference drugs nifurtimox and benznidazole with an equal % lysis (63 ± 4 and 65 ± 2 at 10µg/mL) and LC50 value (52.70 ± 2.70 µM and 46.19 ± 2.36 µM) on NINOA and INC-5 strains, respectively. Therefore, D-11 is a small-molecule with potent TcTS inhibition and a strong trypanocidal effect that could help in the development of new anti-Chagas agents.

Funding source: CONACyT CB 2014-01, 241615.

FACULTY, STAFF, OTHER CATEGORY

POSTER SESSION III, FSO-002

THE SUSTAINABLE DIET: NUTRITION FOR HEALTH, EQUITY AND THE ENVIRONMENT

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"Food systems are making us sick" (IPES-Food, 2017) was the conclusion of an international panel's investigation of diet-related diseases, inequities in food production, and industrial farming's degradation of natural resources. Using a framework of sustainability, a study of RGV students shows how to adopt a health-promoting diet within a poor food environment.

The Western diet is based on a food production system that contaminates the environment, exploits laborers, and contributes to poor health. Despite the focus on "increasing production at any cost" (FAO, 2018), hunger persists and rates of obesity have soared. In the RGV, high rates of both obesity and food insecurity reflect the paradox of a population that is overfed but undernourished. Reaching the UN's sustainable development goal of "zero hunger" requires attention to the triple bottom line of human well-being, economic integrity, and environmental health (Flint, 2013).

Agroecology, which draws from scientific methods and indigenous knowledge, contributes to a sustainable diet by protecting natural resources, producing nutritious food and supporting local economies (FAO, 2018). A plant-based diet is more sustainable because it has "lesser environmental impact" and "is more health-promoting" (Scientific Report of the Dietary Guidelines Advisory Committee, February 2015). The positive health outcomes of plant-based diets include "significant weight loss and reduced risk of cardiovascular disease and mortality" (Tuso et al., 2013).

To facilitate university students' transition to a sustainable (plant-based) diet, a pilot nutrition education program was implemented including 9 weekly sessions. Pre-and post-program surveys revealed a positive relationship between level of commitment to nutritional goals and satisfaction with outcomes. Two-thirds of the participants reported that a friend or relative also increased consumption of plant-based foods. The results demonstrated the importance of social support in facilitating dietary change within a challenging food environment.

POSTER SESSION III, FSO-003

A JOURNEY TOWARDS SELF-AWARENESS: SOCIAL WORK EDUCATORS' EXPERIENCES

Leyla Feize

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Researchers, educators and practitioners in helping professions have strongly emphasized practicing self-awareness. However, direct experiences of health professionals and educators have been rarely explored. This qualitative study

explored social work educators' journey towards self-awareness. Thirty-five social work educators from 27 college and universities across the United States agreed to participate in this study. Analyzing narrations of the participants revealed that five factors facilitate the process of self-awareness: Curiosity, Marginality, Resiliency, Society Disenchantment, and Loss and Death. This is the first study that explores educators' experiences of self-awareness. In the future, the factors that facilitate self-awareness can be explored more in depth.

POSTER SESSION III, FSO-005

IMPACT OF ALCOHOL DEHYDROGENASE 1B (ADH1B) ON INSULIN RESISTANCE IN HUMAN SUBCUTANEOUS ADIPOCYTES

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Insulin is an essential hormone that is needed to maintain glucose homeostasis. When blood glucose levels rise, insulin is released to trigger a complex signaling cascade that activates multiple cell processes, including glucose uptake. Consequently, insulin modulates the metabolism of carbohydrates, fats, and proteins. The failure of cells and tissues to respond to insulin is known as insulin resistance (IR), and IR can lead to serious health problems including Type 2 Diabetes (T2D). Obesity (OB) is a major contributor to the development of IR and T2D. The prevalence of both OB and T2D is disproportionately high in ethnic minorities, including Mexican Americans, due in part to a genetic predisposition to these metabolic disorders. Previously, we identified alcohol dehydrogenase 1B (ADH1B), an enzyme that metabolizes alcohol, as a genetic candidate that may contribute to OB/IR in Mexican Americans. In the current study, we performed a meta-analysis in Mexican Americans, Pima Indians, African Americans and Europeans and found that *ADH1B* expression was strongly inversely correlated with BMI. We used human subcutaneous adipocytes from "lean" (BMI <27 kg/m2) and "obese" (BMI >30 kg/m2) donors and demonstrated that ADH1B protein expression at the cellular level was also inversely proportional to BMI. Interestingly, western blot analysis showed that treatment of adipocytes with insulin, induced an increase in ADH1B expression, whereas inhibition of AKT, a key mediator of insulin signaling, suppressed this effect. Insulin treatment also stimulated ADH1B enzyme activity. Loss of *ADH1B* expression in adipocytes *via* transient transfection of small interfering RNA (siRNA) resulted in a 35% decrease in insulin-mediated glucose uptake. Therefore, disruption of ADH1B expression at the transcriptional and translational level may contribute to insulin resistance. Our novel findings suggest that ADH1B plays an important role in adipocyte insulin signaling and activity and thus, may contribute to obesity, T2D and related metabolic disorders.

POSTER SESSION III, FSO-008

GENETICS OF VITAMIN D LEVELS IN MEXICAN AMERICANS FROM THE SAN ANTONIO FAMILY STUDY

Ana C. Leandro(1), Nicholas B. Blackburn(1), Juan M. Peralta(1), Marcelo Leandro(1), Satish Kumar(1), Marcio Almeida(1), Ravindranath Duggirala(1), Michael C. Mahaney(1), John Blangero(1), Joanne E. Curran(1)

(1) South Texas Diabetes and Obesity Institute and Department of Human Genetics, University of Texas Rio Grande Valley School of Medicine, Brownsville TX

Vitamin D (25(OH)) deficiency is a significant health problem disproportionally affecting Mexican Americans. Insufficiency has been linked to several diseases including cardiovascular disease (CVD) and type 2 diabetes (T2D). 25(OH) is a measurable biomarker, influenced by genetic and environmental factors, with many described disease associations. Whole genome sequencing (WGS) allows for the identification of the full spectrum of genetic variation, including those variants considered rare with potentially large effects. Our Mexican American cohort has high levels of metabolic related disorders, including CVD and T2D, and many CVD and T2D related traits show significant heritabilities indicating a genetic component to disease risk.

In this project, aimed at determining the influence of genetic on vitamin D levels, we will measure vitamin D levels in 1,400 Mexican American individuals. Then using existing WGS data from these individuals, we will explore the effects of rare genetic variations on vitamin D levels to evaluate existing hypotheses and association signals, to identify novel genetic variants and genes contributing to vitamin D levels, and to test for genetic correlation between vitamin D levels and the risk of CVD and T2D, using a cross-sectional extended pedigree study design.

In preliminary analyses of 405 subjects, we show that vitamin D levels are significantly heritable, with 18.35% of the variation in levels due to genetic factors ($p = 0.028$). A genome-wide linkage scan at single centimorgan resolution has identified suggestive linkage peaks on chromosome 2 and 10. Using genetic variants identified through our WGS data we will explore genotype associations with vitamin D in linkage regions, previously reported candidate genes and also genome-wide focusing specifically on variants likely to affect gene function. We are currently expanding the number of samples with vitamin D measured (to 1,400 individuals) to improve our power to detect these associations.

POSTER SESSION III, FSO-009

THE POLITICS OF RACE AND ETHNICITY IN PRE- AND POSTNATAL CARE FOR AFRICAN AMERICAN WOMEN

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Among its many goals, the ACA attempted to remove existing disparities from the healthcare system. One such disparity was the quality of pre- and postnatal care received by black women compared to the quality of care received by Caucasian women. A common measurable outcome of maternity care is the rate of maternal mortality. Unfortunately, the highest amount of maternal deaths occur among black women across all levels of income compared to women of different races. The CDC finds that "…black mothers in the U.S. die at three to four times the rate of white mothers, one of the widest of all racial disparities in women's health" (CDC, Pregnancy Mortality Surveillance System). The postpartum experiences of World Tennis Champion Serena Williams provides important insights about the dangers black mothers

(across all income and education levels) experience when their medical providers ignore their concerns. Therefore, I examine the following questions: First, what insights do we gain from the existing literature regarding the experiences of these women and why they occur? Second, attempts to address these dangers and to improve care received by all women have occurred through the ACA. Thus, what provisions were included in the ACA that indirectly addressed (at times) subpar levels of care received by black females during their maternity journey? Also, were there significant improvements in quality of care or reduction in infant and maternal mortality among black mothers? In order to answer these questions, I will provide a summation of existing health policy research which discusses how the quality of care black women receive is affected by their race and socioeconomic status. Following this discussion, the ACA's attempt to address and improve care for these women as well as weaknesses in its attempts will be explored.

POSTER SESSION III, FSO-010

A RANDOMIZED CONTROLLED TRIAL OF TIME2TALK2BABY: AN AUDIO COACHING APP TO BRIDGE THE WORD GAP

Sissel Peggy (1) Edge Nicola (2) Allegre Alberto (3)

(1) Words To Grow On, LLC; (2) UAMS, Department of Family and Preventive Medicine; (3) UTRGV, Department of Pediatrics

The Time2Talk2Baby smart phone app provides parents of young children with daily support and suggestions for ways to engage babies with more verbal interaction. A key aim of this randomized controlled study was to assess whether parents' use of the program could significantly advance a child's language skills. Ninety mothers of children ages 2 months to 34 months were enrolled in the study and placed into treatment and control groups. The LENATM Development Snapshot was used to assess each child's level of language development prior to the study period and then again after nine weeks of programming. Results of the study include finding a statistically significant difference in the language development of children whose mothers used the program versus those whose mothers did not; in addition, a positive correlation was found between the number of times mothers used the app and increases in their children's pre and post standard scores.

POSTER SESSION III, FSO-011

MEDICAL MISTAKES AND SOCIAL INJUSTICE – AN UNLIKELY ALLIANCE?

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The proposed paper will trace the not so obvious indirect and, sometimes, also direct links between medical mistakes and social injustices.

In our highly mediated world, over- and undertreatment and other deviances from "best practice" recommendations and/or application of "average skills" have the potential to be perceived as injustices when behaviors are judged as biased or discriminatory, hopes and expectations been disappointed or negative expectations met. Undeserved treatment that is attributed to one's membership in a particular minority group will likely be considered a social injustice

and, with it, influence future engagement with health care and other services. Vice versa, social injustices inherent in the development process of best practice recommendations, diagnostic tests, and medications can contribute to the occurrence of medical mistakes. The same is true for social injustices that are built into health care delivery in the form of contradictory rules and regulations (because of links to insurance, medical technologies, pharmaceutical and other industries) as well as into the geographic, political, and environmental context of health care. With it, the doctor/nurse/technician/administrator – patient/guardian/family relationship gets further complicated and both sides are likely to experience challenges to their moral compasses.

Methodology: analysis of error and health equity statistics within the framework of a philosophy of embodiment.

POSTER SESSION III, FSO-012

GLYCATED SERUM PROTEIN (GSP) USED AS AN ALTERNATE MEASURE OF BLOOD GLUCOSE LEVELS.

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Background: Fasting glucose (FG) and glycated hemoglobin A1c (HbA1c) are currently the most prominent tests being used to measure glucose in the body. Due to logistical and/or financial reasons, obtaining these measurements can sometimes be difficult to acquire. Moreover, an inadequate fast or red blood cell abnormalities can result in spurious FG or HbA1c results, respectively. The purpose of this study is to assess the utility of glycated serum protein (GSP) as a possible alternative measure of blood glucose. Our working hypothesis is that GSP is positively correlated with FG and HbA1c.

Methods: A total of 247 Mexican American individuals from 37 families in the south Texas region were included in this study. FG and HbA1c were determined from fasting serum and whole blood samples, respectively, using standard clinical assays at an accredited diagnostic laboratory in San Antonio, Texas. GSP was determined from fasting serum samples using the Diazyme Glycated Serum Protein assay kit. Correlation analyses were performed using our software package, SOLAR.

Results: The mean (SD) age of our sample size is 51.0 (16.1) years, and 63.2% is female. The mean (SD) of the tested blood glucose traits are as follows: FG; 115.0 (58.2) mg/dL, HbA1c; 6.5 (1.8) %, GSP; 305.8 (138.3) µmol/L. The correlations between GSP and FG, and HbA1c were positive and significant (p-value ≤ 8.06×10-14). In our sample, 56 (22.7%) individuals were diabetic (currently taking medication). The correlations between diabetes and FG, HbA1c, and GSP were all positive and significant (p-value ≤ 4.05×10-12).

Conclusion: Data acquired from this study can be used to support the use of GSP as an alternative or complimentary measure of blood glucose levels in patients with or without diabetes. Such a test would be beneficial where traditional measures of blood glucose are prohibitive.

POSTER SESSION III, FSO-013

NEXT GENERATION SEQUENCING EXOME LIBRARY PREPARATION WITH ILLUMINA AND ROCHE TECHNOLOGY: A COMPARISON

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Over the past decade next generation DNA sequencing (whole-genome or whole-exome) in biological sciences has become ubiquitous. As the use and understanding of these methods increase, the importance of finding a reliable, cost-effective method to generate data has become even more significant. Illumina currently dominates the market share of the next generation sequencing sector and as a consequence may dictate pricing. By testing alternative sample preparation methods overall experiment cost may be kept to a minimum. We isolated DNA from a family-based cohort from the Jiri region in southeast Nepal, using a phenol-chloroform DNA extraction method from whole blood clots. We performed two different exome library preparations using two kits: Roche's KAPA HyperPlus with the SeqCap EZ MedExome and Illumina's Nextera DNA Exome with the aim of assessing sequencing fold coverage, run performance (Q-30 scores), cost, scalability (defined for our purposes as the number of hours it takes to generate 24 sample libraries), and ease of workflow between the two methods. Twenty-four samples were replicated using both library preparation kits and sequenced on the same flow cell using Illumina V4 sequencing chemistry reagents on the HiSeq 2500. We found that the Illumina kit was priced similarly to the Roche kit, but the Roche kit becomes a significantly cheaper option as the protocol is scaled up, although for larger sample volumes the Illumina kit is more user friendly. Pre-sequencing, the Roche exome libraries were of better quality, more consistent in size, and had higher concentrations; indicating a more efficient enrichment. However, post-sequencing, the Illumina exome libraries outperformed the Roche exome libraries with higher Q-30 scores (93.1 vs. 89.5). Both exome libraries performed well in different areas and depending on the needs of the researcher both exome library preparation kits should be considered accordingly.

POSTER SESSION III, FSO-016

GENETICS OF BONE MASS RELATED PHENOTYPES AND THEIR CORRELATION WITH CARDIOMETABOLIC TRAITS IN MEXICAN AMERICAN CHILDREN

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Background: The relationship between fat mass (FM) and bone mass has been controversial, and the association between bone mass and cardiometabolic traits (CMTs) is not extensively studied in children. Hence, this study examined the genetics of DXA-based bone mass related traits including bone mineral content (BMC), bone mineral density (BMD), and bone area (BA) and their correlation with selected CMTs, using data from San Antonio Family Assessment of Metabolic Risk Indicators in Youth (SAFARI) Study.

Methods: As part of SAFARI, a large battery of clinical and covariate data were collected including CMTs such as obesity, blood pressure, lipid and glycemic traits. All genetic analyses were conducted using data from non-diabetic children (N=670; Girls=330) and SOLAR program, after accounting for appropriate covariate effects (e.g., age, sex, pubertal status).

Results: All bone measures were significantly ($P<0.05$) heritable (h2 range= 0.47 to 0.54) and shared significant genetic influences (i.e., pleiotropy) with certain CMTs. Both BMC and BMD were under strong common genetic influences. BMC exhibited significant genetic correlations (ρGs) with lean mass (LM), waist circumference (WC), fat mass (FM), body mass index (BMI), fasting insulin (FI), Homeostasis Model Assessment of Insulin Resistance (HOMA-IR), number of metabolic syndrome components (MSC-N), percent body fat (%BF), and systolic blood pressure measures (SBP) [range of ρGs: 0.31 to 0.47]. BA also exhibited similar patterns of ρGs. Even though BMD failed to be significantly genetically correlated with CMTs, once adjusted for body weight exhibited significant inverse ρGs with BMI, WC, %BF, and FM [range of ρGs: -0.50 to -0.41]. Similar findings were observed in adults relating to BMC, and BMD correlations with CMTs with or without adjusting for body weight.

Conclusion: We found that BMC, BMD, and BA were under strong additive genetic influences, which also exhibited complex common genetic influences with various cardiometabolic traits in MA children.

POSTER SESSION III, FSO-018

DEMYSTIFYING THE "MODEL MINORITY" YOUNGSTERS' COUNSELING NEEDS

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The Asian American population grew more than four times faster than the total United States population from 2000–2010; although not the largest ethnic minority, the group is the fastest growing single race (U.S. Census Bureau, 2012). Due to their educational and economic attainments, the group has been stereotyped as a "model minority" whose members cannot possibly be troubled or need assistance.

However, the model-minority image often increases other groups' anti-Asian discrimination and racism because it arouses envy and fear (Hartlep, 2013), thus adding mental health distress for many of Asian descent (McAuliffe & Associates, 2013). Comparing 936 Asian Americans and 865 Latinos/Latinas in PreK–12 settings, Guo, Kataoka, Bear, and Lau (2014) found that positive school performance may create barriers for high-achieving Asian Americans to access mental health services. The study further showed that Latinos/Latinas "were 63.1 times more likely than Asian Americans to be referred for the service" (Guo et al., 2014, p. 33). Based on the striking disparity and other research, Guo et al. (2014) concluded school personnel may have particular difficulties to identify Asian American students' needs.

In this study, Asian American students' counseling concerns and the resulting challenges posed to school counselors were surveyed nationwide via (a) e-mail with 158 members of the American School Counselor Association [ASCA] and (b) regular mail with 296 counselors in school districts having high concentrations of Asian Americans. Counselors ranked concerns by frequency: (1) *expectations and pressures*, (2) *language and cultural barriers*, (3) *counseling barriers*, and (4) *logistical needs*. The school-district counselors identified all four concerns as challenges; the ASCA members only identified (1) and (3). *Expectations and pressures* was uniformly the foremost student concern for both groups. This presentation also includes suggestions for practice and research regarding the advancement of counseling Asian American youngsters.

POSTER SESSION III, FSO-021

IDENTIFICATION OF ZINC AS A FUNCTIONAL REGULATOR OF PSD-95 AT POSTSYNAPSES

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PSD-95 is an important postsynaptic membrane-associated protein. It is a central component of postsynaptic densities and plays a primary role in synaptic development and maturation. PSD-95 mediates postsynaptic location of AMPA receptors through its N-terminal C3/C5 palmitoylation/depalmitoylation switch. The palmitoylation-site N-terminus

contains a zinc finger motif with unknown function. In this study, the interaction between Zn2+ and PSD-95 N-terminus was investigated by solution NMR, fluorescence spectroscopy and mutagenesis assay. The 15N-labeling PSD-95 N-terminal protein was expressed and purified. The pure protein was titrated by ZnCl2 and detected by 15N-1H HSQC spectra. The titration results demonstrated that Zn2+ ion binds to PSD-95 N-terminus with binding affinity (*K*d) in the micromolar range, and two cysteines (C3 and C5) and two histitines (H24 and H28) are critical residues for the binding. The binding of Zn2+ to the N-terminus of PSD-95 was further confirmed by fluorescence spectroscopy and mutagenesis. These results suggested that the concentration-depending zinc binding is likely to influence palmitoylation modification of PSD-95 as zinc binding sites overlap with palmitoylation sites, which was supported by our mimic PSD-95 palmitoylation modification experiments. Our studies reveal that zinc can function as a PSD-95 postsynaptic membrane association regulator indicative of its importance in postsynaptic signaling.

POSTER SESSION III, FSO-024

PREVALENCE AND AWARENESS OF CATARACT IN THE JIREL POPULATION OF EASTERN NEPAL

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Correctable/avoidable blindness and visual impairment (VI) are part of a worldwide public health issue that is particularly prevalent in developing countries such as Nepal. The World Health Organization developed VISION 2020 as a global initiative to eliminate the issue by 2020. We examined a correctable form of vision impairment by assessing the prevalence and awareness of cataract in the Jirel population of Eastern Nepal. Cataract is a major cause (10-30%) of blindness and VI in Nepal. Given the high prevalence of cataract in Nepal, we hypothesized that the concordance between awareness and prevalence of this disease in the Jirels was high. For this assessment, two things were taken into account: the ophthalmologist's diagnosis of cataract and the participant's answers to a cataract awareness questionnaire administered by trained research staff. Out of the 1515 completed questionnaires, 212 (~14%) individuals were diagnosed with cataract, of which only 25 (~12%) were aware of the disease. Of the 1303 (~86%) individuals who did not have cataract, only 310 (~24%) were aware of the disease. In conclusion, there appeared to be a discordance between prevalence and awareness of cataract in Jiri, Nepal. By examining cataract questionnaire responses, we can obtain a better idea of the population's awareness of the disease and thus, take this information into consideration when working with a community to inform them on how this disease can be minimized (e.g., quit smoking) or corrected (e.g., surgery). Furthermore, studies of cataract awareness and proposed strategies to reduce the burden of disease in populations like the Jirel ethnic group may provide a model to address this and other health issues in underserved communities throughout the world, including the Rio Grande Valley.

POSTER SESSION III, FSO-027

AMERICA'S YOUNGEST KINDERGARTENERS' ELEVATED LEVELS OF INTERNALIZING PROBLEMS AT SCHOOL ENTRY AND BEYOND: EVIDENCE FROM THE EARLY CHILDHOOD LONGITUDINAL STUDY

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The study investigated developmental trajectories of internalizing problems from kindergarten to fifth grade in young kindergarteners versus older peers in kindergarten, as well as factors that may be attributed to such differential trajectories. Data on a sample of 9,796 kindergarteners from the Early Childhood Longitudinal Study were analyzed using individual growth curve models. Results revealed that the younger kindergarteners displayed more symptoms of internalizing problems than their older peers at school entry and that such elevated levels of problems persisted into fifth grade. Protective factors included higher socioeconomic status and favorable parental perceptions of child's abilities to pay attention and solve problems. These findings are informative for school-based early intervention efforts.

POSTER SESSION III, FSO-028

ROLE OF RNA BINDING PROTEIN HUR IN CCL2 ALLELIC EXPRESSION IMBALANCE

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Introduction: CC chemokine ligand 2 (CCL2), the most potent monocyte chemoattractant, is implicated in a number of inflammatory diseases that are associated with monocyte/macrophage recruitment such as atherosclerosis, HIV-associated Neurocognitive Disorder (HAND), and tuberculosis. Genetic variation in *CCL2* is associated with increased CCL2 expression *in vivo* and *ex vivo* and increased leukocyte recruitment *in vivo*. We and others showed that *CCL2* rs1024611G-rs13900T haplotype is associated with increased CCL2 expression and deleterious disease outcomes. Furthermore, we demonstrated that rs1024611G bearing haplotype is associated with allelic expression imbalance in the *CCL2*. However, the mechanisms that lead to this imbalance are unknown.

Purpose: In this study, we examined the hypothesis that the disease associated rs1024611G-rs13900T haplotype exhibits differential interactions with the RNA binding protein HuR leading to enhanced *CCL2* expression.

Methods: Bioinformatics approaches were used to assess the impact of rs13900 on HuR binding and the secondary structure changes in 3'-UTR. Differential binding of HuR to rs13900C/T in vitro and ex vivo was determined by RNA electrophoretic mobility shift assays (RNA-EMSA) and RNA immunoprecipitation assays (RIP). Effect of C to T transition

on mRNA stability was determined by reporter assay constructs. Finally, the effect of overexpression of HuR on CCL2 expression in monocytes/macrophages was assessed.

Results: Bioinformatic analysis showed that rs13900 alters a predicted HuR binding site and CCL2 mRNA secondary structure. RNA-EMSA showed enhanced binding of rs13900T with HuR relative to rs13900C. RIP assays also confirmed HuR binding to CCL2 3'-UTR with increased binding to rs13900T. A 3'-UTR reporter construct bearing rs13900T showed higher expression levels relative to a construct with rs13900C. HuR overexpression led to increased levels of CCL2 expression.

Summary: These results shows that HuR may mediate expression of CCL2 through differential binding to rs13900.

POSTER SESSION III, FSO-029

EVALUATION OF THE FOOD AND BEVERAGE ENVIRONMENT OF THE UNIVERSITY OF TEXAS RIO GRANDE VALLEY BROWNSVILLE CAMPUS

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College has been suggested as a critical period for weight gain among young adults. Poor dietary habits among students is proposed as one pathway leading to an increased weight. Due to the convenience of purchasing food and beverages on or near campus, the availability of foods and beverages within campus has a significant impact on students' dietary habits. It is unknown whether the University of Texas Rio Grande Valley (UTRGV) Brownsville Campus provides healthy food and drink options. Therefore, the objective of the current study was to assess the food and beverage environment encompassing the UTRGV Brownsville Campus.

Two visiting students inspected campus buildings to identify on-campus food and beverage options including restaurants, water fountains, and vending machines. Google Maps was also utilized to search for food options within a one-mile radius of campus. Food options were classified into six categories, whereas drinking fountains' taste, pressure, visibility, cleanliness, and water bottle refill extensions were evaluated.

In total, there were 47 food locations and 46 water fountains within a one-mile radius of the campus. Fast food establishments (23%), convenience stores (15%), and vending machines (15%) represented over half of the food options located on or near campus. Seven out of the 11 on-campus food options were food vending machines. Furthermore, all 46 of the water fountains had poor taste quality in addition to many fountains having low visibility (17%), low pressure (11%), and lacking a water bottle refill extension (91%).

The findings suggest there are limited healthy food options for students attending the UTRGV-Brownsville Campus. Additionally, students may find it difficult to consume water due to the poor taste quality and lack of water bottle extensions on drinking fountains. Establishing healthy on-campus food options and improving water fountain quality may help to improve dietary quality among students.

POSTER SESSION III, FSO-030

CREATING CARDIOLOGY FELLOWSHIP TRAINING TO ADDRESS EXCESS CARDIOVASCULAR MORTALITY IN THE RIO GRANDE VALLEY

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Cardiovascular disease is the most common cause of death in the in the United States. South Texas Hispanics have a higher cardiovascular mortality rate than Hispanics in the rest of Texas. The purpose of this study is to review current curricular strategies to create cardiovascular training to address the health disparities in the Rio Grande Valley. We first conducted a search of the PubMed and OVID/Medline databases using the keywords terms Cardiology Fellowship, Education and Cardiovascular Disease prevention.

Clinical trials show modifying risk factors can slow progression of atherosclerosis and reduce the occurrence of clinical events in both primary and secondary prevention settings. Despite the fact that clinical outcomes can be improved, the application of preventive interventions in the clinical practice of cardiovascular medicine is not optimal. An anonymous survey to cardiology program directors revealed that only 24% of surveyed programs met the Core Cardiovascular Training Symposium guidelines with a dedicated 1-month rotation in preventive cardiology, 24% had no formalized training in preventive cardiology, and 30% had no faculty with expertise in preventive cardiology.

Our research revealed several important components to building preventative cardiology training. The faculty should be able to function as role models in preventive cardiovascular medicine. Facilities should be available to manage patients undergoing cardiac rehabilitation and lifestyle modification measures. CVD prevention evaluation tools include direct observation by instructors, in-training examinations, conference and case presentations, and reflection and self-assessment.

It is imperative that cardiovascular training programs provide the necessary education and training to promote best practices among their trainees, who bear the responsibility to provide optimal preventive services to their patients. The UTRGV Cardiology Fellowship program will include faculty, facilities, and training to provide the necessary prevention services for cardiovascular disease in our community.

POSTER SESSION III, FSO-032

GENERATION OF FUNCTIONAL CARDIOMYOCYTES FROM CRYOPRESERVED LCLS USING IPSC TECHNOLOGY

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Cardiac dysfunction is an important and independent risk factor for clinical heart failure (HF). Hispanics/Latinos are at higher risk of developing cardiac dysfunction due to higher prevalence of diabetes mellitus, obesity and hypertension. The high incidence of diabetes is 64% higher than non- Hispanic white Americans is a matter of particular concern due to diabetic induced cardiomyopathies. The induced pluripotent stem cell derived cardiomyocytes holds high promise to

provide a more predictive and clinically relevant tool for *in-vitro* modelling of environmental and patient specific genetic conditions, to better understand the molecular bases of cardiac dysfunction and facilitate the development of better therapeutics. Here we describe a simple highly efficient workflow to develop functional cardiomyocytes from cryopreserved lymphoblastoid cell lines (LCLs). Our large repository of LCLs established from > 1400 subjects of our San Antonio family heart study, Mexican American cohort provides a great opportunity to generate cardiomyocytes to study cardiac dysfunction, because a multitude of cardiovascular diseases related phenotypic data and whole genome DNA sequences of donors already exist.

To generate functional cardiomyocytes, de-identified LCLs were reprogrammed into iPSCs using our highly efficient LCL to iPSC reprogramming method. The well characterized and functionally validated iPSCs were then differentiated into functional cardiomyocytes in a commercially available completely defined, growth factor and serum-free media system, which uses a temporal modulation of regulators of canonical *Wnt* signaling to induce cardiogenesis in iPSCs.

The LCL reprogrammed iPSCs formed flat and compacted colonies, showed high nucleus-to-cytoplasm ratio, expressed pluripotency markers (Oct 4, Nanog, SSEA4, TRA-1-60, TRA-1-81), and showed the potential to differentiate into cells of all the three germ layers. The cardiomyocytes differentiation yielded about 80 % physiologically active beating cardiomyocytes. The generated cardiomyocytes expressed early mesoderm marker NKX2-5 and mature cardiomyocytes markers TNNT2.

POSTER SESSION III, FSO-034

DOPAMINE PERTURBATION OF GENE CO-EXPRESSION NETWORKS REVEALS DIFFERENTIAL RESPONSE AMONG SCHIZOPHRENIA SUBJECTS FOR TRANSLATIONAL MACHINERY

Mark Kos (1), Jubao Duan (2,3), Alan Sanders (2,3), Lucy Blondell (1), Eugene Drigalenko (4), Melanie Carless (4), Pablo Gejman (2,3), Harald Goring (1)

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The dopaminergic hypothesis of schizophrenia (SZ) postulates that positive symptoms of SZ, in particular psychosis, are due to disturbed dopaminergic neurotransmission via the dopamine (DA) receptor D2 (DRD2), for which most antipsychotic drugs antagonize. However, dopaminergic abnormalities in SZ tend to be pre-synaptic and likely non-receptor-mediated, with the oxidative effects of DA linked to cellular toxicity and neurodegeneration. To investigate the non-receptor-mediated effects of DA on gene expression patterns in SZ, we used a cell perturbation approach *ex vivo*, generating transcriptomic profiles in B-cell transformed lymphoblastoid cell lines from 514 SZ cases and 690 controls, both before and after DA exposure (100 µM). Weighted Gene Co-expression Network Analysis (WGCNA) of RNA-seq data identified seven co-expression modules under baseline conditions, of which six were preserved in DA-stimulated data. One of these modules shows significantly increased association with SZ after DA perturbation (baseline: P=0.023; DA-stimulated: P=7.8×10-5; ΔAIC=-10.5). This module is highly enriched for ribosomal proteins (FDR=2×10-110) and genes involved in co-translational targeting (FDR=4×10-141), as well as mitochondrial oxidative phosphorylation and neurodegeneration. Genome-wide SNP association testing revealed tentative QTLs underlying the module co-

expression, most notably at *FASTKD2* (top *P*=2.8×10-6), a gene involved in mitochondrial translation. These results provide key insights into the long-standing dopaminergic hypothesis of SZ by substantiating the role of translational machinery in SZ pathogenesis, with a potential dopaminergic mechanism disrupting mitochondrial function, and demonstrates the utility of disease-relevant functional perturbation to the study of complex genetic etiologies.

POSTER SESSION III, FSO-035

DESCRIPTION AND CHARACTERIZATION OF THE DEVELOPING BRAIN OF THE GRAY SHORT-TAILED OPOSSUM (*MONODELPHIS DOMESTICA*)

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Monodelphis domestica is a laboratory marsupial with unique advantages over traditional models for neurodevelopmental studies. At birth, *M. domestica* are developmentally similar to a 12.5-day old mouse embryo or 6-week old human embryo. The immaturity of the neonates makes this species an exceptional animal model for investigating high-risk events during embryonic development that may increase susceptibility to neurodevelopmental disorders like influenza virus infections and autism spectrum disorder. However, there is little available documentation of early brain development for this species. To address this gap in knowledge, we obtained sequential *M. domestica* brain preparations for anatomical studies during pre- and post-natal development. We then used Nissl-stained tissue sections to develop high-resolution images for analysis of the brain. Here we compare the anatomy of the developing *M. domestica* brain at embryonic day 13.5 (E13.5) and postnatal day 10 (PND10) to that of the mouse brain at equivalent developmental time points. Using image analysis software, we describe the general macroscopic and cytoarchitectural characteristics of the *M. domestica* brain and compare the rate of change from E13.5 to PND10 to the rate observed in mice. Our preliminary work suggests that major brain areas, like the hippocampus, cortical areas, and brainstem, are similar in both species, but there are differences that warrant further investigation. Additional analyses are currently being conducted to identify species differences in the size and organization of different brain areas. These findings open the door to study environmental risk factors, such as influenza virus infections, that are linked to subsequent neurodevelopmental disorders.

POSTER SESSION III, FSO-036

SERUM CAROTENOIDS AND PEDIATRIC ADIPOSITY INDEX PREDICT INSULIN SENSITIVITY IN MEXICAN AMERICAN CHILDREN

Srinivas Mummidi (1), Joselin Hernandez-Ruiz (1), Vidya Farook (1), Lavanya Reddivari (2), Alvaro Diaz-Badillo (1), Roy Resendez (1), Feroz Akhtar (1), Joanne E. Curran (1), Christopher P. Jenkinson (1), Rector Arya (1), Donna M. Lehman (3), Ralph A. DeFronzo (4), Daniel E. Hale (5), John Blangero (1), Jairam Vanamala (2), Joan Carlos Lopez-Alvarenga (1), Ravindranath Duggirala (1)

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Background. We recently showed in Mexican American (MA) children belonging to low-income extended families that serum levels of alpha-carotene and beta-carotene are under strong genetic additive influences and that they have correlations with several cardiometabolic traits (CMTs). We also described a Pediatric Metabolic Index (PMI) that correlates with insulin resistance (IR) indices (e.g., HOMA-IR) after adjusting for age and sex. A PMI score > 2.0 predicts metabolic abnormalities including IR in children. However, we found a group of children with PMI > 2 with normal IR and another group of children PMI < 2, but with high HOMA score, which predicts IR. In this study, we used surface-response analysis to assess interactions between carotenoids (surrogate markers of fruit and vegetable intake) and PMI over Matsuda Insulin Sensitivity Index (ISI) in MA children.

Methods. Four different carotenoids, namely, alpha-carotene, beta-carotene, lycopene, and beta-cryptoxanthin from 593 SAFARI children were measured by ultra-performance liquid chromatography-photodiode array. Oral glucose tolerance test (OGTT) was conducted, and glucose and insulin levels were used to obtain ISI. The surface response was used to determine two-way interactions of serum carotenoids and PMI on ISI. Statistical analysis was performed using STATISTICA (version 7).

Results. The surface response showed an increase in ISI in children with PMI scores between 2 to 4. However, this effect was modified with lower serum alpha- and beta- carotenoids and the interaction between the two variables had maximal effect on ISI. In contrast, there was minimal surface response to lycopene and beta-cryptoxanthin levels.

Conclusion: Children with lower serum levels of alpha- and beta-carotenoids showed less insulin sensitivity despite having an optimal PMI. Interactions between serum carotenoids with PMI may predict insulin sensitivity in MA children. Those children with moderate PMI scores can have a substantial improvement in insulin sensitivity with higher carotenoid levels.

POSTER SESSION III, FSO-041

PRODUCTION OF A RECOMBINANT ANTIGEN FOR THE DEVELOPMENT OF AVIAN INFLUENZA VACCINES

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Influenza A/H5N1 represents a potential risk of a worldwide pandemic event, and as we have witnessed in past influenza outbreaks, the current production chains for vaccination cannot supply the demand for emergencies such as these. Limiting factors include the need for eggs and active virus handling as well as turnaround time and cost, which are even more critical for the developing world. Most of the influenza A/H5N1 cases are contained in poultry; however, risk of zoonosis and spread of the virus in humans grows by the day, thus, a mass-produced fast-responding preventive vaccine is required. For this reason, developing avian vaccines can be a swifter approach to prevent human infection, since it involves less time-consuming procedures for approval than the development of human vaccines. In this article, we describe the production of a recombinant globular hemagglutinin subunit of influenza A/H5N1 hemagglutinin as a potential key ingredient of a new avian vaccine, using a prokaryotic biotechnological platform. We successfully produced the recombinant hemagglutinin subunit with yields over 1 g/L of culture and developed a simple semi-purification scheme obtaining a purity near to 90% without the need for any chromatographical step. Furthermore, the antigen proved to be reactive to mouse antibodies induced by a mammalian-cell expressed recombinant HA. This system is potentially faster, cheaper and more efficient than current means of vaccine production.

POSTER SESSION III, FSO-043

RELIABILITY, REPRODUCIBILITY AND SENSITIVITY FOR CONTRAST OF A QUESTIONNAIRE FOR ASSESSING SMOKING AND ALCOHOL INGESTION FOR RESEARCH WITH UNIVERSITY STUDENTS.

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Alcohol ingestion and smoke consumption are associated with junior university attendance and can be hazardous for health. Our aim was to standardize a questionnaire for smoking and alcohol habits in University Students. Methods. We included 95 students from two universities of Reynosa (UAT and UMAN) for test-retest, with 1st questionnaire (W1), a week later 62 returned for a second questionnaire (W2), the students were unaware they have to filling the questionnaire. This questionnaire collect demographic factors, and have 3 items for smoking and 23 for alcohol habit. Test-retest reproducibility was analyzed with paired Student t test, absolute agreement with weighted kappa coefficient or infraclass correlation coefficient (ICC), and Internal validity with Cronbach alpha. The sample size for reliability typically is 30 subjects for power 80%, alpha 0.05 and size of effect 0.3.

Results. Smoking habit was present in 16% of responders, started at age of 16 (2) years. Number of cigarettes and age of starting were quite reliable. Alcohol consumption was in 80% of responders, frequency of ingestion was kappa 0.5 (0.2, 0.7), and alcohol shot numbers at last party had ICC of 0.88 (0.75, 0.94). Age of first time being drunk was 17 (1.7) years, and had ICC 0.94 (0.86, 0.97). A question regarding time of ingestion was 111 (86) min, with ICC 0.53 (-0.19, 0.81). Type of ingested alcohol had high variability. Sensitivity to detect differences on W1 showed men had OR 5.8 (1.6, 19) for smoking, but no differences for alcohol. University or living previously in Reynosa did not show difference.

Conclusion. This questionnaire for smoking or alcohol consumption is reliable and sensitive to detect differences. This can be a useful tool for studies in young population.

POSTER SESSION III, FSO-044

ANALYSIS OF SUSPICIOUS *KRAS* AND *NRAS* MUTATION TEST RESULTS FROM IDYLLA TECHNOLOGY USING REAL-TIME PCR AND SANGER SEQUENCING

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Companion diagnostics allow doctors to decide which patients would benefit from a targeted drug therapy or, which patients should not be receiving said treatments. In metastatic colorectal cancer (mCRC), the screening of specific mutations in exons 2, 3 and 4 of *KRAS* and *NRAS* genes (mutation prevalence of 52.6% and 7.4% of all mCRC cases in *KRAS* and *NRAS*, respectively) is indicated as companion diagnostics in anti-EGFR monoclonal antibodies therapies, such as cetuximab and panitumumab, being better respondents those who do not have aforementioned mutations.

This study consisted in the mutation screening of *KRAS* and *NRAS* genes in parallel by two different technologies in 18 samples of paraffin-embedded tissue (FFPET) from patients with mCRC. Both technologies are based on real-time or quantitative polymerase chain reaction (qPCR). The first, based on the IdyllaTM KRAS Mutation Test and IdyllaTM NRAS-BRAF-EGFR S492R Mutation Test cartridges running on the Biocartis (Mechelen, Belgium) equipment. The second, using the RAS Mutation Screening Panel from Entrogen and the CFX96 Real-Time PCR Detection System-IVD. In the cases in which the results of these two technologies differed, the sample was subjected to a third technology, Sanger sequencing (SS), considered as the "Gold Standard" in clinical science research.

Of the 18 total samples included in this research, three gave discordant results between the qPCR-based technologies (Idylla cartridges vs. Entrogen Kit). In two discordant results, the SS gave the reason to the results thrown by the Kit of Entrogen, resulting in two false positives on the part of Idylla. In the third discordance was the Entrogen Kit that reported a false negative where SS gave the reason to Idylla. When Offering companion diagnostics, accuracy of technology must be unquestionable and thus mastered in the offering laboratory.

POSTER SESSION III, FSO-045

MUTATION FREQUENCY OF *KRAS, NRAS, BRA*F AND EGFR AND ITS CLINICOPATHOLOGICAL ASSOCIATION IN METASTATIC COLORECTAL CANCER IN MEXICAN PATIENTS.

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Colorectal cancer is the third most common cancer in the world and fourth in Mexico. One of the treatments for metastatic colorectal cancer (mCRC) is based on the inhibition of the epidermal growth factor receptor (EGFR) using anti-EGFR monoclonal antibodies. Previous studies have shown that the mutation status of the genes *KRAS*, *NRAS*, *BRAF*, and *EGFR* itself affects the response of this therapy, therefore they are used as biomarkers. The aims of this study were to determine the mutation frequency of *KRAS*, *NRAS*, *BRAF,* and *EGFR* genes and to relate it to the clinicopathological characteristics of mCRC in Mexican patients. In this retrospective study, we included 500 mCRC cases from different hospitals from all over Mexico between January 2016 and June 2018. Around 250 samples were tested for *KRAS*, *NRAS*, *BRAF*, and *EGFR* (S492R) mutations using IdyllaTM technology (Biocartis, Belgium). For the rest of the cases, *KRAS* and *NRAS* mutation analysis was performed by Sanger sequencing. It was found that 51% of the samples were wild-type and 49% were mutated (40% in *KRAS*, 5% in *NRAS*, 3% in *BRAF*, 1% in *NRAS* and *BRAF*, and none in *EGFR*). In addition, clinicopathological parameters such as tumor site and histological grade were found to be associated with the genotype.

POSTER SESSION III, FSO-047

EXPLORING MATERNAL URINARY TRACT INFECTION DURING GESTATION AMONG HISPANIC CHILDREN WITH AUTISM SPECTRUM DISORDERS. – A PILOT STUDY IN THE RIO GRANDE VALLEY

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Background: Peer-reviewed research suggests that maternal bacterial infections during gestation can increase the risk of intellectual disabilities in the child by impacting neurodevelopment. Studies have indicated that 60-65% of the risk for developing Autism Spectrum Disorders (ASD) could be due to external factors in the pre-, peri-, or postnatal environment. Hispanic children with autism and their mothers living in the Texas Rio Grande Valley (RGV) have yet to be studied for potential environmental triggers that could influence development of ASD. **Purpose**: The University of Texas RGV Hispanic Autism Research Center (HARC) examines the environment of the Texas-Mexico border to evaluate for causes of ASD specific among Hispanic children. **Methods**: This pilot study recruited 25 Hispanic mothers and their biological children with autism and 25 Hispanic control mothers and their typically developing children. Participants completed a twelve-part survey and a subset of topics were analyzed, such as maternal illnesses during gestation, maternal health history, and child health history. The goal was to identify potential causes for autism among Hispanic children who reside on the US-Mexico border. **Results**: STATA statistical analysis demonstrated that mothers who give birth to Hispanic children with autism have significantly increased rates of urinary tract infections (UTIs) during their

pregnancy (n = 10/25, 40%, p = 0.018). Studies exploring UTIs' influence on the fetus during gestation are sparse, but existing evidence on bacterial infections suggests that an increase in cytokine production and eventual immune dysregulation may affect neurological development in the fetus. **Conclusion**: UTIs may cause immune dysfunction within the mother's body, which could impede the neurological development of a child in utero through increased cytokine production. More research is needed in the area of causes of immune dysregulation during gestation and its effect on autism development in the child, specifically in Hispanic pregnant women and their children.

POSTER SESSION III, FSO-048

PREVALENCE OF HUMAN PAPILLOMAVIRUS TYPES IN NORTH AND CENTRAL REGIONS OF MEXICO

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Human papillomavirus (HPV) is a DNA virus linked to mucosal and cutaneous carcinogenesis. More than 200 different HPV types exist. We carried out a transversal study to investigate the prevalence of HPV types in two regions of Mexico. A total of 724 genital and non-genital samples from women (F) and men (M) were studied; 241 (33%) from North-Eastern (NE) and 483 (66%) from South-Central (SC) Mexico. The overall prevalence was 87%. In genital lesions from females, the NE group showed a prevalence of HPV types 16 (37%), 6 (13%), 59 (6%), 11, 18 and 66 (5.4% each); and the SC group showed types 6 (17%), 16 (15%), 11 (14.5%), 18 (12%), and 53 (6%). In the genital lesions from males, NE group showed types 16 (38%), 6 (21%), 11 (13%), and 59 plus 31 (7.5%), and the SC group showed types 6 (25%), 11 (22%), 18 (17%), and 16 (11.5%). When the two regions were compared, a higher prevalence of low-risk HPV 6 and 11 was found in the SC region, and of high-risk HPV 59, 31 and 66 (the latter can also be present in benign lesions) in the NE region. Our findings complement efforts to understand HPV demographics as a prerequisite to guide, and assess the impact of preventive interventions.

POSTER SESSION III, FSO-050

APPLYING OPTIMAL CONTROL IN THE TREATMENT OF PHOTORECEPTOR DEGENERATION

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Retinitis Pigmentosa (RP) is a genetic eye disease that is the leading cause of blindness. It affects approximately 1 in every 4000 individuals between adolescence and early adulthood. Currently there is no treatment for this disease. RP follows after the rods have died which leads to the death of the cones. Leveillard, et al, showed successful results of incorporating the rod-derived cone variability factor (RdCVF) to recuperate 40% of the cones and thus halt the

progression of retinitis pigmentosa in mice. In this study we mathematically model the interaction of the photoreceptors and RdCVF to maximize the number of cones while administering minimal treatment. We also show a 40% recuperation of cones.

POSTER SESSION III, FSO-051

CLOSING THE GAP: GLYCOGEN STORAGE DISEASE 1A (GSD) COMPLICATED WITH TOPHACEOUS GOUT AND HYPERTRIGLYCERIDEMIA

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Two Hispanic patients in their second decades with Glycogen storage disease 1A (GSD) complicated with tophaceous gout and hypertriglyceridemia

Presentation of cases: First patient is a 25 year old Hispanic female with GSD type 1A diagnosed at 8 months of age who presented with tophaceous gout; her uric acid level was 15.1 mg/dL; triglyceride level was 356 mg/dl; glucose was 37 mg/dL; LFT were within normal range; kidney function within normal range. Previously treated with allopurinol and febuxostat, currently with probenecid and colchicine.

Second patient is a 29 year old Hispanic male with GSD type 1A who started having gouty attacks at age 22. He eventually developed tophaceous gout. Uric acid level was 14.9 mg/dL; triglyceride level was 1050 mg/dL; glucose was 67 mg/dL; LFT were normal; kidney function normal. He was previously treated with febuxostat and colchicine.

Discussion: GSD type 1A is associated with multiple metabolic abnormalities including hyperuricemia and hypertriglyceridemia. Glycogen accumulates in the liver because excess glucose 6 phosphate stimulate glycogen synthesis and inhibits glycogenolysis. Hyperlipidemia seen in von Gierke disease manifests with xanthomas and elevated VLDL. Decrease free phosphate due to defective glucose 6 phosphatase causes increased AMP. AMP is degraded to uric acid causing hyperuricemia. This predisposes the patients to gout. Fasting lactic acidosis causes elevated blood lactate levels. Lactate competes with uric acid for renal excretion, leading to decreased uric acid excretion by kidneys. We can conclude that gout in patients with GSD 1A has a dual causal mechanism: overproduction of uric acid and underexcretion of uric acid by the kidneys. Therefore, management should include both a medication that decreases uric acid synthesis and a uricosuric agent. Lack of benefit of each drug used as monotherapy is illustrated in the cases presented. None of them had been able to treat to target.

POSTER SESSION III, FSO-053

EPIDERMAL-SPECIFIC OVEREXPRESSION OF T-CELL PROTEIN TYROSINE PHOSPHATASE IN MOUSE ATTENUATES CHEMICALLY-INDUCED SKIN CARCINOGENESIS

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Tyrosine phosphorylation signaling, which is regulated by the counter-activities of protein tyrosine kinases (PTKs) and protein tyrosine phosphatases (PTPs), is critical in maintaining cellular homeostasis. The aberrant increase of tyrosine phosphorylation by mutation and/or overexpression of PTKs can contribute to skin carcinogenesis. While PTKs have been extensively studied in skin carcinogenesis, PTPs have not been studied due to their inactivation by environmental toxicants. Our recent studies showed that T-cell protein tyrosine phosphatase (TC-PTP; encoded by *Ptpn2*) deficiency in mouse epidermis significantly increased skin tumor formation, demonstrating TC-PTP deficiency predisposes mice to skin carcinogenesis. To further examine the tumor suppressive role of TC-PTP in skin carcinogenesis, we generated epidermal-specific TCPTP-overexpressing (*K5HA.Ptpn2*) transgenic mice. TC-PTP overexpression led to sensitization to tumor initiator 7,12- dimethylbenz[a]anthracene (DMBA)-induced apoptosis both *in vivo* epidermis and *in vitro* keratinocytes. TC-PTP overexpression in epidermis significantly reduced epidermal thickness and hyperproliferation compared to wild-type control following treatment with the tumor promoter, 12-*O*-tetradecanoylphorbol-13-acetate (TPA). Furthermore, TC-PTP overexpression significantly induced epidermal differentiation following TPA treatment as evidenced by the increased expression of epidermal differentiation markers loricrin, involucrin, keratin 10, and transglutaminase 5 in comparison to control. Two-stage skin carcinogenesis analysis using a DMBA/TPA regimen clearly revealed that *K5HA.Ptpn2* mice exhibited delayed tumor development and significantly reduced tumor numbers compared to control mice. Taken together, our results suggest that TC-PTP is a potential therapeutic target for the prevention of skin cancer given its ability to promote epidermal apoptosis and differentiation and inhibit epidermal proliferation.

POSTER SESSION III, FSO-054

BRIDGING MEXICAN BIOBANKS WITH WORLD RESEARCH WITH BIOSPECIMENS

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Pharmaceutical businesses consider academic and clinical biobanks ideal partners for access to quality biospecimens with extensive clinical annotations to develop more accurate, affordable and convenient diagnostic tests and therapies that could be accessible to all socio-economical strata.

Due to the variety and growing demand of high quality biospecimens and their associated data required by the diagnostics industry, it is unfeasible to find all samples through a single source; therefore, several sources are required as a true global network.

Although Mexico has several institutions with large biospecimen collections, there is no organization dedicated to the needs of the industry and to the seeking of the ideal collaborators who meet all the requirements established by it. It is precisely for this reason that we have been promoting the establishment of institutional biobanks in Mexico. And for their sustainability, we have launched the present project of bridging them with the worldwide R&D efforts of the industry of diagnostic innovation.

The objective was to manage and establish the necessary collaborations to integrate a Mexican network of academic biobanks, insert it into to the global network of biobanks and, consequently, offer its members the opportunity to become modern, sustainable biobanks through their valuable services to the pharmaceutical and diagnostic industries. On the biobank's side, collaboration agreements are being established between Mexican biobanks and repositories of biospecimen collections, while on the industry's side, we have established an alliance with a major CRO specialized in the procurement of these materials in order to contribute them to international biotechnological innovation projects for the most accurate and timely diagnosis of such diseases.

POSTER SESSION III, FSO-055

ALCOHOL-DIABETES INTERACTIONS DURING ORGANOGENESIS AUGMENT SKELETAL MALFORMATIONS IN THE MOUSE EMBRYOS.

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Background: Both maternal alcohol consumption during pregnancy and pregnancy in diabetes mellitus (DM) are reported to be independent risk factors for congenital anomalies. However, their teratogenic mechanisms are unknown. Diabetic women also might consume alcohol during pregnancy. The aim of this study was to determine the effects of potential interaction between alcohol consumption and maternal DM during gestation on fetal development. Methods: Pregnant mice were made diabetic by a single dose of the diabetogenic compound streptozotocin (STZ) administered on gestation day (GD) 2. Fresh ethanol was administered in single doses (0.03 ml/g body weight, 25% v/v in normal saline)) to groups of diabetic and non-diabetic animals on GD 7 or 8. One group of diabetic animals had a daily dose of 6-8 IU of insulin subcutaneously. Fetuses were collected on GD 18, fixed in 95% ethanol and their skeletons stained with Alizarin red-S and Alcian blue and observed for malformations. Results: Both ethanol alone and DM alone induced a low incidence of skeletal defects in fetuses. Ethanol injection of DM mice on GD 7 resulted in a moderate accentuation of DM-related skeletal defects. Treatment of DM animals with ethanol on GD 8 resulted in severe skeletal defects, which affected regions of the axial and appendicular skeletons differentially. The combination treatment affected most markedly skeletal ossification in about 60% of animals. This treatment also caused an augmented frequency of skeletal variations (e.g. supernumerary ribs and sternal anomalies) and poor ossification of the bones of fore-, and hind paws. Conclusion: These data suggest that alcohol-diabetes interaction affects the fundamental developmental processes of the mesoderm of somite-stage mouse embryos resulting in extensive skeletal malformations.

POSTER SESSION III, FSO-056

SOCIOECONOMIC FACTORS WORK WITH CULTURAL COMMUNICATION THAT INFLUENCE AN INDIVIDUAL'S EATING HABITS AND CHOICES IN THE VALLEY: A META-ANALYSIS

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According to U.S. Department of Health and Human Services Office of Minority Health (2017), Hispanic Americans were 1.2 times as likely to be obese than non-Hispanic Whites in the United States in 2015. Among the 50 states, Texas has the second largest Hispanic population of nearly 40 percent, in the U.S.A. (U.S. Census Bureau, 2018). Within the Lower Rio Grande Valley, counties along the Texas-Mexico border consist of 90 percent Hispanics, making them the highest population in the area (FSG,org, 2011).

Related data have been presented through previous research, providing general information that identifies this alarming trend relating to unhealthy eating, lack of exercise, as well as a few cultural influences that result in the average adult being considered clinically overweight, at varying degrees. However, there is no systematic review about these factors. This research paper used meta-analysis approach and reviewed 106 research studies in order to have a clearer understanding about factors that influence an individual's eating habits and behaviors in the Valley.