

• ABSTRACTS FROM SCIENTIFIC FORUMS •

Internal Medicine Residency Program of the University of Puerto Rico School of Medicine

Annual Research Symposium

On June 1, 2013, the Internal Medicine Residency Program of the University of Puerto Rico School of Medicine hosted its annual research symposium at the facilities of the UPR Cancer Center. The aims of this annual event, which began in 2008, are to showcase the mentored research work done by the senior residents as a requirement of the residency training and promote research and inter-disciplinary collaboration. A panel of four (4) judges with experience in research and not related with the projects evaluated the residents' oral presentations in the categories of organization and clarity; significance and quality; and presentation skills. The event schedule also included a keynote lecture by one of the departmental faculty members. The three best presentations received an award certificate and the opportunity to present again at the annual meeting of the UPR School of Medicine Alumni Society. By this means, the Internal Medicine Residency Program provides an opportunity to share the results of the residents' research efforts with their peers and the university community while advancing their knowledge of the basic principles of research, including how research is conducted, evaluated, and applied to patient care.

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Myocardial Infarction in Young Puerto Rican Adults: Angiographic Characterization and Risk Factors

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Objective: To explore the relationship between cardiovascular risk factors and coronary artery disease (CAD) severity in young Puerto Rican adults who have suffered a myocardial infarction. Methods: A cross-sectional study examined adults aged 21 to 35 years who underwent left cardiac catheterization in the Cardiovascular Center for Puerto Rico and the Caribbean during 2008-2012 due to myocardial infarction. Demographic characteristics, clinical risk factors, and the extent of CAD were documented. Chi-square statistic or Fisher's exact test was used to compare the distribution of demographic, clinical, and lifestyle characteristics across CAD extent. Polytomous logistic regression models were fitted to estimate the prevalence odds ratios (POR) with 95% confidence intervals (CI) for non-obstructive and obstructive coronary disease (OCD) compared with normal coronary anatomy. Statistical analyses were performed using Stata 11.0. Results: Sixty-three (n=63) adults were evaluated (81% were men). The mean age was 31 ± 4 years. The most frequent clinical risk factors were history of tobacco use, hypertension, and dyslipidemia. Obesity was present in 45.9% of subjects and OCD was present in 52.38% of subjects.

Obesity and family history of CAD were significantly associated with OCD when adjusted by age. Obese patients had 5.94 times the possibility of having OCD than normal weight patients. Patients with a family history of cardiovascular disease had 19.48 times the possibility of having OCD than those without family history. Conclusion: Obesity and family history of cardiovascular disease were the most important predictors of premature obstructive CAD in our young adult population. **Second Prize**

Intentional and Unintentional Poisoning Trends among the Elderly in Puerto Rico

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Objective: The world's elderly population has experienced a magnificent growth. The rate of suicides has been declining among elderly adults; however, accidental poisoning is rising. Unintentional and intentional exposures are a significant cause of morbidity and mortality in the US. The objective of this study is to analyze cases of poisoning in order to identify hazardous trends in prescribed medication use in elderly adults in Puerto Rico (PR). Methods: This study is a retrospective medical record review from the Poison Control Center (PCC) in PR, from 2004 to 2011. Of all calls made to report poisoning

in patients over 65 years old, a random sample of 200 calls was reviewed. Data were collected from PCC electronic database and analyzed using classifications obtained from National PCC data annual reports. Results: A total of 1,600 calls were reviewed. Mean age was 83 years old, of which 65% were female. In average, only 20% of calls per year were suicide attempts, the majority involving men, and using sedatives and pesticides. Few deaths were reported. The majority of calls were made from PR's metropolitan area. Conclusion: Most of the cases reported were associated to accidental poisoning of prescribed medications. Currently, there are no studies evaluating poisoning trends among the elderly population in PR. The data collected will help create awareness among physicians and the general population of the hazards of poisoning in the elderly, and help establish new safety measures to prevent future cases of poisoning and suicide among the elderly. **First Prize**

A Retrospective Review of Acute Myeloid Leukemia Patients admitted to the Leukemia Unit of the University Hospital

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Objective: The understanding of acute myeloid leukemia (AML) has improved; however, no data from Puerto Rico exist as for characteristics and survival of patients. The objective of this study is to estimate survival rates among patients diagnosed at the University Hospital of Puerto Rico. We evaluated factors shown to predict prognosis, such as sex, age, white blood cell count (WBC), CD56 marker, events of relapse suffered, and cytogenetics. Methods: All cases of AML for the period 2005-2009 were included in the study. Survival by age at diagnosis, sex, cytogenetics, WBC, relapses, and CD56 marker was estimated using the Kaplan-Meier method. Results: Cases with survival of ≥ 7 days since diagnosis and documented relapse or response to therapy ($n=78$) were included. Sixty % of participants were ≤ 60 years old at time of diagnosis, 53% were females, 56% with $WBC \geq 10.5$, 93% had hemoglobin ≤ 12.86 , 86% had platelets count $\leq 120,000$, and 16% had favorable cytogenetics. Patients had a high relapse rate (61%) and $>50\%$ death rate at 5 years with or without episode of relapse when adjusted for age and cytogenetics. Increased risk of death was observed in patients ≥ 60 years ($HR=3.42$, CI 95% 1.81-6.44) and unfavorable/intermediate cytogenetics ($HR=3.17$, CI 95% 1.12-8.95). Conclusion: Older age and higher prevalence

of unfavorable/intermediate cytogenetics at diagnosis were associated with increased events of relapse and higher mortality, as seen in other ethnic groups. Further studies should investigate other factors that influence outcomes, as our results may have been influenced by a small sample size.

The Role of Antibiotic Prophylaxis in Interventional Nephrology Procedures

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Objective: Tunneled, cuffed, double-lumen catheters are commonly used for long-term venous access in hemodialysis patients. The minimally invasive procedure to place them represents a risk factor for the development of infections and subsequent increase in morbidity and mortality in the hemodialysis patient population. The objective of this study is to elucidate the incidence of clinical infection following this invasive procedure and the role of antibiotic prophylaxis. Methods: A retrospective study of patients referred to the Vascular Access Center at Hospital Auxilio Mutuo during September 2011 to April 2012 due to extruded catheters, change of catheters, or new tunneled access was done. Prophylactic antibiotic therapy was evaluated. Infection was defined as the occurrence of fever, chills, and general malaise 24-72 hours after catheter placement. A phone call was generated asking about these symptoms after catheter placement. Comparisons were analyzed using frequency analysis. Results: A population of 381 patients was included in the study (206 women). A total of 266 patients did not receive antibiotic prophylaxis (control group), while 115 received it (experimental group). Twenty-five patients received vancomycin, 57 received cefazolin, and 33 patients received gentamycin. A total of 12 patients (3%) reported symptoms of infection: 9 from the control group and 3 from the experimental group. The predominant symptom was general malaise, followed by chills and fever. Conclusion: The results of this study demonstrate that the incidence of clinical infection following this intervention is generally low. There is no sufficient data to support the use of antibiotic prophylaxis before this procedure.

Prevalence of Onychomycosis among Patients with Diabetes Mellitus at the Endocrinology Clinics of the University Hospital

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Objective: To assess the prevalence of onychomycosis among diabetic and non-diabetic patients and to evaluate its association with glucose control and other clinical characteristics in a sample of subjects from the General Endocrinology Clinics at the University Hospital. **Methods:** A cross-sectional study was performed, consisting of a face-to-face interview, anthropometric measurements, and laboratory data. The presence of diabetic neuropathy and peripheral artery disease were determined. Toenail samples were obtained for mycological evaluation. **Results:** The study population consisted of 124 subjects, with median age of 55 years. Diabetics reported higher use of occlusive footwear (55.6% vs. 34.9%, $p=0.028$), more prevalence of neuropathy, retinopathy, and nephropathy ($p<0.001$), and a higher body mass index (30.3 vs. 28.7, $p=0.031$) than non-diabetics. Sixty-seven (67%) of the non-diabetics had an $LDL\geq 100$ mg/dL; however, 53.5% of the diabetics had an $LDL<100$ mg/dL ($p=0.048$). $LDL\geq 100$ mg/dL seemed associated with an increased risk of onychomycosis (POR=3.15; 95% CI 0.94-10.6), even though this was not statistically significant ($p=0.06$). The overall prevalence of onychomycosis was 16.1%, with prevalence among diabetic patients of 13.6% and 21.6% on the non-diabetics. The most common fungi isolated were *Trichophyton* spp (31.6%) and *Aspergillus* spp (21.1%). **Conclusion:** The higher prevalence of onychomycosis unexpectedly observed among non-diabetics can be explained by the education and emphasis in foot care given to diabetic patients. $LDL\geq 100$ mg/dL seems to be associated with an increased risk of onychomycosis. Blood glucose levels or previous history of diabetes mellitus was not associated with an increased risk of onychomycosis in this population. **Third Prize**

Idiopathic Dilated Cardiomyopathy in Patients Evaluated at the Heart Failure Clinics: Prevalence and Report of Outcomes

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Objective: Dilated cardiomyopathy (DCMP) is a myocardial muscle disease associated with dilation of cardiac chambers. DCMP is classified as idiopathic (IDCMP) when

all acquired causes of cardiac dysfunction have been excluded. Unfortunately, studies of IDCMP in Hispanics are scarce. The objective of this study is to evaluate IDCMP in Puerto Rico, which, to our knowledge, has not been done before. We hypothesize that the prevalence of IDCMP in Puerto Rico will be higher than in the USA and the response to medical therapy will be more significant. **Methods:** A retrospective analysis was done with patients diagnosed with DCMP at the Heart Failure Clinics at the Cardiovascular Center for Puerto Rico and the Caribbean to determine the prevalence of IDCMP and response to medical management. The medical record of each patient was reviewed to evaluate the clinical history, physical exam, electrocardiogram, echocardiogram, cardiac catheterization, laboratories, medication history, and response to medical therapy. **Results:** Of the 44 patients evaluated, IDCMP was identified in 40% of cases as the cause for DCMP. After medical management at the Heart Failure Clinics, there was a statistically significant improvement in the measured ejection fraction of patients with IDCMP (19.4%, $p=0.0057$), in comparison with other DCMP (6.6%, $p=0.16$). **Conclusion:** IDCMP was found to be the most common DCMP, with a lower prevalence than reported in the USA. Also, medical improvement with therapy was more robust for IDCMP than for other causes of DCMP. **Honorable Mention**

Novel Use of Micro hCG and Letrozole for Ovulation Induction for Intrauterine Insemination

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Objective: Compared to in-vitro fertilization (IVF), intrauterine insemination (IUI) is less invasive and less costly. The use of injectable gonadotropins to generate multiple follicles for IUI has been combined with oral agents, such as clomiphene and letrozole, for cost control. Low dose human chorionic gonadotropin (micro hCG) combined with an aromatase inhibitor could be an alternative way to support enhanced ovulation, yet this medication protocol has not been reported for controlled ovarian hyperstimulation (COH)/IUI. Our objective is to report the experience using a reversible aromatase inhibitor (letrozole) combined with micro hCG for COH/IUI by comparing three ovulation induction protocols: letrozole, letrozole with human menopausal gonadotropin (hMG), and letrozole with micro hCG. **Methods:** A retrospective review evaluated cycles performed during a year at GENES Fertility Clinic for COH/IUI, in which any of the protocols were used. The main outcomes evaluated were number of mature follicles and pregnancy rate. Comparisons were

analyzed using chi-square. Results: Two-hundred fifty-six cycles were identified. The evaluated protocols were: letrozole (n=127), letrozole with hMG's (n=101), and letrozole with micro hCG (n=28). Patients using letrozole with hMG developed greater number of follicles (p<0.05). Yet, letrozole with hCG showed better results in clinical pregnancy rates (p<0.05). Conclusion: A novel method of COH for IUI combining letrozole with micro hCG had the greatest rate of clinical pregnancy compared to letrozole alone and letrozole with hMG. Therefore, this cost effective alternative of COH may represent a sensible choice to offer as first line for patients undergoing IUI.

Prevalence of Sleep Disordered Breathing in Patients with Coronary Artery Disease undergoing Coronary Artery Bypass Grafting

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Objective: Sleep disordered breathing (SDB) is associated with cardiovascular disease and increased postoperative morbidity. The objective of this study is to describe the prevalence of high risk for SDB in patients with Coronary Artery Disease (CAD), who will undergo Coronary Artery Bypass Graft (CABG) in Puerto Rico (PR). Methods: Consecutive PR patients with CAD scheduled for CABG at the Cardiovascular Center for PR and the Caribbean participated in this cross sectional study. SDB risk was determined using the Stop Bangs questionnaire. To describe the study group, frequency distributions for categorical variables and summary measures for continuous variables were used. Comparisons of categorical variables for obstructive sleep apnea (OSA) risk were performed using chi-square or Fisher's exact test if the expected frequency in a cell was less than 5. Statistical analyses were performed using STATA 11.0. Results: Nineteen patients were included: 11 men and 8 women, of which 89.5% were at high risk for OSA. Mean age was 64.5 (SD: 7) and 78.9% were overweight or obese. No significant differences were observed for high risk OSA by gender, age, health insurance type, education, body mass index, smoking, alcohol consumption, or co-morbid conditions (p>0.05). Conclusion: The prevalence for high risk SDB in the CAD population scheduled to undergo CABG in PR is higher than previously reported in non-Hispanic CAD and middle-age PR populations. This finding stimulates increased OSA awareness and will justify further research to evaluate perioperative management strategies, in

order to establish perioperative OSA protocols that will reduce morbidity and mortality.

Intradialytic Hypertension and Hypotension among Hemodialysis Patients: Prevalence, Morbidity, and Mortality

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Objective: Among end stage renal disease patients undergoing hemodialysis, optimal blood pressure (BP) control during the procedure has remained a vexing problem. Intradialytic hypotension may result from impaired cardiovascular response to fluid removal. On the other hand, intradialytic hypertension may occur as a response to rapid removal of fluid activating the sympathetic system. In addition, an increased mortality and higher hospitalization rates have been reported in patients associated to these abnormal responses (2). The objective of this study is to evaluate intradialytic hypertension and hypotension (abnormal BP) among hemodialysis patients at the University Hospital. Methods: Charts of live vs. recently deceased patients receiving ambulatory hemodialysis three times a week were reviewed. We acquired data after the patient's first month of hemodialysis in our unit for up to 6 months. Data obtained included blood pressure, mean arterial pressure, and pulse pressure before, during, and after dialysis, list of antihypertensives, and electrocardiograms. Statistical tests were used to identify associations between multiple variables and death. Results: Both patient populations were homogeneous. However, the prevalence of episodes of abnormal BP was statistically higher in the deceased group. Also, death had a significant association with the use of antihypertensives, cardiomegaly, and developing abnormal BP. For the contrary, the use of antihypertensives and the fact of not developing cardiomegaly or abnormal BP were protective factors against death. Among all variables, only developing abnormal BP was significant between both groups. Conclusion: Intradialytic hypertension or hypotension among hemodialysis patients at the University Hospital is associated with increased mortality.

Clinical Correlations of SNPS Expression and Phenotypic Disease Behavior in Hispanics with Crohn's Disease

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Objective: Clinical, environmental, and genetic factors play a significant role in inflammatory bowel disease (IBD) pathogenesis. At least 163 genomic regions have been associated with IBD. Our objective was to examine correlations between SNPs previously identified in Hispanics with IBD and clinical markers in a cohort of Puerto Ricans with Crohn's disease (CD). **Methods:** Subjects with CD who participated in the study Mapping Genes for IBD by Admixture LD in Puerto Ricans (MSC-IRB #1250202) from 2002 to 2012 were included. Demographics, clinical information, and genotype for 8 IBD-associated SNPs were collected. STATA®V.12 was used for calculating descriptive statistics, frequencies and proportions of phenotypes, location of disease, use of biologics, and surgery. Bivariate logistic regression analysis was used for odds ratios and 95% CI, $p=0.05 \leq$ was significant. **Results:** Two-hundred seventy-nine subjects were identified. Mean age was 32 ± 12.9 years (range 8-78); 63% were men. Mean age at diagnosis was 26 ± 11.6 years (range 6-78), and mean duration of disease was 6 ± 6.6 years (range <1-45). One-hundred sixteen (42%) had inflammatory disease (B1 phenotype). Small bowel was affected in 225

(81%), with ileum involvement in 99% of them. Sixty-six (23%) received biologic agents and 142 (51%) needed surgery. No statistically significant correlation was found between the 8 SNPs with phenotype, need for surgery, or use of biologic agents for treatment. **Conclusion:** Larger studies are needed to identify specific phenotype-genotype associations in Hispanics, since these may contribute to a better understanding of the pathogenesis and predict clinical course of CD in this minority population. **Acknowledgment:** This study was supported by a supplement to NIDDK grant 3 U01 DK062413-08S1; University of Puerto Rico (UPR) School of Medicine Endowed Health Services Research Center Grants 5S21MD000242 & 5S21MD000138, from the National Center for Minority Health and Health Disparities, National Institutes of Health (NCMHD-NIH); and grant 8U54MD007587-03, a RCMI Clinical and Translational Research Award to the UPR Medical Sciences Campus from the National Institute of Minority Health and Health Disparities (NIMHD). Its contents are sole the responsibility of the authors and do not necessarily represent the official views of NIDDK or NCMHD-NIH. **First Prize**

• Correction •

HIV-related risk behaviors among a sample of men who have sex with men in Puerto Rico: an overview of substance use and sexual practices. Colón-López V, Rodríguez-Díaz CE, Ortiz AP, Soto-Salgado M, Suárez E, Pérez CM. P R Health Sci J 2011;30:65-68. In this article, the prevalence of men who reported ever being with a man in this population based study was 6.1% (not 6.4% as was previously indicated in this article). *Of the 674 men interviewed, 41 (6.1%) reported having ever had sex with another man on at least one occasion.*