2020 Resident Research Virtual Poster Abstracts

Session-Presentation Number: #1-1

A UNIQUE INTERPROFESSIONAL EXPERIENCE BETWEEN MEDICAL AND PHARMACY STUDENTS INVOLVING ANATOMY OF THE HEAD AND NECK.

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INTRODUCTION: To evaluate the effects of a craniofacial gross anatomy lab and an associated case study on students' perceptions of interprofessional education (IPE) and care.
METHODS: First-year medical and pharmacy students collaborated together in small groups to dissect a human face as well as deliberate a case about a patient with facial herpes zoster. The Student Perceptions of Interprofessional Clinical Education-Revised (SPICE-R) instrument, a 10-item Likert survey, was administered online both before and after the IPE activity to assess for changes in perception of teamwork/team-based practice, roles/responsibilities, and patient outcomes in interprofessional care.
RESULTS: A total of 180 medical students and 149 pharmacy students (n=329) completed the SPICE-R survey. Median score responses to eight out of the ten questions were significantly increased ($p < 0.05$) after the IPE activity. Unanimous improvement was seen in the areas of roles/responsibilities and patient outcomes.
CONCLUSION: Overall, a gross anatomy lab and case study is a unique means of employing IPE that improved medical and pharmacy students' perceptions of interprofessional care.

Session-Presentation Number: #1-2

IMPLEMENTATION AND IMPACT OF ANTIMICROBIAL STEWARDSHIP IN A NEONATAL INTENSIVE CARE UNIT

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INTRODUCTION: To compare the number of antibiotic days before and after implementation of an antimicrobial stewardship program (ASP), and to quantify pharmacist driven interventions after the implementation of ASP

METHODS: A retrospective chart review was conducted to evaluate patients who were admitted to Texas Health Presbyterian Dallas between December 1, 2019 and February 24, 2020 and met the following criteria: either neonate or infant inpatient admission, and an active order for ampicillin, gentamicin, nafcillin, or vancomycin. The primary outcomes of this study were to determine the difference in the total days of antibiotic therapy per 1000 patient days before and after the implementation of ASP, and to quantify the total number of pharmacist driven interventions.

RESULTS: A total of 243 patients were included in the study (preASP = 132, postASP = 111). Overall days of antibiotic therapy per 1000 patient-days decreased in the period after implementation of ASP compared to the period before (214 days vs 253 days, p = 0.0189).

CONCLUSION: The implementation of ASP can decrease the total days of antibiotic therapy per 1000 patient-days in neonatal and infant patients. Pharmacist-driven antibiotic monitoring may help to drive adherence to ASP.

Session-Presentation Number: #1-3

ASSESSING THE IMPACT OF FLUID VOLUMES AND FLUID COMPOSITION IN RELATION TO SEPSIS RELATED OUTCOMES IN ICU PATIENTS

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BACKGROUND: Balanced crystalloids and normal saline are both recommended by current sepsis guidelines as initial resuscitation in sepsis. Recent literature suggests improved outcomes using balanced crystalloid solutions over saline and restrictive fluid administration might be equal to usual care, however, outcomes relating fluid volumes with fluid composition are currently unknown.
METHODS: A retrospective chart review will examine fluid selection and volumes in patients admitted with sepsis or septic shock. Fluid balance and fluid administration are collected at hours 0, 6, 12, 24, 48, and 72. The primary outcome become examined is the effect of fluid choice and volume on in-hospital mortality. Secondary outcomes include daily bicarbonate, chloride and lactate concentrations. Additionally, the need for new renal replacement therapy will be examine along with impact on vasopressor days, hospital length of stay, and ICU length of stay.
RESULTS: Pending.
CONCLUSION: Pending.

Session-Presentation Number: #1-4

IMPACT OF AN INTERPROFESSIONAL HEART FAILURE CLINIC ON PATIENT OUTCOMES.

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INTRODUCTION: Heart failure (HF) imposes a heavy burden on patients and healthcare systems. Interprofessional HF clinics may be a way to reduce the burden of care. The objective of this study was to determine if our community HF clinic had a positive impact on patient outcomes.

METHODS: Retrospective, chart review was conducted of patients admitted to clinic from January 2016 to January 2018. Patients were grouped by the number of clinic visits. The primary outcome was the number of patients with HF-related hospital readmissions after enrollment in clinic. Secondary outcomes included the number of patients with HF-related emergency department (ED) visits, all-cause readmissions, all-cause ED visits, and mortality. Data was also collected to see if patients were at therapeutic medication dosing.

RESULTS: A total of 377 patients were screened with 219 patients meeting inclusion criteria. There were 5.7% of patients in the 1-2 visits group with HF-related readmissions compared to 51.4% of patients a year prior to initial visit or baseline, 21.5% of patients in the 3-10 visits group versus 72% at baseline, 16.9% of patients in the 11-17 visits group versus 76.6% at baseline, and 0% of patients in the 18+ visits group versus 78.6% at baseline. Further statistical analysis is pending.

CONCLUSION: The number of patients with HF-related hospital readmissions decreased compared to baseline. It is possible that some patients were lost to follow-up. A follow-up study comparing HF clinic patients to a control group is needed to determine whether there is truly a difference on patient outcomes.

Session-Presentation Number: #1-5

EVALUATING THE ROLE OF INTRAVENOUS ANTIHYPERTENSIVE AGENTS IN FALLS OF HOPITALIZED PATIENTS.

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INTRODUCTION: To determine if falls in the hospital occur more frequently in patients receiving intravenous (IV) antihypertensive therapy compared to patients that are not receiving any such treatment. Evidence shows that patients fall more frequently while receiving antihypertensive agents.

METHODS: Using data retrospectively collected from the institution's electronic records, we filtered dispensing records for select IV antihypertensive medications from January 2018 through December 2019. We then compared the patient identifying numbers from the dispensing records with the patient identifying numbers from the reported inpatient fall records during the same time frame.

RESULTS: An interim analysis of patient falls showed there were a total of 617 inpatient falls at UMC between January 2018 and December 2019. 123 patients out of the 617 (20%) fell while receiving IV antihypertensive agents. During the same time there were a total of 9,226 orders for IV metoprolol, labetalol, and hydralazine. This indicates that out of the 9,226 orders for IV antihypertensives, 1% of patients fell while in the hospital as a result of those medications. Of the 617 falls, 124 of those were associated with an injury report. There were 22 patients (18%) receiving IV antihypertensives that fell and were injured.

CONCLUSION: IV antihypertensives have the potential to induce falls in hospitalized patients. More investigation is needed to determine if there are other factors that may contribute to patients falling while receiving these medications and, that at this time, it does not appear that these medications alone strongly contribute to patients falling.

Session-Presentation Number: #2-1

ANALYSIS OF TEXAS PHARMACIST WITH BOARD CERTIFICATION

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INTRODUCTION: To analyze the demographics, education, and additional licensing of practicing pharmacists with board certification in Texas.
METHODS: Using data retrospectively collected from the Texas State Board of Pharmacy and the Board of Pharmacy Specialties (BPS) public records from June 2019, we compared demographics, area of practice, practice position, and additional licensure of pharmacists with and without board certification. Inclusion criteria included pharmacists with an active Texas pharmacy license and documented employment address within the state of Texas.
RESULTS: Out of 19,754 pharmacists practicing in Texas, approximately only 1.55% of those are board certified. Board certifications were found to be significantly higher in females than males (68.9% vs 56.8%, $p < 0.001$). The area of practice with the highest percentage of board-certified pharmacists was education (18.18%), followed by nuclear (8.91%) and hospital (4.3%). When comparing pharmacy position, Pharmacist-in-Charge had the lowest of board certifications (0.6%) and consultants having the highest (6.0%). Lastly, there was a statistically significant difference in the percentage of preceptor licensure (85% vs 48.5%, $p<0.0001$) between BPS certified and non-BPS certified pharmacists, respectively.
CONCLUSION: Pharmacists with board certifications are shown to be highest in the academia setting and are more likely to obtain preceptor licensure.

Session-Presentation Number: #2-2

IMPACT OF THE DELAYED RESUMPTION OF HOME NEUROPSYCHIATRIC MEDICATIONS ON INCIDENCE OF DELIRIUM IN INTENSIVE CARE UNIT PATIENTS

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PURPOSE: To investigate the effects of timing of initiating home neuropsychiatric medications (NPM) on incidence of delirium in the first 7 days of intensive care unit (ICU) admission.
METHODS: This is a retrospective analysis comparing timing of the re-initiation of home NPM of all patients admitted to the ICU between March 1, 2019 and September 30, 2019. The early-start group encompassed patients who restarted home NPM within 3 days of ICU admission, and the delayed-start group encompassed patients who restarted home NPM greater than 3 days after ICU admission. The primary outcome of this study is the incidence of delirium, and secondary outcomes included the duration of delirium and length of ICU stay.
RESULTS: Thirty-eight patients were considered in the analysis of clinical outcomes. There were 27 patients included in the early-start group and 11 in the delayed-start group. Five of 27 patients developed delirium in the early-start group, and 7 of 11 developed delirium in the delayed-start group. There was a statistically significant difference in the incidence of delirium between the early-start group and the delayed-start group (18.5% vs. 63.6%; $p = 0.0174$). The mean duration of delirium was 5.6 days in the early-start group and 1.5 days in the delayed-start group. The mean ICU length of stay was 6.3 and 6.6 days in the early-start group and delayed-start group, respectively.
CONCLUSIONS: Based on this retrospective chart review, delayed resumption of home NPM was associated with an increased incidence of delirium.

Session-Presentation Number: #2-3

USE OF ORAL VITAMIN C FOR PREVENTION OF VANCOMYCIN-INDUCED NEPHROTOXICITY

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INTRODUCTION: Previous research has determined that oxidative stress may play a role in kidney damage caused by vancomycin, suggesting that antioxidants may be helpful in reducing the risk of this complication. Preclinical studies have shown that the use of antioxidants such as vitamin C may have a protective effect against vancomycin-induced nephrotoxicity, but evidence from human studies is lacking.

METHODS: We conducted a retrospective cohort study to determine whether vitamin C administered orally at a dose of 500 mg twice daily reduces the rate of kidney injury in patients on vancomycin therapy. We compared the rate of vancomycin-induced nephrotoxicity in patients who received vitamin C with those who did not receive vitamin C. We also compared trough levels and use of concomitant nephrotoxic medications, as previous studies have shown that these are additional factors that may influence the rate of kidney injury.

RESULTS: A total of 345 patients were included in this study. Of these, 172 received vitamin C, and 173 did not. Four patients (2.3%) in the vitamin C group experienced vancomycin-induced nephrotoxicity, compared with 12 patients (6.9%) in the group that did not receive vitamin C ($p=0.042$ for difference between groups.

CONCLUSION: Our findings suggest that vitamin C administered orally at a dose of 500 mg twice daily appears to be associated with a reduced rate of vancomycin-induced nephrotoxicity. Multivariate analysis of effects of concomitant nephrotoxic medications is currently pending.

Session-Presentation Number: #2-4

IMPACT OF INTRAVENOUS CANGRELOR ON PATIENTS UNDERGOING HIGH-RISK PCI: A PILOT STUDY

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PURPOSE: To determine the antiplatelet and anticoagulant requirements during PCI in patients receiving cangrelor versus prior standard therapy.
METHODS: This study is a retrospective analysis of high-risk myocardial infarction patients who underwent percutaneous coronary intervention (PCI) comparing medication requirements, costs, and outcomes in patients who received intravenous cangrelor versus prior standard therapy. Historical data were collected from January 1, 2018 to November 30, 2019 in patients who underwent prior standard therapy and from December 1, 2019 to present day in patients who received cangrelor. Inclusion criteria included age ≥ 18 years, admission to Texas Health Presbyterian Hospital Dallas, primary PCI within 48 hours of acute coronary syndrome diagnosis, and presence of at least one high risk feature (intubation, hemodynamically unstable, high risk anatomy, or the use of either an intra-aortic balloon pump or Impella® device). Exclusion criteria included prior use of a P2Y12 inhibitor in the previous 7 days, CABG during hospitalization, lack of treatment with both aspirin and a P2Y12 inhibitor at time of diagnosis, thrombolytic use prior to procedure, lack of completion of PCI, treatment at another facility for > 24 hours before transfer. Information regarding concurrent medication use, stent location and quantity, restenosis, bleeding, ICU/hospital LOS, and mortality was collected on all patients. The primary outcome of the study was the difference in total medication exposure and costs during PCI between patients exposed to cangrelor compared to historical standard of care. Secondary outcomes included restenosis, clinically significant bleeding, ICU LOS, hospital LOS, and mortality.
RESULTS: After screening 160 historical patients, 29 patients met criteria for inclusion. Of these 29 patients, 11 (37.9%) received bivalirudin, 12 (41.4%) received eptifibatide, and 6 (20.7%) received both. There were no instances of restenosis or bleeding. 27 patients (93.1%) were admitted to the ICU after PCI. ICU and hospital length of stay were 3.0 and 4.3 days, respectively. The in-hospital mortality rate was 20.7%. Thus far, only 1 patient has received intravenous cangrelor. Further data collection and statistical analysis is pending.
CONCLUSIONS: Pending further data collection and statistical analysis.

Session-Presentation Number: #2-5

IMPACT OF ALDOSTERONE RECEPTOR ANTAGONISTS VERSUS CHRONIC DAILY POTASSIUM SUPPLEMENTATION ON RATES OF READMISSION IN PATIENTS WITH HFREF

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INTRODUCTION: Aldosterone receptor antagonists have shown in previous studies to have a morbidity and mortality benefit in patients with HFrEF. Despite benefits seen with spironolactone, there is under-utilization. Patients are frequently initiated on chronic daily potassium with little regard for the additional benefits of aldosterone antagonists, in addition to the potassium-sparing effects.

METHODS: Retrospective chart review of patients admitted to the Hendrick heart failure clinic between January 1, 2015 and December 31, 2017. 191 patients were eligible. Group 1 contains patients taking spironolactone, group 2 contains patients taking chronic daily potassium, and group 3 contains patients taking both spironolactone and chronic daily potassium supplements. Patients were followed for two years and data was collected for cardiac readmissions, all-cause readmissions, hyperkalemia, and mortality.

RESULTS: Statistical analysis is pending. Group 1 had 59 patients. Group 2 had 80 patients. Group 3 had 52 patients. Of the 191 patients, 58.1% were on spironolactone and 69.1% were on chronic daily potassium supplements. It was determined that there was a total of 27 cardiac hospitalizations (0.46 per person) in group 1, 56 cardiac hospitalizations (0.7 per person) in group 2, and 25 (0.48 per person) cardiac hospitalizations in group 3. Secondary outcomes included death rate, all-cause hospitalizations, and hyperkalemia.

CONCLUSION: It appears that there is a significant decrease in cardiac related readmissions among patients who are taking spironolactone alone or in combination with potassium versus chronic daily potassium alone. Secondary endpoints clearly showed no difference in the groups. It is possible some patients were lost to follow up.