UNIVERSITY OF SASKATCHEWAN

2022 EMERGENCY MEDICINE

RESEARCH DAY

AGENDA AND ABSTRACTS

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RESEARCH DAY AGENDA

KEYNOTE ADDRESS DR. LORELEI LINGARD..... 10:00-11:00
"Story, not Study: How to write manuscripts that readers can't put down!"

RESEARCH PRESENTATIONS (PART 1)

- *CLINICAL MEDICINE*..... 11:00-11:30
- *EMERGENCY MEDICAL SERVICES* 11:30-11:45

EMERGENCY MEDICINE TEACHING AWARDS 11:45-12:00

LUNCH 12:00-1:00

RESEARCH PRESENTATIONS (PART 2)

- *QUALITY IMPROVEMENT*..... 1:00-1:45
- *QUALITATIVE* 1:45-2:00

BREAK……..... 2:00-2:15

R E S E A R C H A W A R D S 2:15-3:00

CLINICAL MEDICINE

EPIDEMIOLOGY AND OUTCOMES OF LEVEL 1 AND 2 TRAUMAS DURING THE FIRST WAVE OF COVID-19: FEWER TRAUMAS, FASTER DIAGNOSTICS, WORSE OUTCOMES

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INTRODUCTION:
With the outbreak of the COVID-19 pandemic, stay-at-home orders and physical distancing measures were imposed to reduce virus transmission and virus-related hospital admissions. Additionally, healthcare systems have imposed strict PPE and infection control measures to ensure quality patient care while protecting healthcare workers from viral transmission. We sought to determine how lockdown measures, and healthcare policies imposed during the first wave of the COVID-19 pandemic affected trauma patterns, volumes, and outcomes in a western Canadian level 1 trauma center.

METHODS:
This was a retrospective cohort study comparing level 1 and 2 trauma patients presenting to our center during the initial COVID "lockdown" period (March 15 – June 14, 2020) to all level 1 and 2 traumas presenting during a "control" period one year prior (March 15 – June 14, 2019). We assessed the number of level 1 and 2 trauma activations during both periods, their demographic information, type of trauma (blunt or penetrating, suicide attempt or not), presence of ethanol intoxication, timing of intubation (prior to arrival or in the trauma bay), time to x-ray, CT, and ECG, hospital/ICU admissions, emergency department (ED) and hospital lengths of stay (LOS), injury severity score (ISS), and 30-day mortality.

RESULTS:
Overall, we saw a 7.8% reduction in trauma volumes during the lockdown period, and this was associated with a shorter average ED LOS (6.17hr vs 9.65hr), reduced time to CT (65.5minutes vs 88.5 minutes), a reduction in ICU admissions (4.9% vs 15.5%), and higher ISS's (6.2 vs 6.5). We also saw a trend towards an increase in penetrating injuries and higher 30-day mortality (5.5% vs 2%).

CONCLUSIONS:
Our findings suggest that lockdown measures imposed during the first wave of the COVID19 pandemic had impacts on trauma patients' characteristics and outcomes. Some of the findings are likely due to improved efficiency of the trauma bay. EDs and trauma centers should be encouraged to continually assess the pandemic's impact on their local resource utilization.

ASSESSMENT OF LOWER GASTROINTESTINAL BLEEDS AND OPTIMIZATION OF REFERRAL FOR URGENT INTERVENTION IN THE EMERGENCY DEPARTMENT: AN EXPLORATORY STUDY

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INTRODUCTION:
Lower gastrointestinal bleeding (LGIB) is a common reason for emergency department visits and subsequent hospitalizations. Recent data suggests that low-risk patients may be safely evaluated as an outpatient. Recommendations for healthcare systems to identify low-risk patients who can be safely discharged with timely outpatient follow-up have yet to be established. The primary objective of this study was to determine the role of patient predictors for the patients with LGIB to remain in the emergency department for urgent endoscopic intervention.

METHODS:
The study was performed via a retrospective chart review, conducted within the Regina General and Pasqua Hospital. A convenience sampling method was used for the recruitment of study participants. Data was collected on patient demographics, clinical features, comorbidities, medications, hemodynamic parameters, laboratory values, and diagnostic imaging. Statistical analysis was a multivariate logistic regression that assessed four covariates that were included in the final model. Data was expressed as mean, standard deviation, 95% confidence interval, and as proportions. Univariate analysis of categorical variables by Chi square test was performed. The association between independent variables and the dependent variable, emergency department urgent endoscopic intervention (y/n), was assessed utilizing univariable logistic regression.

RESULTS:
A combination of the 3 variables - tachycardia, hemoglobin drop >20 points, and blood pressure - were significant predictors of whether a patient underwent an intervention ($p = .034$). A hemoglobin drop of >20 was the only variable that predicted an intervention ($p = .017$). The risk ratio was .399 and the accompanying 95% confidence interval was .188 to .846 for this variable. The use of anticoagulants was not a significant indicator of whether a patient underwent an intervention ($p = .405$).

CONCLUSIONS:
Based on our research, a hemoglobin drop of >20 was the only patient parameter that predicted the need for urgent endoscopic intervention in the emergency department.

EMERGENCY MEDICAL SERVICES

ACCURACY OF TRAUMA TEAM ACTIVATION BY EMS WITHIN THE FORMER RQHR

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INTRODUCTION
Trauma Team Activation (TTA) guidelines are designed to help improve pre-hospital trauma recognition and improve patient outcomes. A formal trauma program was implemented within the former RQHR in July 2017. This study will review the accuracy of EMS triaging pre-and-post trauma program based on the RQHR TTA guidelines.

METHODS
A database of inaccurately triaged trauma patients was collected by the RQHR trauma research team from July 2016- June 2020. A retrospective chart review was performed on these patients. Statistical analysis was performed using chi-square tests.

RESULTS
Trauma team introduction significantly decreased the number of under triaged patients (15.2% pre vs 9.5% post, $p = 0.033$) while simultaneously increasing the number of over-triaged patients (3.0% pre vs 9.7% post, $p = 0.003$). There was no significant change in the total number of mis-triaged patients (18.2% pre vs 19.2% post, $p = 0.75$). Misidentification of penetrating injuries (43.8%) and incorrect GCS scoring (12.5%) were the leading causes of over-triaged traumas. Missed unstable pelvic fractures (14.9%), missed paralysis/known unstable spinal fractures (17.0%), and missed chest wall instability (14.9%) were the leading causes of under-triaged traumas. 97.3% of under-triaged patients required hospital admission, and 33.3% of over-triaged patients required hospital admission.

CONCLUSIONS
Although overall EMS triaging accuracy has not improved after implementation of the trauma program, under triaging has significantly improved. This suggests the trauma program has improved the recognition of severe traumas. Further refinement of the TTA guidelines around the identified leading cause areas, and continued EMS education can be implemented to help improve overall trauma team activation accuracy.

QUALITY IMPROVEMENT

CAN OUR PATIENTS GET FOLLOW-UP? EVALUATING EMERGENCY DEPARTMENT PATIENTS' ACCESS TO PRIMARY CARE FOLLOW-UP AFTER EMERGENCY DEPARTMENT DISCHARGE, A CROSS-SECTIONAL STUDY

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INTRODUCTION:

Many patients seen in the emergency department (ED) are eventually discharged[1]. Therefore, many require ongoing follow-up with an outpatient health care provider. Unfortunately, there are often several barriers to arranging timely follow-up with a patient's PCP, the main one being availability. Previous data shows that only 40% of patients have access to follow-up within 30 days of hospital discharge[2]. Canadian data suggests follow-up within 7 days of ED discharge leads to decreased mortality and subsequent admissions[3]. We set out to evaluate patients' perceived number of days to obtain a follow-up appointment from the ED with their PCP here in Saskatoon.

METHODS

Surveys were conducted of Emergent Department patients at Royal University Hospital and St. Paul's Hospital. In a convenience sampling method, researchers approached patients who were either in the waiting room or had been placed in a room awaiting further assessment. These surveys were taken at various times during the day but usually within daytime working hours. Descriptive statistics were used for the overall sample in terms of sociodemographic and clinical variables.

RESULTS

104 patients were surveyed, but 7 did not have access to PCP follow-up. Therefore 97 patients were included in the analysis. The mean number of days to follow-up was 8, while the median was 7. 22% of patients believed they could acquire follow-up within 48 hours. 68% could achieve follow-up within 7 days, 84% within 14 days, and 92% within 30 days.

CONCLUSIONS

The emergency department patients in Saskatoon have quite timely follow-up compared to previous Canadian data. Most patients can get follow-up within one week. However, a small number of patients cannot get follow-up within 30 days. Given the variability, it should become standard practice to ask patients what their access is to follow up, which could help guide discharge instructions and recommendations.

QUALITY ASSURANCE OF EMERGENCY DEPARTMENT ULTRASOUND DOCUMENTATION IN A REGIONAL CENTRE.

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INTRODUCTION:

Much like other aspects of clinical practice, emergency department ultrasound (EDUS) requires ongoing quality assurance (QA) Over the past 8 years, one of Saskatchewan's tertiary emergency departments (Saskatoon, SK), has managed to implement EDUS QA by first improving documentation and trackability (2014-15) of EDUS use, followed by regular audits looking for concordance of documentation with consultative images (2016-2022). Despite widespread adoption and certification by practitioners, EDUS QA efforts have not been initiated in regional or rural sites in Saskatchewan, such as Swift Current (Population ~17,000). EDUS documentation will need to be assessed for adequacy and thoroughness, and potentially improved upon, prior to assessing EDUS image concordance.

METHODS

We completed a retrospective study of all emergency physician documents for patient presentations to the Cypress Regional Hospital (CRH) emergency department from June 2020 – December 2020 with a discharge diagnosis that likely required EDUS. The EDUS documentation accuracy was compared with our provincial emergency department's Standards for Emergency Ultrasound in Saskatchewan – 2019.

RESULTS

The CRH emergency physicians have made errors that can be generalized into three categories with a total inadequate scan documentation rate of 38% (24/64). The categories included missing required clinical documentation (16/64, 25%), not disclosing the type of anatomical scan they completed (11/64, 17%), and not documenting indeterminate findings (5/64, 8%).

CONCLUSIONS

Emergency physicians in the CRH correctly documented their EDUS in the patient electronic medical record in 63% (40/64) of charts reviewed, over the months of June – December 2020, according to the Standards for Emergency Ultrasound in Saskatchewan – 2019. The analysis of documentation error types was used to help inform the Cypress Regional Hospital emergency physicians on their documentation mistakes. This EDUS documentation quality assurance study is the first step towards ensuring patient safety and the success of future EDUS quality assurance studies within the Cypress Regional Hospital emergency department.

ASSESSMENT OF THE KNOWLEDGE OF BUPRENORPHINE/NALOXONE PREPRINTED ORDER SHEET FOR USE IN PATIENTS WITH OPIOID WITHDRAWAL

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INTRODUCTION:
Opioid withdrawal is a commonly encountered scenario in emergency departments. Due to the nature of emergency medicine providing long lasting care and follow up for this disease entity is challenging. Initiation of Buprenorphine/naloxone is a viable option in the emergency department and the use of a preprinted order (PPO)designed to initiate follow up at a local addictions clinic can help streamline follow up and ensure that patient's withdrawal is managed appropriately.

METHODS:
We used an anonymous survey to gauge emergency physician's knowledge of the PPO that was available for opiate withdrawal. This was emailed to all emergency medicine physicians who work at Regina General Hospital and Pasqua Hospital.

RESULTS:
At this time we are still in the process of finalizing and collecting our data as the REB process has been delayed due to COVID-19. We anticipate that the PPO is underutilized due to poor and due to the length of the form and lack of familiarity.

CONCLUSION:
Opioid abuse is a common presentation to our local emergency departments. PPOs will help to standardize care in this population. However, the underutilization of the PPO suggests that this may be an area of focus to enhance patient care in this area.

QUALITATIVE

HEALTH CARE WORKER EXPERIENCES WITH ALCOHOL WITHDRAWAL PROTOCOLS IN SASKATCHEWAN

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INTRODUCTION:
Alcohol-related hospitalizations represent a significant cost to the Canadian health care system. While alcohol withdrawal syndrome (AWS) in Canada is typically managed with benzodiazepines, evidence suggests that phenobarbital may be an effective alternative agent. Previously, a phenobarbital protocol for the treatment of AWS was implemented in various emergency departments in Saskatchewan. This project aimed to explore healthcare worker attitudes towards the protocol.

METHODS:
An anonymous cross-sectional survey was distributed to practitioners in two regional Saskatchewan emergency departments in North Battleford (NB) and Swift Current (SC). Participants were asked about their awareness, practice, and attitudes regarding alcohol withdrawal protocols.

RESULTS:
35 respondents completed the survey– 18 physicians, 15 RNs, 1 LPN, and 1 resident. 18 practiced in SC, and 17 practiced in NB. Respondents were 71.4% (n=25) female, and had spent a median of 10 years in practice. Survey data indicates some regional differences between the two centres – SC practitioners preferring benzodiazepines, and NB practitioners preferring phenobarbital, with 100% of respondents reporting the respective protocols were most often used at their centres. Only 66.7% (n=12) of SC respondents were aware of the availability of a phenobarbital protocol. 53% (n=8) of SC respondents rated benzodiazepines as “very easy” vs 26.7% (n=4) of NB respondents, and 11.1% (n=1) of SC respondents ranked phenobarbital as “very easy” vs 53.3% (n=8) of NB respondents. When compared to physicians, nursing staff appeared to prefer the phenobarbital protocol for its perceived lower hospitalization rates and ED lengths of stay, as well as its ease of implementation.

CONCLUSION:
Regional differences in practice patterns and experiences were identified. In NB, where the phenobarbital protocol was first implemented and has been heavily used, attitudes are generally positive. In SC, attitudes appear more guarded. This data will help with protocol implementation in the future.