P079

Manual pressure (the modified peace sign) as an aid to sonographic aortic visualization-a pilot study

K. Leech-Porter, MD, D. Lewis, MBBS, J. Fraser, BN, P.R. Atkinson, MD, Dalhousie University, Integrated Family/Emergency Residency Program, Saint John, NB

Introduction: Point-of-care-ultrasound is an established tool in the early diagnosis of abdominal aortic aneurysm (AAA), with a reported pooled sensitivity of 97.5% and pooled specificity 98.9%. Despite these impressive numbers, body habitus and bowel gas often render emergency department (ED) PoCUS for AAA inconclusive. We devised a manual aid "the modified peace sign technique" to improve visualization of the aorta, consisting of placing the divided fingers of the free hand of the sonographer around the probe to increase gas dispersion and improve the view of the obscured aorta. We tested the technique on volunteers during a training course when the initial scan was indeterminate due to inability to view the aorta from sub-xiphoid to bifurcation. **Methods:** In our pilot study, 7 physicians were asked to make a best attempt to perform an aortic scan. If they were unable to visualize the aorta, they were asked to use the modified peace sign technique. Participants recorded the number of times which they used the technique and the frequency that the technique allowed for a complete aortic scan, previously unobtainable. All scans were supervised by certified PoCUS physicians. **Results:** The technique was used a total of 25 times. Following failure to complete an aortic scan using their best attempt, participants were subsequently able to obtain a complete aortic scan 70% (95% CI 48 to 83%) of the time using the modified peace sign technique. **Conclusion:** In our pilot study, the modified peace sign technique had an estimated effect size of 70% improvement for visualization of the aorta in volunteers. Further studies are required to validate the technique in clinical practice.

Keywords: point of care ultrasound (PoCUS), aorta, quality

P080

A descriptive analysis of prehospital midazolam as a chemical restraint in combative patients

M. Davis, MSc. MD, L. Leggatt, MD, P. Bradford, MD, P. Morassutti, BSc, K. Van Aarsen, MSc, M.W. Leschyna, BASc, Western University, London, ON

Introduction: Paramedics are often required to manage violent or combative patients. In order to do so safely, chemical sedation may be required. There are a number of pharmacologic agents which may be used. However, there is a paucity of evidence as to the optimal agent. **Objective:** To provide a descriptive analysis of a single base hospital's experience with combative patients and to determine the efficacy and any adverse events (AEs) in the prehospital setting, associated with midazolam use in these patients. **Methods:** A retrospective chart review of ambulance calls from 2 urban centers, from January 2012 to December 2015 was completed. All cases of combative patients were filtered and manually examined. Patients were excluded if they were 17 or younger. A priori data points were abstracted by trained research personnel from the ambulance call record. **Results:** Of approximately 350,000 calls over the study period, there were 269 patients that were combative. Of these, 186 (69.1%) received midazolam for sedation. Multiple doses were required in 33.3% of patients. Depending on route of administration, the average total dose administered was 6.27 mg (SD 3.98 mg) intramuscular, 10.7 mg (SD 4.00 mg) intranasal and 4.95 mg (SD 3.81 mg) intravenous. Midazolam was documented as effective in treating the combativeness in 133 (71.6%), ineffective in 28 (15.1%), and not documented in 25 (13.4%) calls. AEs post midazolam administration, defined as hypotension, bradypnea, bradycardia, or need for airway intervention, were encountered in 3 (1.61%) calls (respiratory rate of 8, hypotension of 88/59 that responded to intravenous fluid and asymptomatic bradycardia of 59). There was a trend of increasing number of combative patients each year over the study period, with a significant difference in the number of combative calls requiring midazolam administration between 2012 and 2015 (50.0% vs 72.8%, $p = 0.007$). **Conclusion:** Prehospital use of midazolam for combative patients appears to be safe, with minimal AEs. However, midazolam was ineffective in 15.1% and a third of all patients required multiple doses, prolonging the combative period and compromising paramedic and patient safety. Further research is warranted for this cohort's emergency department (ED) sedation needs and any associated AEs within 1 hour of ED arrival.

Keywords: combative, midazolam, emergency medical services

P081

Combative patients given prehospital midazolam as a chemical restraint: adverse events and efficacy in the emergency department

M. Davis, MSc. MD, L. Leggatt, MD, K. Van Aarsen, MSc, P. Bradford, MD, P. Morassutti, BSc, M.W. Leschyna, BASc, Western University, London, ON

Introduction: Paramedics are required to manage combative patients. In order to do so safely, chemical sedation may be required. Advanced Care Paramedics in our EMS system utilize midazolam for chemical restraint. Our previous research has shown that midazolam appears to have few prehospital adverse events (AEs) associated with its use. However, it required multiple dosages in 33.3% of patients and was deemed ineffective in 15.1% of patients that received it in the prehospital setting. **Objective:** To determine Emergency Department (ED) AEs associated with the prehospital use of midazolam in combative patients and determine the efficacy of this agent as a chemical restraint during the first hour of the ED stay. **Methods:** A retrospective chart review of paramedic calls from 2 urban centers, from January 2012 to December 2015 was completed. All cases of combative patients were examined. Patients were excluded if they were 17 or younger. Ambulance call records were linked to the patient's ED chart. ED charts were reviewed and a priori endpoints were extracted. **Results:** Of approximately 350,000 calls, there were 269 patients that were combative. Of these, 186 (69.1%) received midazolam in the prehospital setting. During the first hour of their ED stay, 68 (36.5%) required further sedation, while 118 (63.4%) patients did not. Of the 186 patients who received midazolam in the prehospital setting there was one death and one AE in the ED (defined as hypotension, bradypnea, or need for airway intervention). After further review of the charts, both AEs were deemed likely resulting from underlying pathology and not related to the use of midazolam. The average ED Length of stay (LOS) was 7.6 hours for all patients. A total of 82 (44.1%) were admitted to hospital with a mean in hospital LOS of 13.1 days. **Conclusion:** Prehospital use of midazolam for combative patients appears to be safe, with no reported delayed AEs. 36.5% of this cohort required further sedation within 1 hour of their ED arrival. This supports previous findings that midazolam was ineffective in 15.1 % of prehospital combative patients. Further study is required to determine midazolam's efficacy and AE profile compared to other prehospital agents in order to ensure optimal safety of both patients and paramedics.

Keywords: combative, midazolam, emergency medical services

https://doi.org/10.1017/cem.2017.282 Published online by Cambridge University Press