

**LO035****The prevalence of alcohol-related trauma recidivism: a systematic review**

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**Introduction:** Recurrent admission to a hospital or trauma centre for separate incidents of traumatic injury is known as trauma recidivism. Although use of alcohol is a known risk factor for injury and associated with trauma recidivism, the scale of alcohol-related trauma recidivism has not been well described. The purpose of this review was to search the published literature for studies that evaluated the prevalence of alcohol use among trauma recidivists. Our primary objective was to determine the proportion of trauma recidivism related to alcohol use. The association between alcohol and trauma recidivism was evaluated as a secondary objective. **Methods:** Four electronic databases (MEDLINE, Embase, CINAHL, Web of Science) were searched from inception until December 2015 for all articles that might provide evidence on the proportion of trauma recidivism related to use of alcohol. After removal of duplicates, the search strategy yielded 2470 records for screening. Only primary studies that reported on repeated admissions to a hospital or trauma center for traumatic injuries specifically related to alcohol use were included. Descriptive statistics were used to assess study characteristics and the prevalence of trauma recidivism related to alcohol use. An aggregate weighted estimate of alcohol-related trauma recidivism was calculated. **Results:** A total of 12 studies met all inclusion criteria. Studies were published between 1989 and 2014. Overall, there were 3386 trauma recidivists among included studies. The proportion of trauma recidivists with evidence of alcohol use on admission ranged from 26.7% to 76.9% (median 46.4%). The aggregated sample produced a weighted estimate of 41.0% (1388/3386) for alcohol-related trauma recidivism. In four studies, the association between alcohol and trauma recidivism was examined; all four found a positive association between alcohol use and repeated admission for traumatic injury. Studies varied considerably in design, trauma populations, periods for evaluating recidivism, definitions for positive alcohol on admission, and methods used to determine alcohol use. **Conclusion:** Evidence from current literature suggests that 41.0% of trauma recidivism is related to use of alcohol. Due to methodological limitations among the studies included for review, this may underestimate the actual prevalence of alcohol-related trauma recidivism.

**Keywords:** alcohol, trauma, recidivism

**LO036****The influence of cognitive rest and graduated return to usual activities emergency department discharge instructions on symptoms of minor traumatic brain injury**

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**Introduction:** It is estimated 15-50% of patients with a mild traumatic brain injury (MTBI) diagnosed in the emergency department (ED) will develop post-concussive syndrome (PCS). Although expert consensus recommends cognitive rest and graduated return to usual activities, these interventions are not based on prospective clinical evidence. The objective of this study was to determine if patients randomized to graduated return to usual activity discharge instructions had a decrease in their Post-Concussion Symptom Score (PCSS) 2 weeks after MTBI compared to patients who received usual care MTBI discharge

instructions. **Methods:** This was a pragmatic, randomized trial of adult (18-64 years) patients presenting to an academic ED (annual census 65,000) with chief complaint 'head injury' occurring within 24 hours of ED visit. Patients were contacted by text message or phone 2 weeks post ED discharge and again at 4 weeks and asked to complete a validated, 22 item questionnaire to determine if there was a change in their PCSS. Secondary outcomes included change in PCSS at 4 weeks, number follow-up physician visits, and time off work/school. **Results:** 118 patients were enrolled in the study (58 in the control group and 60 in the intervention). Mean (SD) age was 35.2 (13.7) years and 43 (36.4%) were male. There was no difference with respect to change in PCSS at 2 weeks (10.5 vs 12.8;  $\Delta$  2.3, 95% CI: 7.0, 11.7) and 4 weeks post-ED discharge (21.1 vs 18.3;  $\Delta$  2.8, 95% CI: 6.9, 12.7) for the intervention and control groups, respectively. The number follow-up physician visits and time off work/school was similar when the groups were compared. **Conclusion:** Results from this study suggest graduated return to usual activity discharge instructions do not impact rate of resolution of MTBI symptoms 2 weeks after ED discharge. Given patients continue to experience low to moderate symptoms 2 weeks after MTBI, more investigation is needed to determine how best to counsel and treat patients with post-concussive symptoms.

**Keywords:** head injury, concussion, discharge instructions

**LO037****A randomized double-blind trial comparing the effect on pain of an oral sucrose solution versus placebo in children 1 to 3 months old needing urethral catheterization**

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**Introduction:** Oral sweet solutions have been accepted as effective analgesics for procedures in the neonatal population. However, there have been a limited number of trials in older infants. These studies have conflicting results. The objective of the study was to compare the efficacy of an oral sucrose solution versus placebo in reducing pain during urethral catheterization in infants 1 to 3 months old in the Emergency Department (ED). **Methods:** A randomized, double-blind clinical trial was conducted in a pediatric university-affiliated hospital ED. Infants, 1 to 3 months of age, were recruited and randomly allocated to receive 2 ml of 88% sucrose solution (SUC) or 2 ml of placebo solution (PLA) orally, 2 minutes before planned urethral catheterization. The primary outcome measure was the difference in pain scores as assessed by the Face, Legs, Activity, Cry and Consolability (FLACC) Pain Scale at 1 min post procedure. Secondary outcome measures were the difference in pain scores using the Neonatal Infant Pain Scale (NIPS), crying time and variations in heart rate. **Results:** Seventy-six participants were recruited and completed the study, 37 (group SUC) and 39 (group PLA) respectively. The mean difference in FLACC scores compared to baseline was  $5.62 \pm 1.32$  (SUC) vs.  $6.21 \pm 1.15$  (PLA) ( $p = .51$ ) during catheterization,  $2.70 \pm 1.21$  (SUC) vs.  $2.26 \pm 1.41$  (PLA) at 1 min ( $p = .64$ ) and  $0.66 \pm 1.32$  (SUC) vs.  $1.26 \pm 1.00$  (PLA) at 3 mins ( $p = .38$ ). For the NIPS scores, it was  $4.27 \pm 1.06$  (SUC) vs.  $4.69 \pm 0.92$  (PLA) ( $p = .56$ ) during procedure,  $2.05 \pm 0.91$  (SUC) vs.  $1.97 \pm 1.19$  (PLA) ( $p = .92$ ) at 1 min and  $0.49 \pm 0.89$  (SUC) vs.  $0.89 \pm 0.97$  (PLA) ( $p = .54$ ) at 3 mins. The difference in the mean crying time was not different between both groups:  $99 \pm 34$  secs (SUC) vs.  $100 \pm 25$  (PLA) ( $p = .99$ ). No significant difference was found in participants' heart rate variations during procedure  $23 \pm 8$  BPM (SUC) vs.  $26 \pm 7$  (PLA) ( $p = .60$ ), after 1 min  $19 \pm 12$  BPM (SUC) vs.  $17 \pm 7$  (PLA) ( $p = .76$ ) and after 3 mins  $-1 \pm 12$  BPM (SUC) vs.  $3 \pm 6$  (PLA) ( $p = .53$ ).

**Conclusion:** In infants 1 to 3 months of age undergoing urethral catheterization in the ED, administration of an oral sweet solution did not statistically decrease pain scores as measured by the FLACC and NIPS scales. Participants' heart rate variations and crying time were not significantly decreased when sucrose was provided.

**Keywords:** pain, pediatric

#### LO038

##### Evaluation of a midstream urine collection technique for infants in the emergency department

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**Introduction:** A novel bladder stimulation technique has been described for midstream urine (MSU) collection in well-feeding, inpatient newborns. We sought to determine the performance of this technique amongst infants presenting to the Emergency Department (ED). **Methods:** Our prospective ED-based study enrolled a convenience cohort of infants aged  $\leq 90$  days who required urine testing. Infants with significant feeding issues, moderate to severe dehydration, or critical illness were excluded. Bladder stimulation consisted of finger tapping on the lower abdomen with or without lower back massage while holding the child upright. Healthcare providers received standardized training in the technique. Primary outcome was the proportion of infants with successful MSU collection via the technique. Success was defined as adequate sample collection ( $\geq 1$  mL urine) within 5 minutes of initiating stimulation. Secondary outcomes included the proportion of contaminated MSU samples, time required for MSU collection and full protocol completion, and patient discomfort as perceived by parent/guardian using a 100 mm visual analog scale [VAS]. Assuming success *a priori* in 50% of infants, a sample size of 115 allowed a 95% confidence interval of  $\pm 9.1\%$  around the point estimate. **Results:** We enrolled 115 infants. Mean age was 53.0 days old (interquartile range [IQR] 26.7-68.0); 58.3% were male (69.2% uncircumcised). Midstream urine was successfully collected in 61 infants (53.0%; 95% CI 0.44,0.62). Thirty-one MSU samples (50.8%) were contaminated; uncircumcised males held the highest proportion (55.0%). Most contaminated samples (83.9%) were reported as "non-significant growth" or "growth of  $\geq 3$  organisms" and were easily identifiable as contaminants with minimal impact on clinical care. Only 4 (8.5%) of the 47 patients discharged home after successful MSU collection had a repeat ED visit for urine testing. Median stimulation time for MSU collection was 45 seconds (IQR 20-99 secs). Median time for full protocol completion was 30.83 minutes (IQR 24.42-46.83 mins). Mean VAS for infant discomfort was 20.2 mm (SD  $\pm$  20.4 mm). **Conclusion:** Our pragmatic, ED-based study found the success rate of this bladder stimulation technique to be significantly lower (53%) than its published rate (86%). The contamination rate was high but most contaminated specimens were easily identifiable as such and had minimal clinical impact.

**Keywords:** urine sample, infant, bladder stimulation

#### LO039

##### The effect of desaturations on subsequent medical visits in infants discharged from the emergency department with bronchiolitis

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**Introduction:** Bronchiolitis is the most common lower respiratory tract infection among infants, characterized by wheeze and respiratory

distress. Reliance on pulse oximetry has been associated with increased hospitalizations, prolonged hospital stay and escalation of care. The objectives were to determine if there is a difference in the proportion of unscheduled medical visits within 72 hours of emergency department discharge in infants with bronchiolitis who desaturate to  $<90\%$  for at least one minute during home oximetry monitoring versus those without desaturations. **Methods:** This is a prospective cohort study from 2008 to 2013 enrolling 118 otherwise healthy infant aged 6 weeks to 12 months discharged home from a tertiary care pediatric emergency department with a diagnosis of acute bronchiolitis. The primary outcome was unscheduled medical visits for bronchiolitis, a visit to any health care provider due to concerns about respiratory symptoms, within 72 hours of discharge in infants with and without desaturations. Secondary outcomes included examination of the severity and duration of the desaturations, delayed hospitalizations within 72 hours of discharge and the effect of activity on desaturations. **Results:** During a mean monitoring period of 19 hours, 75/118 (64%) infants had at least one desaturation event (median continuous duration 3.4 minutes). 59/118 infants (50%) had at least 3 desaturations, 12 (10%) desaturated for  $>10\%$  monitored time and 51(43%) had desaturations lasting  $\geq 3$  minutes continuously. 59/118 (50%) infants desaturated to  $\leq 80\%$  and 29 (24%) to  $\leq 70\%$  for  $\geq 1$  minute. A total 18/75 infants with desaturations (24.0%) had an unscheduled visit for bronchiolitis versus 11/43 of their non-desaturating counterparts (25.6%) [Difference - 1.6%; 95%CI -0.15 to  $\infty$ ,  $p = 0.66$ ]. One of 75 desaturating infants (1.3%) and 2/43 (4.6%) of those without desaturations were hospitalized within 72 hours [Difference of -3.3%; 95% CI -0.04 to 0.10,  $p = 0.27$ ]. Seventy seven percent of infants with desaturations experienced them during sleep or while feeding. **Conclusion:** The majority of infants with mild bronchiolitis experienced recurrent or sustained desaturations after discharge home. Children with and without desaturations had comparable rates of return for care, with no difference in unscheduled return medical visits and delayed hospitalizations.

**Keywords:** bronchiolitis, oxygen saturation, healthcare utilization

#### LO040

##### Do combined electrocardiogram rhythm and point of care ultrasound findings predict outcome during cardiac arrest? The second Sonography in Hypotension and Cardiac Arrest in the Emergency Department (SHOC-ED 2) Study

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**Introduction:** Survival to hospital discharge is better for PEA than asystole in out-of-hospital cardiac arrest. Point of care ultrasound (PoCUS) is widely used in cardiac arrest, although not mandated by ACLS guidelines. This study examines if initial PoCUS findings combined with cardiac rhythm are predictive of outcomes including return of spontaneous circulation (ROSC), survival to hospital admission (SHA), and hospital discharge (SHD). **Methods:** A database review was completed for patients arriving to a tertiary ED in asystole or PEA arrest from 2010 to 2014. Patients under 19y or with a previous DNR were excluded. Patients were grouped into those with cardiac activity on PoCUS and PEA on ECG (Positive group); those with no cardiac activity recorded on PoCUS and asystole on ECG (Negative group); and those with a mix of positive and negative findings (Indeterminate group). Data was analyzed for the frequency of ROSC, SHA, and SHD. **Results:** 186 patients met the study criteria, with 14 (8%) in the positive group, 134 (72%) in the negative group,