tomography (CT) of the head among syncope patients. Professional organizations including Choosing Wisely have recommended against its use in the absence of high-risk features. However, a review of CT head use among syncope patients and its diagnostic yield has not been previously reported. **Methods:** We conducted a systematic review using EMBASE, Medline, and Cochrane databases from inception to August 2016. We included studies involving adult syncope patients that reported CT head use and its diagnostic yield during acute management by a two-step process: first title/abstract review and then full-text review of selected articles. We excluded case reports, narrative reviews and those involving children. We collected the proportion of patients who had CT head performed, and its diagnostic yield. Outcomes included identification of acute intracranial conditions (hemorrhage, mass or infarct) that require further management. Two reviewers independently abstracted the data and discrepancies were resolved by consensus. We calculated inter-observer reliability for inclusion in the systematic review using kappa values. We performed meta-analysis for diagnostic yield of the CT head. **Results:** Fifteen studies with 2,802 syncope patients in four sub-groups (proportion of patients among whom CT head was performed and its yield in ED and inpatient settings; studies that reported only the yield among those with CT head performed; and the use and yield among syncope patients ≥65 years old) were included. The inter-observer agreement for inclusion of final articles for meta-analysis was $\kappa = 0.925$ [95% CI: 0.861-0.990]. Seven ED studies (n = 1,261) reported 55.7% patients (95% CI: 32.1-78.0%) had head CT performed with a yield of 4.0% (95% CI: 2.7-5.6%); 5 studies with 1138 hospitalized patients reported that 38.6% (95% CI: 20.4-58.6%) had head CT with a yield of 1.1% (95% CI: 0.4-2.2%). The yield among studies that report only outcomes for CT head was 2.3% and the yield among patients' ≥65 years was 7.7%. **Conclusion:** Our review found that a very high proportion of syncope patients had CT head performed during acute management with a very low diagnostic yield. The yield is higher among patients ≥65 years old. A robust tool to identify patients who require a CT head will reduce unnecessary testing.
Keywords: syncope, computed tomography of the head

MP24

Effect on pain of an oral sucrose solution versus placebo in children 1 to 3 months old needing nasopharyngeal aspiration; a randomized controlled trial

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Introduction: Oral sweet solutions have been accepted as effective pain reducing agents for neonates. However studies in the Emergency Department (ED) setting have conflicting results. The objective is to compare the efficacy of an oral sucrose solution versus placebo in reducing pain in children 1 to 3 months of age during nasopharyngeal aspiration (NPA) in the ED. **Methods:** A randomized, double-blinded, placebo controlled clinical trial was conducted in a pediatric university-affiliated hospital ED. Participants from 1 to 3 months of age requiring NPA were recruited and randomly allocated to receive 2 mls of an 88% sucrose solution (SUC) or 2 mls of a placebo solution (PLA) orally, 2 mins before NPA. The primary outcome was the mean difference in pain scores at 1 min post NPA as assessed by the Face, Legs, Activity, Cry and Consolability (FLACC) Pain Scale. Secondary outcomes were the difference in pain scores using the Neonatal Infant Pain Scale (NIPS), crying time, heart rate and adverse events. **Results:** 72 participants were recruited and completed the study, 37 (group SUC) and 35 (group PLA) respectively. Both groups had similar demographic and clinical characteristics and baseline FLACC and NIPS pain scores (all p = value >0.4). The mean difference in FLACC scores compared to baseline was 3.3 (2.5-4.1) (SUC) vs. 3.2 (2.3-4.1) (PLA) (p = .94) at 1 min and -1.2 (-1.7 to 0.7) (SUC) vs. -0.8 (-1.5 to -0.1) (PLA) (p = .66) at 3 mins after NPA. For the NIPS scores, it was 2.3 (1.6-3.0) (SUC) vs. 2.5 (1.8-3.2) (PLA) (p = .86) at 1 min and -1.2 (-1.6 to -0.8) (SUC) vs. -0.8 (-1.3 to 0.2) (PLA) (p = .59) 3 mins after NPA. There was no difference in the mean crying time, 114 (98-130) secs (SUC) vs. 109 (92-126) secs (PLA) (p = .81). No significant difference was found in participants' heart rate at 1 min 174 (154-194) BPM (SUC) vs. 179 (160-198) BPM (PLA) (p = .32) and at 3 mins 165 (143-187) BPM (SUC) vs. 164 (142-186) BPM (PLA) (p = .86) after NPA. Three patients had vomiting during the procedure (2 PLA and 1 SUC), and one had an episode of chocking (PLA). **Conclusion:** In infants 1 to 3 months of age undergoing nasopharyngeal aspiration 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 and crying time were not significantly decreased when sucrose was provided.
Keywords: pediatrics, pain, sucrose

MP25

The role of advanced imaging in the management of benign headaches in the emergency department: a systematic review

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Introduction: Headache is a common emergency department (ED) presentation. Benign (i.e., non-pathological) headaches are particularly common, including exacerbations of chronic migraine, tension, and cluster headache. Several studies have reported concerns over the frequent use of advanced imaging, specifically computed tomography (CT), in the ED management of benign or primary headache presentations. This systematic review examined the proportion of adult ED benign headache presentations who receive a CT(head). **Methods:** Eight bibliographic databases and the grey literature were searched. All studies reporting the proportion of benign headache patients receiving a CT(head) in the ED were eligible for inclusion. Studies which included a secondary headache population of 15% of their total study population or less where eligible for inclusion. Two reviewers independently assessed study inclusion and completed quality assessment and data extraction. Weighted medians were calculated for the primary and secondary outcomes, as appropriate. **Results:** The search returned 2,444 unique citations, of which 20 met the inclusion criteria (21 patient groups were analyzed). The majority of the studies were descriptive in nature and conducted in North America. The reported proportion of benign headache patients receiving a CT(head) varied considerably (range: 2.06-67.21%); with a weighted median of 30.0% (interquartile range: 30.0, 30.0). Studies published in 2000 or later (18/21 groups) were found to have a higher weighted median percentage compared to those published pre-2000 (p = 0.016). Neither the country of origin nor the proportion of patients with secondary headache included within the study population had a significant effect on CT utilization. Of the three studies which reported the discharge diagnosis of all patients, sub-arachnoid hemorrhage was discovered in 2/241 (0.83%) of CT scans. **Conclusion:** Considerable variation in CT utilization for benign headache ED presentations exists and estimates indicate that more than a quarter of patients receive a CT(head). Overall, these CT scans rarely identify significant pathology, suggesting imaging may be safely reduced. Further research is required to identify interventions which can safely and effectively reduce unnecessary imaging among headache presentations.
Keywords: headache, diagnostic imaging, computed tomography

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