Abstracts

CALPOL: ARE WE OVERDOsing ON BLOOD TESTS?

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Background In February 2012, the Commission on Human Medicines recommended lowering the paracetamol toxicity treatment threshold for all patients. Children between one month and six years of age are physiologically distinct and metabolise paracetamol differently, making them less prone to toxicity. Furthermore, overdose in early childhood is almost exclusively accidental, as opposed to predominately deliberate self harm seen in adults and adolescents. As a result, the use of the new 75 mg/kg ingestion threshold for young children would appear to be of unproven benefit, and is substantially lower than the threshold used in other countries.

Aim To establish the sensitivity and negative predictive value of using a 150 mg/kg ingestion threshold to identify hepatotoxicity in children one month to six year old group with paracetamol overdoses.

Method Retrospective case review. Potential cases were identified by filtering an electronic Patient Management System for a discharge diagnosis of ‘accidental ingestions and poisonings’ over the period 1st January 2012 to 19th October 2016 (57 months). ED documentation was reviewed to identify cases of paracetamol ingestions by children under the age of 6 years. Those with intentional harm, known staggered ingestions over 1 hour or under one month age (corrected for gestation) were excluded.

Clinical notes and laboratory data were reviewed and, data parameters collated using a standardised proforma. Ingested doses were estimated, where possible, by subtraction methods. In some cases, the ingestion time was revised according to the time that the child was previously seen prior to the ingestion. A composite outcome for hepatotoxicity was used consisting firstly of the current UK standard treatment threshold (100 mg/L line on paracetamol toxicity nomogram) together with any evidence of biochemical hepatotoxicity or clinical features of potential hepatotoxicity at any subsequent ED attendances over the next 7 days.

Results The final cohort consisted of 165 individual patient ingestions. A 150 mg/kg ingestion threshold had a sensitivity of 100.0% (95% CI:47.5 to 100.0) for hepatotoxicity, with a negative predictive value of 100.0% (95% CI:97.5 to 100.0).

Conclusion This retrospective study supports the hypothesis that accidental paracetamol ingestions less than 150 mg/kg, in children one month to six years of age, can be safely managed without investigation or treatment, in accordance with other international guidance. The use of 150 mg/kg threshold would reduce testing in over a third of attendances in our cohort. Study limitations include retrospective bias and the predominante use of serum paracetamol levels to determine toxicity.

Figures

**Figure 2**

Objectives Determine the analgesic efficacy and safety profile of single injection FICB performed in the pre-operative period for acute pain management in adult patients with traumatic hip fractures compared to other forms of analgesia.

Methods MEDLINE, EMBASE, Cochrane and CINAHL were independently searched to identify randomised controlled trials (RCTs) in English. Patients aged >18 years old who have suffered an isolated traumatic hip fracture (proximal femoral fracture) and received single injection FICB pre-operatively were included. No date restriction was applied and key journals and articles were scrutinised to include studies not identified by the primary search.

Results Out of 3757 citations, eight RCTs were included in the final quantitative analysis, comprising of 645 participants. Acute pain was significantly reduced in FICB during positioning and movement, standardised mean difference (SMD) = −1.82 (95% CI:−2.26 to −1.38, p<0.00001) but was variable at rest (p=0.20). There was a reduced incidence of analgesia breakthrough (n=57 versus n=73), drowsiness/sedation (n=0 versus n=4) and nausea and vomiting (n=3 versus n=7) in the FICB arm. There were similar numbers of patients across both arms that reported localised bruising (n=3). Only one study was at low risk of bias.

Conclusions FICB is superior in controlling acute pre-operative pain in adult patients with traumatic hip fractures. The benefit is more evident during positioning and mobilisation of the limb. FICB has a better safety profile and reduces dependency on systemic analgesia.

APEM Elizabeth Molyneux prize papers

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**49** PAEDIATRIC TRAUMATIC CARDIAC ARREST – THE DEVELOPMENT OF A TREATMENT ALGORITHM

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Introduction Paediatric Traumatic Cardiac Arrest (TCA) is a high acuity, low frequency event with fewer than 15 cases reported per year to the Trauma Audit Research Network
Traditionally survival from TCA has been reported as low, with some believing resuscitation is futile. Within the adult population there is growing evidence to suggest that with early and aggressive correction of reversible causes, survival from TCA may be comparable to that seen from medical out-of-hospital cardiac arrests. Key to this survival has been the adoption of a standardised approach to resuscitation.

The aim of this study was, by a process of consensus, to develop a national, standardised algorithm for the management of paediatric TCA.

**Methods** A modified consensus development meeting was held. Statements discussed in the meeting were drawn from those that did not reach consensus (positive/negative) from a linked three round online Delphi study. Those participants...
completing the first round of the Delphi study were invited to attend.

19 statements relating to the diagnosis, management and futility of paediatric TCA were discussed in small groups. After five minutes the key points from the small groups were presented to the whole audience. Subsequently, using electronic voting devices, each participant anonymously recorded their agreement with the statement using ‘yes’, ‘no’ or ‘don’t know’. In keeping with our Delphi study, consensus was set a priori at 70%. Statements reaching consensus were included in the proposed algorithm.

Results 41 participants attended the consensus development meeting. Of the 19 statements discussed, 13 reached positive consensus and were included in the algorithm. A single statement regarding initial rescue breaths reached negative consensus and was excluded. Consensus was not reached for five statements, including the use of vasopressors and thoracotomy for haemorrhage control in blunt trauma. The proposed algorithm for the management of TCA is shown as Figures 1 and 2 for blunt and penetrating trauma respectively.

Conclusion In attempt to standardise our approach to the management of paediatric TCA and to improve outcomes, we present the first algorithm specific to the paediatric population.

50 HOW CAN INFORMAL SUPPORT IMPACT CHILD PTSD SYMPTOMS FOLLOWING A PSYCHOLOGICAL TRAUMA?

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Background An estimated 20% of children who present to hospital emergency departments following potentially traumatic events (e.g., serious injuries, road traffic accidents, assaults) will develop post-traumatic stress disorder as a consequence. The development of PTSD can have a substantial impact on a child’s developmental trajectory, including their emotional, social and educational wellbeing. Despite this, only a small proportion will access mental health services, with the majority relying on informal sources of support. Parents, in particular, are often the primary source of support. However, it remains unclear what types of parental responses may be effective, and parents themselves report experiencing uncertainty about the best approach. To address this gap in knowledge, we examined the capacity for specific aspects of parental responding in the aftermath of child trauma to facilitate or hinder children’s psychological recovery.

Method We conducted a longitudinal study of 132 parent-child pairs, recruited following the child’s experience of trauma and subsequent attendance at one of four regional emergency departments. At an initial assessment, within 1 month post-trauma, we examined how parents appraised and responded to their child following the event, using both questionnaires and direct observations. Child-report questionnaires were used to assess PTSD symptom severity at 1 month, and at a follow up 6 months later. Children also reported on their own appraisals of the trauma and their coping behaviours, which were considered as potential mediators between parental support and later child symptoms.

Results Controlling for relevant covariates and initial PTSD symptoms, parent negative appraisals of the trauma and encouragement of avoidant coping in children were associated with higher child-reported PTSD symptoms at 6 month follow-up. There was some evidence that children’s own trauma related appraisals and coping styles mediated these effects.

Conclusion Findings indicate that children’s social support can influence their post-trauma psychological outcomes. That parenting was associated with 6 month PTSD, even after controlling for the child’s initial symptoms, suggests that parenting responses in the posttrauma period actively influence the child’s poorer longer-term adjustment, rather than simply being a response to the child’s initial distress. The results suggest that helping parents to provide fewer negative appraisals about the trauma/their child’s response, and to encourage more adaptive coping styles, could be effective in improving child psychological outcomes. As emergency departments provide primary care and support for families affected by trauma, they could play an important role in making this advice available to parents.

51 PAEDIATRIC EMERGENCY CLINICIANS ARE RARELY EXPOSED TO NON-AIRWAY CRITICAL PROCEDURES: A PREDICT/PERN STUDY

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Background Recent studies suggest that approximately one per thousand paediatric ED attendances may require some sort of critical procedure, with intubation being by far the most common. It is unknown how often critical non-airway procedures such as chest decompression, CPR, ED thoracotomy, defibrillation, pacing, and advanced vascular access techniques are performed by paediatric emergency clinicians.

Objective To determine the recent performance or supervision, and confidence for various paediatric critical non-airway procedures by senior paediatric emergency clinicians.

Design/methods Web based survey of senior paediatric emergency clinicians regarding performance, supervision, and confidence relating to critical non-airway procedures in children aged 0–18 years. The survey was distributed through Paediatric Emergency Research Networks (PERN) in the UK and Ireland, USA, Canada, Europe, South America, Australia and New Zealand.

Results 1602 clinicians responded to the survey, with an overall response rate of 65%. 1508 (94%) respondents reported their most recent non-airway procedural experience. In the last 12 months, 979 (64%) had personally inserted an intravenous line, 283 (19%) a central venous line, and 265 (18%) an arterial line. In the same time period, 962 (64%) had performed CPR, 190 (13%) haemorrhage control in blunt trauma, 245 (16%) had performed tube thoracotomy, 380 (25%) had performed DC cardioversion or defibrillation, and 57 (4%) had performed transcatheter pacing. 18 (1%) had performed pericardiocentesis, 19 (1%) a venous cutdown, and 21 (1%) ED thoracotomy. More than 70% of respondents had never supervised or performed pacing, pericardiocentesis, venous cutdown or ED thoracotomy. 332 (22%) and 348 (23%) had never performed or supervised insertion of a central venous line or arterial line respectively.

Procedural confidence for intraosseous lines and CPR was high, while confidence increased with increasing patient age.