ORGANISATIONAL AND INDIVIDUAL TRAINEE INVESTIGATION OF THE FIRST AFEBRILE SEIZURE IN THE PAEDIATRIC ED: A SYSTEMATIC REVIEW

Haaris Aziz Shiwani, Eoin MacMenna, Eoin Hurley-O’Dwyer, Grace Rothwell-Kelly, Nicholas Anotta, Louise Sweeney, Danyal Memori, Shaheer Aziz, Mohammad Danish Yusuf, Hadeer Ameen, Eleanor Molloy. School of Medicine, Trinity College Dublin, Dublin, Ireland; Royal Victoria Hospital, Belfast, UK; Jessenius Faculty of Medicine, Martin, Slovakia; Department of Paediatrics, School of Medicine, Trinity College Dublin, Dublin, Ireland

Background There is currently no consensus on investigations required in the paediatric emergency department following a first afebrile seizure. This systematic review aims to compare investigations commonly used and to evaluate their effectiveness and diagnostic value.

Methods In this systematic review keywords such as ‘afebrile’, ‘seizure’, ‘paediatric’ and ‘emergency department’ were searched for in numerous databases (SCOPUS, MEDLINE, ProQuest, EMBASE, CINAHL, Cochrane and Grey Literature). The resulting titles and abstracts were manually reviewed to exclude irrelevant articles. Finally, the studies that met our inclusion and exclusion criteria were selected to undergo further analysis.

Results A total of eleven articles of the initial 9946 were analysed. Five of these evaluated blood tests (n=303) including full blood count, sodium, potassium, calcium, glucose and leucocytes with no consistent findings. Seven studies evaluated CT or MRI (n=1208). Cumulatively, abnormal results were present in 12.3% of these neuroimaging studies. EEG was also performed in three of the seven studies that performed neuroimaging (n=420) with abnormalities in 37.1% of these.

Discussion In patients presenting to the paediatric emergency department with a first afebrile seizure, thorough history and examination are essential. In unison with the American Academy of Neurology’s guidelines, EEG proves to be the most valuable investigation to perform. Neuroimaging may be warranted in some cases to exclude underlying CNS pathology or if structural abnormalities are suspected. Laboratory studies are a necessary adjunct but have limited diagnostic value.
Dublin Ireland, 842 children were discharged with no fixed address, typically into emergency accommodation in 2018. This compares with 651 children in 2017, a 29% increase.² Children born into homelessness are more likely to have low birth weights and are at greater risk of death.² The aim of this study was to compare a random cohort of children presenting to the ED and compare differences between children living in homelessness and those at risk of homelessness to those living in stable accommodation across a variety of parameters.

**Methods** A self-administered parental questionnaire was handed to parents checking in to the ED in TSCUH over a 2-week period. An information sheet was also given to parents to explain the purpose of the research. Results were analysed using Microsoft excel.

**Results** 120 (n=120) questionnaires were filled out by a random selection of parents over the initial study period. Age range was 1 month to 15 years. Number of General Practice (GP) attendances ranged between 0 and 6 in past 6 months, ED ranged between 0 and 12.

50% (n=60) owned their own homes. 96% (n=115) were fully vaccinated. 89% (n=106) thought their child had a nutritionally complete diet. However, 24% (n=29) thought their living situation did not enable the parent to adequately prepare/cook meals for their child.

18% (n=22) lived in homelessness/emergency accommodation or with family. In this group 27% (n=6) vs 19% (n=17) had fast-food/ready-meals twice or more per week. Parents thought their accommodation had a negative effect on their child’s health in 19% (n=4) vs 6% (n=6) in this group. Making and maintaining friends was thought to be affected by accommodation in 20% (n=4) vs 7% (n=7). The effect on ability to exercise/play of living situation was 36% (n=8) vs 12% (n=12).

**Conclusion** The above data clearly demonstrates parental perspectives on the impact of homelessness on children. This compares the perspectives of parents living in different types of accommodation and demonstrates the detrimental effects homelessness can have on children’s health and well-being.

---

**P266**

**THE RELIABILITY OF POINT OF CARE KETONE MEASUREMENT IN THE PAEDIATRIC HYPOGLYCAEMIA SETTING**

John Coveney*, Sinead McGlacken Byrne, Nuala Murphy. Children’s University Hospital, Temple St., Dublin, Ireland

10.1136/archdischild-2019-epa.615

**Introduction** Point of care capillary ketone (beta-hydroxybutyrate) measurement is often used in the management of paediatric hypoglycaemia. The accuracy of point of care ketone (POCK) measurement has not been evaluated in the setting of paediatric hypoglycaemia. This study aimed to assess the accuracy of POCK measurement compared to gold-standard laboratory plasma ketone (PK) measurement in a population of infants and children presenting to a paediatric emergency department.

**Methods** This retrospective study was conducted between January-December 2017 in the Emergency Department (ED) at Children’s University Hospital (CUH), Temple Street, Dublin, Ireland. The ED recorded 54,222 attendances during the study period and all hypoglycaemia screens performed in the study period were reviewed.

PK values were extracted from laboratory records. POCK results were retrieved from patient’s electronic emergency department medical records. Where data was incomplete (either POCK or PK measurement were not recorded), results were excluded from the analysis. Results were also excluded where greater than thirty minutes had elapsed between POCK and PK measurement. The agreement between the two methods of ketone measurement was analysed using a Bland-Altman plot. The difference between mean POCK and PK were analysed using a paired t-test.

**Results** A total of 34 hypoglycaemia screens were performed in ED during the study period. Of these, 15 screens were excluded (two because of incomplete data and 13 because of a time interval of greater than thirty minutes between POCK and PK measurement). 19 screens were included in the analysis. No significant difference was seen between mean PK (3.39 ± 1.66 mmol/L) and mean POCK (4.28 ± 1.62), with a mean difference of -0.30 ± 0.54 mmol/L (95% CI, -0.364 to -0.243; p=0.032) No significant proportional bias was seen between POCK and PK levels on Bland-Altman plot.

**Discussion** This study provides evidence for the use of POCK as a reliable surrogate for PK in the setting of hypoglycaemia in paediatric patients. Accurate POCK measurement is very useful in the diagnosis and management of paediatric hypoglycaemia. In the paediatric ED, children presenting with hypoglycaemia often do so during episodes of intercurrent illness where dehydration is common, and phlebotomy is challenging. Furthermore, when faced with a small child with hypoglycaemia, timely correction of hypoglycaemia is an urgent priority. While not a substitute for formal diagnostic tests, POCK measurements are quick and easy to obtain, can direct appropriate investigation and allow sample prioritisation where sample volume is limited.

**P266**

**B-LINES SCORE ON LUNGULTRASOUND AS A DIRECT MEASURE OF RESPIRATORY DYSFUNCTION IN PICU PATIENTS WITH SEVERE POLYTRAUMA**

Kateryna Dmytrieva, Oleksandr Katliou*, Dmytro Dmytriev, Kostyantin Dmytriev. Vinnytsa National Medical University, Vinnytsa, Ukraine

10.1136/archdischild-2019-epa.616

**Purpose** Fluid overload is frequently found in critically ill pediatric patients with severe polytrauma (SP) and is associated with adverse outcomes. Lung ultrasonography (LU) and bioimpedance spectroscopy (BIS) are potentially useful tools for the noninvasive volume assessment. We evaluated the utility of these measures, alone or in combination, in estimating the PaO₂/FiO₂ ratio in critical pediatric patients with SP.

**Methods** In a prospective pilot observational study we included 23 patients who presented on admission or developed at any time during intensive care unit stay SP. Patients were studied at baseline and after 48 h with LU, BIS and arterial blood gas.

**Results** In the univariable analysis, the PaO₂/FiO₂ ratio was negatively correlated with the B-lines score, and this