moments like nursing handovers and ward rounds were noted to be the loudest periods, with a range of 65 to 70 dB.

The questionnaires reflect that although staff members have some knowledge on noise levels and their impact on the newborn, education on the effect of noise in ambience around preterm can be helpful.

On the subject of the permissible loudness, 53.3% of staff answered 55dB, most of the participants were unsure. Regarding the level of noise at which babies start experiencing pain, 60% answered more than 90dB, and 13.3% answered more than 200dB. Handovers and conversations in the unit were noted to have a physiological and psychological effect on the neonates as evidenced by previous studies and suggestions were made to reduce the noise by altering alarm volumes, adding visual aids, and educating staff and parents.

Conclusions We conclude that the loudness of noise has adverse effects on the quality of care of newborns. Guidelines to regulate the noise intensity should be followed to ensure the best of care to growing preterms. Moving forward, our intended actions would be: to educate staff and parents on this topic, obtain a certified device to monitor the noise level, alter the environmental factors influencing the increase in noise and use visual aids to help reduce the noise in our unit thus protecting the newborn babies from harmful noise exposure.

Paediatric Special Interest Group: British Society of Haematology

1500

ENDOVASCULAR TREATMENT OF CEREBRAL VENOUS SINUS THROMBOSIS IN CHILDREN: A SCOPING REVIEW

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Background Cerebral venous sinus thrombosis (CVST) is a cerebrovascular disease that typically affects children and young children. Its clinical presentation is highly variable and non-specific, making diagnosis extremely difficult. Systemic anticoagulation is the first-line treatment, with the aim of minimising thrombus extension and achieving recanalisation. However, many patients deteriorate despite maximal anticoagulation. The clinical heterogeneity, low incidence and paucity of clinical trials on CVST have created significant uncertainty and variability in how patients not responding to anticoagulation are managed. Endovascular treatment is an option in these patients. However, there is particularly limited evidence for its use in children. We present the first scoping review of endovascular interventions for CVST in children.

Objectives To collate, describe and assess the literature on endovascular interventions available for CVST in children, with the aim of guiding future research and the development of clinical guidelines.

Methods A systematic scoping review on both primary and secondary research on endovascular interventions for CVST specifically in children (aged 1 month - 16 years) was conducted according to PRISMA-ScR guidelines. Studies were identified using the databases PubMed, Embase, Cochrane Library and OpenGrey. 226 studies were identified using our

search strategy on 16th October 2020. Following application of eligibility criteria, 48 studies were included for analysis.

Results Case reports (n=15) and case series (n=15) comprised the majority of the studies. 12 narrative reviews and 1 systematic review were identified. Only 1 non-randomised interventional study and 4 observational studies were identified. No randomised controlled studies were identified. 54 unique, individual children with CVST with details of their diagnosis and endovascular intervention reported were identified across 32 studies. 83% of patients had at least one risk factor for CVST, with inflammatory bowel disease (15%) and dehydration (15%) being the most common. 74% of cases had a bland (i.e. non-haemorrhagic) infarct identified on diagnostic imaging, whilst 26% had a haemorrhagic infarct. The majority (65%) of patients received systemic anticoagulation with heparin before endovascular intervention. 11% did not receive any kind of systemic anticoagulation prior to endovascular intervention, mostly due to rapid, progressive neurological deterioration with anticoagulation started afterwards. The most common indications for endovascular treatment were declining GCS (46%) and worsening/non-improving symptoms despite anticoagulation (35%). Local catheter-guided pharmacological thrombolysis with urokinase or recombinant tissue plasminogen activator was the most commonly used intervention (83%). A combination of endovascular interventions was used in 35% of patients. Complete symptom resolution and complete recanalisation was achieved in 63% and 44% of patients, respectively. 9% of patients died despite endovascular treatment.

Conclusions The literature reports the use of endovascular interventions for children with progressively worsening symptoms or declining neurological status despite anticoagulation and children in whom anticoagulation is contraindicated. However, there is no consensus on how patients are deemed to be unresponsive to anticoagulation and suitable for endovascular treatment. Cohort studies and randomised controlled trials are needed to robustly assess the efficacy and safety of these interventions in children.

International Child Health Group

1502

ADMISSIONS TO A LOW-RESOURCE NEONATAL UNIT IN MALAWI USING A MOBILE APP AND DASHBOARD: A ONE YEAR DIGITAL PERINATAL OUTCOME AUDIT

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Background Neonatal deaths still account for a large proportion of child deaths. Understanding the extent and characteristics of neonatal deaths in Sub-Saharan Africa is a significant challenge with poor quality, inaccurate record-keeping in these settings. The process of audit is considered the foundation of quality improvement. With mHealth gaining prominence in many hospital departments, the NeoTree data collection and

quality improvement system is a digital innovation deployed at Kamuzu Central Hospital (KCH), Neonatal Unit, Malawi, from April 2019, facilitating automated, real-time, prospective audit via a data dashboard.

Objectives To describe the pattern of admissions and outcomes in a Malawian neonatal unit over a one-year period via a prototype data dashboard, using a bedside electronic data collection and quality improvement system: NeoTree.

Methods An electronic audit of admissions to KCH, Neonatal Unit (1st May 2019 to 31st April 2020) was carried out. Data were collected prospectively by nursing staff at the point of care, using electronic forms in the NeoTree app on tablet devices. Admission and outcome forms contained embedded reminders, education and training regarding newborn care according to national and international guidelines. Data were exported from the tablets to a cloud database. The data were then reviewed, visualised, and retrieved via a Microsoft Power BI dashboard. Data cleaning and descriptive statistics were executed using R.

Results A total of 2732 neonates were admitted and 2413 (88.3%) had an outcome recorded electronically using the NeoTree app. Of 2413 whose outcome was known, 1899 (78.7%) were discharged alive, 12 (0.5%) were referred to another hospital and 10 (0.4%) left the hospital before being discharged. One fifth (n=492) infants died, giving an overall case fatality rate of 204/1000 admissions. Of 492 deaths, the commonest causes of death were prematurity with respiratory distress (n=252, 51%), neonatal sepsis (n=116, 23%), and neonatal encephalopathy (n=80, 16%). Almost half (45%) of deaths occurred within the first 72 hours of admission. The most common perceived modifiable factors around deaths were inadequate monitoring of vital signs and management of sepsis. Monthly trends were tracked in relation to a change in admission criteria and the COVID-19 pandemic. 202 (8.1%) neonates were HIV exposed and 143 (70.8%) of these received nevirapine as prophylaxis leaving 59 (29.2%) vulnerable to vertical infection. Data collected on the NeoTree app were on average 96% complete across all data fields and coverage of admissions, discharges and deaths was 97%, 99% and 91% respectively when compared with the ward logbook.

Conclusions This is the first electronic, point-of-care audit of neonatal admissions and outcomes to a neonatal unit, collected by health professionals using a mobile app, reported via a data dashboard. This system achieved high coverage and completeness of data over a one-year period suggesting that M-health quality improvement systems such as the NeoTree can provide and improve quality of data for audit, timely reporting, and effective decision making regarding neonatal care in low resource settings, even during significant external stresses such as the COVID-19 pandemic. A larger scale evaluation of impact on quality of care and case fatality rate is planned.

British Association of Perinatal Medicine and Neonatal Society

1504

NEONATAL HYPERTENSION: INCIDENCE AND OUTCOME FROM TEN YEARS' EXPERIENCE OF A REGIONAL NICU

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Background Hypertension in the neonatal period is uncommon with studies reporting an incidence of 0.2–3%. There is little data on the clinical course and outcome of these infants.

Objectives To evaluate the incidence and outcome of neonatal hypertension

Methods A retrospective observational study in newborn infants admitted to NICU over a 10 year period (January 2011 to December 2020). Hypertension was defined as systolic BP >95th centile for gestation and age for at least 3 consecutive readings measured using an indwelling arterial line or non-invasive devices such as Dinamap or manual measurement using a Doppler.

- Inclusion criteria – Coding of Neonatal hypertension in Badgernet neonatal database.
- Exclusion criteria – Early death in the perinatal period or in the first week of life

Demographic details of infants with neonatal hypertension were obtained. Case records were further interrogated to evaluate the management of neonatal hypertension, clinical course, and duration of medical treatment. Information on medical treatment at home and follow-up reviews were ascertained to determine the outcome.

Results 24 infants were found to have hypertension from a total of 11192 admissions to the NICU over the 10 year period, giving an incidence of 0.22%. Mean gestation at birth, birth weight and age at diagnosis were 35+2 weeks, 2.58 Kg respectively. The median age at diagnosis was 2 weeks (IQR 1–4 weeks). 14/24 (58%) infants were out-born.

13 (54%) were found to have a renal abnormality. 7 (29%) had an umbilical arterial line inserted. 5 (21%) had exposure to antenatal steroids. 1 (2.5%) of the infants were found to have a structural cardiac abnormality. Anti-hypertensive therapy was initiated in 12 (50%) and the rest were managed with fluid restriction. At the time of discharge, hypertension had resolved in 13 (54%). At the latest follow-up (mean 31 months), only 3 remained on anti-hypertensive treatment after one year of life with a structurally normal heart on echocardiography.

Conclusions Neonatal hypertension is rare and the most common aetiology is kidney disease. Hypertension resolves in the vast majority of infants in the first year of life.

RCPCCH Trainees Committee

1510

INVOLVE ME AND I LEARN – INTEGRATING MEDICAL STUDENTS IN MULTIDISCIPLINARY IN-SITU SIMULATION

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Background Paediatric exposure during medical school is often limited to rotations that last a few weeks, and include multiple areas such as clinics, NICU, wards and the emergency department. Many students finish their placement with good theoretical knowledge of managing the critically unwell child but limited practical experience and application of such. Simulation is a growing part of the medical school curriculum however it mainly remains adult based. Simulation