Association of Paediatric Emergency Medicine

572

INCIDENCE OF SPREAD OF CLINICALLY RELEVANT SARS-COV2 INFECTION BETWEEN CHILDREN IN A TERTIARY EMERGENCY DEPARTMENT: AN EVALUATION

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Background SARS-CoV-2 infection presents significant challenges to the management of children. To our knowledge, the spread in healthcare settings between children had not been reported. Leicester was the first area in the United Kingdom to undergo a localised lockdown with reports of relatively high numbers of children affected.

Objectives Our evaluation aimed to identify the number of clinically significant SARS-CoV-2 paediatric patients (age < 18 years) presenting to our Children's Emergency Department (CED) at the Leicester Royal Infirmary (LRI), investigate the effectiveness of infection control measures and examine outcomes.

Methods We determined clinically significant infection to be that which prompted parents/carers to bring their child to the CED and be admitted. The national guidance in England at the time determined that only admitted patients are swabbed for SARS-CoV-2.

Clinical information on the timelines of hospital attendance, length of hospital stay (LOS) and outcomes was gathered by retrospectively from 15.03.2020 to 31.07.2020 by looking at the attendances in Nervecentre®.

National infection control policies were followed, ranging from adoption of rigorous hand washing and provision of Personal Protective Equipment (PPE) for patient contacts, to the separation of the department into 'red' (suspected COVID) and 'blue' (non-suspected COVID) zones on the basis of pre-determined criteria.

The study was ratified as a service evaluation project by the trust.

Results 27 children (0–15 years) tested COVID positive. 22 (81.5%) of these presented to the PED among 10777 presentations.

20/22 (90.9%) patients were admitted, all were eventually discharged. Nearly all of the patients came through the red zone; 21/22 (95.4%). The average Length of Stay (LOS) of these patients was 120.7 hours.

2 patients were felt to have the novel Paediatric Inflammatory Multisystem Syndrome temporally related to SARS-CoV-2 (PIMS-TS), both needing paediatric intensive care stay. Children presented with lower respiratory tract infection (3/22; 4/27), suspected sepsis (4/22; 4/27), and Bronchiolitis (2/22; 2/27).

There was no overlap between any SARS-CoV-2 positive patients with any other patients who subsequently tested positive in the department. Thus, no clinically relevant SARS-CoV-2 cross-infection was noted.

Conclusions Our study demonstrated that children don't appear to be causing spread within our CED. Division of

CED into two areas meant a substantial change to our working due to changes in staff allocation and challenges to CED leadership. Only a very small number of patients were SARS-CoV-2 positive- this led us to believe that the existing measures to split the departments were effective, but also perhaps, unnecessary.

On the basis of this study, the splitting of the CED into red and blue zones has been abolished and the department has been merged, to avail the staffing and space resources optimally to enhance patient safety and provide best healthcare services to our patients.

This study could be crucial in anticipating and managing the future PED patient flow, especially during the winters when the other seasonal viral infections are likely to overburden the services.

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573

HELPING BABIES BREATHE: DESCRIBING OUR EXPERIENCES OF INTRODUCING LESS INVASIVE SURFACTANT ADMINISTRATION TO REDUCE RATES OF BRONCHOPULMONARY DYSPLASIA

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Background Respiratory Distress Syndrome affects approximately 50% of babies born under 32 weeks gestation. Surfactant is a key component in reducing surface lung tension, and despite the administration of antenatal steroids to mothers at risk of preterm delivery to promote surfactant production, many preterm babies are born with surfactant deficiency. If left untreated babies require increasing respiratory support, and potential complications such as pneumothorax, the development of bronchopulmonary dysplasia, home oxygen and increased susceptibility to infections.

Traditionally surfactant administration requires babies to be intubated and placed on mechanical ventilation. With this technique there are many potential complications, including the use of drugs for sedation during intubation, the risk of trauma and subsequent airway abnormalities, and the risk of barotrauma to the lungs due to persistent use of high pressure ventilation.

Objectives Less invasive surfactant administration (LISA) delivers surfactant directly to the lungs via a tracheal fine-bore catheter avoiding invasive ventilation. Following introduction into our unit in May 2018 we determined LISA efficacy by comparing total ventilation days, total non-invasive ventilation days, total oxygen days and bronchopulmonary dysplasia rates between babies who received surfactant via LISA to those following intubation.

Methods Between May 2018 and October 2019 89 babies were identified via Badgernet as having received surfactant. We included only those infants between 26 + 0 and 32 + 6 weeks gestation producing groups with comparable gestation and birth weight. Using a data collection form and retrospective analysis of the Badgernet generated database we compared the demographics and long-term outcomes for infants receiving surfactant via LISA to those following intubation. Rates of bronchopulmonary dysplasia were collected from NNAP data.