Managing the Emergency Difficult Paediatric Airway in a District General Hospital: A Shared Experience

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Introduction
Paediatric airway emergencies are complex and stressful for all staff involved. In this report we look at how addressing human factors risks can help manage these rare but serious situations more effectively and safely.

A widely accepted definition of human factors is that of the Health and Safety Executive (HSE: UK industrial safety regulator). ‘Human factors refer to environmental, organisation and job factors, and human and individual characteristics which influence behaviour at work in a way which can affect health and safety’.

Understanding and planning for human factors has been identified by the World Health Organisation as important for insuring patient safety. Addressing human factors to improve safety has long been practiced in the military and aviation industry. Successful management of paediatric airway emergencies will be influenced by multiple human factor risks, and the more a team has assessed and prepared for these before a situation occurs, the better the expected outcome for the patient.

Organisation

Human factors: An organisation’s safety culture and communication availability are known to affect patient outcomes.

Our hospital has a proactive approach to promoting a culture of safety, with a generalised airway management protocol available for all staff, at all times, digitally on our hospital intranet. However, we recognised that knowledge of this complex patient’s specific needs, needed to be made immediately available to staff treating her, as this would benefit the patient and team. A patient specific management plan was created and uploaded to the hospital intranet. It was also emailed to all members of the multidisciplinary team who would be treating her to highlight its creation and updates.

Job

Human factors: As senior members of the difficult airway team are non-resident on-call at our hospital, it could take 30 minutes to mobilise a senior team. Time is critical in an emergency airway situation

We improved mobilisation of appropriate staff and equipment by advising whom the emergency department should contact immediately including immediately contacting consultant ENT and anaesthetists on-call. This was documented in the patient’s management plan and was reviewed at each MDT.

Human factor: Staff managing a time sensitive patient need the correct equipment to be available at all times, to be able to perform their job roles without avoidable stress.

Theatre and anaesthetic staff reviewed items available on the emergency airway trolley. The paediatric bronchoscope set was reviewed by ENT against the recommended equipment tray for removal of foreign body from airway of child 0-12 years as published by Okonkwo et al.

Case

We present a complex case of a 1 year old female with severe neurodisability and craniofacial abnormalities, who frequently presented with respiratory failure, to illustrate our own interventions to mitigate human factor errors. We assessed multiple human factors and took steps to risk assess and mitigate these factors that could affect our patient’s outcome.

Team

Human factors: it was realised that different teams within the hospital would have a role in ensuring a good outcome of the patient. Individuals from all the teams would have to perform their duties with confidence and quickly in a stressed situation. Each team, understanding each other roles allows for preplanning and smooth teamworking in times of stress.

To ensure all staff had the required knowledge an MDT was formed which included the emergency department, general paediatrics, anaesthetists, critical care, theatre staff and ENT. This MDT created the specific patient management plan together, to improve the response time and coordination of the teams. Patient specific information, such as who was required to respond to her presentation, endotracheal tube size, theatre equipment etc. in order to ensure minimal attempts of intubation and therefore reduced trauma and complications to the patient. The MDT met after each patient visit (approx. every 6 weeks) and revised the management plan.

Trust audit days and regional network meetings in ENT and Anaesthetics and Critical Care were used for learning lessons from the case including discussing appropriate journal articles. This both improved awareness, knowledge of the patient and what the team should do in any given scenario.

Individuals

Human factors: In stressful situations, staff cannot always do their best. Staff managing a complex patient need to be well trained and practiced in their responsibilities

Additional training was offered to Junior ENT doctors, anaesthetists, critical care and theatre staff. Staff attitude with the paediatric bronchoscope increased and was evidenced with work base assessments and reflection.

To reduce errors in the community our general paediatric team created an open access pathway for the patient. Her parents could contact the ward directly for advice or present to the emergency department or ward without a referral.

Conclusion

Our interventions allowed timely and safe intubation of the patient at each presentation, with well managed transfer to a tertiary centre. Preparation and communication across specialties, and an awareness of human factor risks, can reduce preventable errors and improve outcomes in these rare but serious emergencies.

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References