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IMPACT OF A DEPARTMENTAL PROTOCOL AND TRAINING ON PHYSICIAN CONFIDENCE IN PAEDIATRIC EMERGENCY FRONT OF NECK ACCESS

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Introduction:

There is no consensus in the literature on the best method for paediatric emergency front of neck access (eFONA)¹. It has been recommended that every department of paediatric anaesthesia should have a locally agreed protocol for this scenario². Based on the available evidence we devised such an algorithm¹. Our study aimed to assess whether members of our department had a clear plan for paediatric eFONA before introduction of this protocol and whether their confidence increased after a structured training session.

Methods:

This was a prospective observational study in a quaternary paediatric hospital. After obtaining institutional ethical approval (REC-209-22) we enrolled participants, consultants and trainees in paediatric anaesthesia and critical care, using convenience sampling. Participants completed a questionnaire prior to a didactic and practical training session on the proposed eFONA algorithm. Confidence levels and familiarity with equipment was assessed using a six-point numeric rating scale.

The paediatric larynx was 3D printed using software freely available on the airwaycollaboration.org website³. The 'adult 3d-cric-trainer' was scaled down, based on cricothyroid membrane (CTM) height, to that of a seven-year-old larynx, using measurements obtained in a previous study⁴. CTM width has previously been shown to be consistently larger than height and therefore height is the determining factor in tube size selection. Participants then completed a questionnaire after successful completion of the training session.

Graphpad Prism Version 9 (Graph Pad, USA) was used for analysis. Categorical data was presented as frequency (percentage). Discrete and continuous data were presented as median (interquartile range). Between group comparisons were performed using Fisher's Exact Test and Wilcoxon matched-pairs signed rank test as appropriate.

Results:

Twenty-seven participants were enrolled, 11 consultants and 16 trainees. Only six (22%) participants had previously had training in paediatric eFONA with only two (7.4%) having prior hands-on experience. The median number of training sessions in the last five years was zero (0-0). After training, all 27 (100%) participants had a clear plan for paediatric eFONA compared to 10 (37%) before

($p < 0.0001$). Confidence scores increased to 4 (3-5) post training compared to 2 (1-3) prior (95% CI 1-2, $p < 0.0001$). Familiarity with the equipment increased to 6 (5-6) from 3 (2-4) (95% CI 1-3, $p < 0.0001$). While 23 (85.2%) participants were aware that there was an eFONA box only 10 (37%) knew its location. This increased to 27 (100%) after training ($p < 0.0001$).

Conclusion:

Introduction of a departmental paediatric eFONA strategy ensures that physicians have a clear plan should this traumatic event occur. Training, both didactic and practical increases confidence and familiarity with the chosen technique and equipment.

References

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