

reported as a useful and safe technique in young children with CF, but it is not yet widely used.

Hypothesis

As part of a quality improvement initiative, we hypothesised that SI would reduce the need for BAL in school-aged CF children with deteriorating lung function and no significant bacterial growth on CS.

Methods After CS and bronchodilator, 7% hypertonic saline was nebulised via an ultrasonic Ultraneb (DeVilbiss Healthcare) for 15 min. Spirometry was performed pre, post and at 5 min intervals throughout. Sputum was collected at 5 min intervals, and at the end of the procedure physiotherapy was performed to collect more sputum. If a child was unable to expectorate then a CS or oropharyngeal (OP) suction was performed.

Results 39 children (41% male), median age 11 years (range 5–16 years), median FEV₁ 85% (range 39–112%) performed SI from June 2102 to July 2014. Significant bronchoconstriction occurred in 11%. 2 adverse events occurred (vomiting and dizziness). The procedure took a mean of 90 min including equipment set up and cleaning.

34/39 (87%) expectorated a sputum sample of which 15 (38.5%) had a positive bacterial culture; only 3 of these patients (20%) grew the same organism on the preceding CS. Five patients avoided planned BAL due to a positive SI result and 2 avoided an admission for intravenous antibiotics.

Conclusion SI is well tolerated in the majority of school-aged children with CF. It has a higher rate of positive bacterial culture than same-day CS and, in this cohort, avoided the need for bronchoscopy in a significant proportion. It is a time-consuming procedure, but based on these data, we consider that establishing SI as a clinical procedure will be a priority for our service.

Integrated knowledge in practice

P107 KNOWLEDGE OF NON INVASIVE VENTILATION IN A DISTRICT GENERAL HOSPITAL – A CAUSE FOR CONCERN?

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Introduction Non Invasive Ventilation (NIV) is being used more widely in acute areas by medical staff with varied training and experience in initiation and ongoing management of ventilatory failure.

Aims To investigate doctors' knowledge of NIV in an emergency department (ED) and general medical wards, specifically indications for use, appropriate set up and ongoing care.

Methods An anonymous online and written questionnaire was distributed to all doctors working in general medicine and in the ED at a UK district general hospital in Spring 2014. Participants were asked to identify appropriate indications for NIV and then led through a scenario of managing a patient with COPD and decompensated ventilatory failure.

Results 40/116 (34%) of doctors responded across all grades. On a 6-point scale, self-identified confidence in managing NIV improves with seniority (5.2 (ST3+) vs 3.3 (FY1-ST2)) and past job experience in ICU (4.1 vs 3.6). Doctors were unclear about indications for NIV outside ICU/HDU. Whilst the majority

(95%) correctly identified COPD exacerbations as an indicator, doctors at all grades would also use NIV for: asthma (10%), significant hypoxia (10%) and pneumothorax (3%). A fifth (18%) would start NIV without initial medical therapy. Only 55% (22/40) could identify appropriate initial ventilatory pressures (initial IPAP range 4–16, initial EPAP range 4–16). Suggesting a value for back up rate was more problematic with 43% (17/40) unable to provide any value and 9/23 (39%) suggesting an inappropriate value (range 8–18). Only 55% (22/40) could correctly alter settings while 23% (9/40) of doctors altered both IPAP and EPAP by equal amounts. 50% (4/8) ED/medical registrars could not alter settings correctly

Conclusions Knowledge of appropriate use of NIV is sub optimal across all grades working in the ED and general medicine in our institution, and probably reflects the increasing use of a specialist intervention in the hands of non-specialists. There are a number of doctors whose use of NIV could compromise patient safety. Urgent education across all grades is needed alongside review of how NIV is delivered in the DGH setting.

P108 ACUTE NIV PRACTICES AT A DISTRICT GENERAL HOSPITAL AND THE IMPACT OF REGULAR ELECTRONIC FEEDBACK ON PATIENT OUTCOME

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Background Non-invasive ventilation (NIV) has become the standard of care for management of acute type 2 respiratory failure. There is evidence that junior doctors receive inadequate training and confidence in the use of NIV is low. National audits have shown consistent shortcomings in NIV management.

Aims To assess initiation of acute NIV in a District General Hospital setting, to provide prompt structured feedback to doctors initiating NIV and to assess whether feedback leads to improvement.

Methods A total of 72 acute NIV initiations were prospectively assessed between January and June 2014. Data from patient records was collected using a structured pro-forma to assess nine parameters (described below). A feedback email with total score out of nine along with brief written feedback was sent to all doctors initiating NIV.

Results Performance was reported for each of the nine criteria; documented indication for NIV (94%); documented NIV start time (90%); BTS recommended NIV pressures achieved (61%); ABG immediately prior to therapy (93%); ABG performed at 1–2 h (75%) and at 4–6 h (79%); documented ceiling of treatment (70%) and discussion with patient/relatives (67%); improvement in pH at 6 h (58%). Use of correct pressures led to an improvement in pH in 68% compared to 43% when inadequate pressures were used ($p < 0.05$). pH at 6 h improved in 81% when all initial 8 parameters were met compared to 0% with a score of 4 or less ($p < 0.01$). There was a trend towards increased survival with higher scores.

Scores steadily improved over the first 3 months however fell at the beginning of April, coinciding with the rotation of junior doctors, rising again towards the end of the study period.

Conclusion Better adherence with BTS guidelines led to improvements in patient outcomes. Structured feedback led to improvement in NIV initiation scores.