introduction of the proactive prevention approach. A pressure ulcer was defined as Grade2 or above. Pearson's chi-squared test for comparison between groups and Fisher's exact test were applied to assess significance.

Results [See Table] In period1, there were 161 admissions and 9 Grade2 pressure ulcers from 666 NIV bed-days (ulceration rate=9/666); in period2 there were 134 admissions and 0 pressure ulcers from 718 NIV bed-days (ulceration rate=0/718). There was a statistically significant reduction in Grade2 Pressure ulceration rates (Pearson's chi-square statistic=7.786; p-value=0.0013 in period2 compared to period1).

Conclusions Application of an early prophylactic pressure-relieving hydrocolloid nasal dressing reduces the chance of developing Grade2 pressure ulcers in patients using NIV acutely. Further longitudinal studies including data on a preventative approach towards NIV-related nasal bridge pressure ulceration are needed to confirm the utility of this approach.

Abstract P125 Table 1

	30/10/14 – 29/10/15 12mth period – BEFORE preventative strategy introduced (PERIOD1)	Commencement date of application of proactive preventative hydrocolloid nasal dressings in acute NIV set ups: 30/10/15	30/10/15-29/10/16 12mth period – AFTER preventative strategy introduced (PERIOD2)
NIV Admissions	161		134
Total NIV duration (NIV bed-days)	**666**		**718**
Grade2 Nasal bridge pressure ulcers	**9**		**0**

The Pearson's chi-square statistic is 7.786 with a p-value of 0.005. Therefore there were significantly fewer Grade2 Nasal bridge pressure ulcers for Period 2. Since the number of Grade2 Nasal bridge pressure ulcers is less than 5 in one of the cells, a Fisher's exact test was performed, which yields a p-value of 0.0013 indicating highly significantly fewer Grade2 Nasal bridge pressure ulcers for the Period2.

P126 WEANING OUTCOMES OF MECHANICALLY VENTILATED SPINAL CORD INJURED PERSONS WITH ACUTE TETRAPLEGIA ADMITTED TO A REGIONAL UK CENTRE OVER A 10 YEAR PERIOD

[1]B Chakrabarti, [2]A Forrest, [2]M Bevan, [2]A Ward, [2]K Chaudhary, [2]B Soni, [2]F Selmi, [1]R Parker, [1]PK Plant, [1]A Manuel, [1]N Duffy, [2]S Lari, [1]RM Angus. *[1]University Hospital Aintree, Liverpool, UK; [2]North West Regional Spinal Injuries Centre, Southport and Ormskirk Hospital, Southport, UK*

10.1136/thoraxjnl-2017-210983.268

Introduction The occurrence of Spinal Cord Injury (SCI) is often complicated by the need for assisted ventilation. This study charts the weaning outcomes of mechanically ventilated SCI subjects admitted over a 10 year period to a regional Spinal Injuries unit.

Methodology Acute SCI subjects with Tetraplegia admitted from April 2007–2017 to the Northwest Regional Spinal Injuries Centre (NWRSIC) were identified. Only those presenting with all 3 criteria: a) admission injury level C1-C6 b) admission ASIA score A-C and c) need for mechanical ventilation on arrival to the NWRSIC were included in the final analysis.

Results The cohort consisted of 84 subjects (mean age 57 (SD 18) years; 76% male; 81 surviving to discharge). On admission, the level of injury was C1–3 in 28% (C1–3 ASIA A 20%; C1–3 ASIA B 2%; C1–3 ASIA C 6%) and C4–6 in 72% (C4–6 ASIA A 38%; C4–6 ASIA B 17%; C4–6 ASIA C 17%). On admission, 86% (72/84) were tracheostomy ventilated 24 hours/day, 12% (10/84) tracheostomy ventilated at night only and 2% (2/84) using NIV. By discharge, 13% (11/81) were tracheostomy ventilated 24 hours/day (including 2 Phrenic nerve paced), 13% (11/81) tracheostomy ventilated at night only, 7% (6/81) prescribed nocturnal NIV with 65% (53/81) breathing independently. Thus, when taking the entire cohort, 63% (53/81) achieved complete Ventilatory liberation, 12% (10/81) weaned to nocturnal tracheostomy ventilation only and 6% (5/81) were weaned to NIV whilst no further weaning was possible in 16% (13/81). The ability to breathe independently by discharge was found to correlate with level of injury on admission (CC 0.39; $p<0.001$), level of injury on discharge (CC 0.47; $p<0.001$) and non-significant trend with improvement in neurological function during admission (CC 0.21; $p=0.06$) but not age or gender.

Conclusion Our data demonstrates that in a cohort of consecutive SCI patients requiring mechanical ventilation on admission to a regional Spinal injuries unit, weaning from mechanical ventilation was possible in 84% of subjects with 63% being liberated completely from Ventilatory support by discharge. The use of NIV in the SCI cohort appears to be an emergent strategy during the weaning process.

P127 WHAT IS THE OPTIMAL MODE OF NON-INTRAVENOUS BRONCHODILATORS IN ADULT, MECHANICALLY VENTILATED PATIENTS ON THE INTENSIVE CARE UNIT? A SYSTEMATIC REVIEW OF THE LITERATURE

[1]J Finnerty, [2]JJ Kenth, [3]K Bramley. *[1]Pennine Acute Trust, Sutton Coldfield, UK; [2]Royal Manchester Children's Hospital, Manchester, UK; [3]Royal Infirmary of Edinburgh, Edinburgh, UK*

10.1136/thoraxjnl-2017-210983.269

Background Acute bronchospasm is common amongst mechanically ventilated patients, associated with significant morbidity and mortality and constitutes a substantial burden on already austerely limited resources. The three axial methods by which (non-intravenous) bronchodilators can be administered include nebulisers, metered dose inhalers (MDI) and more recently, direct endotracheal liquid boluses (ELB). Previous studies have failed to demonstrate the advantage of one mode of delivery versus the other and there are no systematic reviews directly comparing all three therapies.

Aims The study sought to ascertain the efficacy of nebulisers, MDI and ELB for the management of acute bronchospasm in adult, mechanically ventilated patients.

Methods By means of a prospective protocol, a systematic review was undertaken to compare randomised controlled trials (RCTs) exploiting both the GRADE and Cochrane methodology. We intended to assess the quality and strength of the evidence, risk of bias, the magnitude of the effect size, and to meta-analyse the main outcome measures: peak inspiratory pressure – PIP and airway resistance – R_{aw}.

Results Five studies involving 73 patients were included in this review. Four studies (59-subjects) compared the efficacy of nebulisers against MDI, and one study (14-subjects) compared ELB against MDI. The review found that all three modes were effective in significantly reducing both PIP and R_{aw}, with two studies suggesting that nebulisers appear to be more effective than MDI (GRADE – moderate). ELB was found to be especially effective as a rescue therapy when conventional management had failed (GRADE – moderate). The studies were limited by small sample sizes, large variability in outcomes measures, incomplete reporting and a high degree of heterogeneity; thus, precluding a meta-analysis. The risk of bias ranged from low to uncertain across most domains.

Conclusions A systematic review of RCTs found that there was insignificant evidence to assert the superiority of any one mode of bronchodilators over the other, and thus a balanced and nuanced approach to managing acute bronchospasm should be contextualised to the individual needs and best-interest of the patient using a multi-modal approach. Further high-quality RCTs with larger samples sizes, preferably comparing all three modalities are required to conclusively provide a tangible answer.

P128 AUTOMATED VIDEO MONITORING OF PATIENTS' SPONTANEOUS BREATHING DURING HIGH FREQUENCY JET VENTILATION

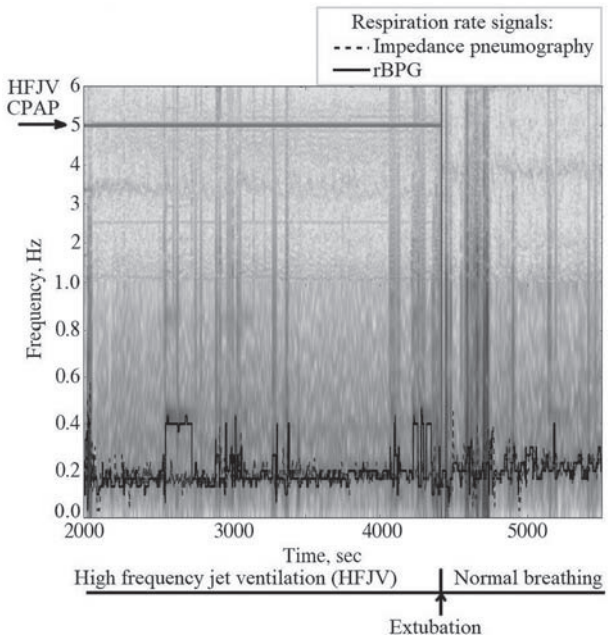
[1]MB Kontorovich, [2]KS Purtov, [2]VS Kublanov. *[1]Regional Anti-Tuberculous Dispensary, Yekaterinburg, Russia; [2]Ural Federal University, Engineering School of Information Technologies Telecommunications and Control Systems, Yekaterinburg, Russia*

10.1136/thoraxjnl-2017-210983.270

Introduction One important problem in anaesthetic equipment is the measurement of patients' spontaneous breathing during artificial ventilation in the immediate postoperative period. The current paper presents an investigation into using video processing technology to determine the accuracy of spontaneous breathing evaluation for patients during high frequency jet ventilation (HFJV). We call this technology remote body plethysmography(rBPG).

Materials and Methods The 6 patients (male and female) involved, aged between 42 and 70, had undergone operation of the thoracic cavity. Each patient provided written informed voluntary consent prior to study procedures. In the immediate postoperative period, patients enter the intensive care unit, and HFJV is administered for a time between 30 min up to 2 hours or until full reestablishment of adequate spontaneous breathing is made. The HFJV procedure was performed by the ZisLine JV100A device (Triton Electronics Systems Ltd., Russia, registration No: 2010/08739). The reference impedance pneumography signal was provided by an MP 6–03 monitor (Triton Electronics Systems Ltd., Russia, registration No: 2007/00597). The video recording was performed at a distance of 80 cm. Low-cost Logitech C920 webcams with 30 Hz sampling frequency and a 640 × 480 pixel resolution were used. The rBPG signal was measured in real-time with the use of original software.

Results According to rBPG the mean error of respiration rate estimation did not exceed 0.053 Hz (3.2 breath per minute) with a standard deviation of less than 0.04 Hz (2.45 breaths per minute). The example of respiration rate estimation presented in figure 1. In 4 cases, the rBPG and impedance pneumography breath frequency evaluation started at the same time. In 2 cases the rBPG frequency estimation started more than 1 min earlier.



Abstract P128 Figure 1 rBPG signal spectrum with examples of respiration rate estimation during the HFJV.

Conclusion rBPG provides reliable and early determination of spontaneous breathing during HFJV. Therefore, it can be recommended as an additional method of non-invasive spontaneous breathing monitoring to improve the safety of patients during HFJV.

P129 IMPLEMENTING TARGET RANGE OXYGEN IN CRITICAL CARE (TROCC); A BASELINE SURVEY AND PILOT STUDY

BR O'Driscoll, T Fudge, J Cardell, H Millar, PM Dark. *Salford Royal Foundation NHST, Salford, UK*

10.1136/thoraxjnl-2017-210983.271

Iatrogenic hyperoxaemia is common on Critical Care Units (CCUs) throughout the world and high blood oxygen levels have been associated with adverse outcomes including increased mortality. We have commenced a pilot quality implementation study to analyse the views of Critical Care staff regarding oxygen therapy and to change practice to ensure that all patients in the Critical Care Unit have a prescribed target oxygen saturation range. 33 CCU staff responded to an online questionnaire (16 doctors, 7 nurses, 9 physiotherapists, 1 ACCP). 76% thought that slightly too much oxygen was used on the unit but only 53% favoured a formal prescription for oxygen for all patients. For ventilated patients not at risk of hypercapnia, 83% would favour a target range of 94%–98% and 10% would opt for a target range of 90%–94%. For patients at risk of hypercapnia, all respondents favoured a target range of 88%–92%. A baseline audit of practice on the unit studied 54 patients (28 on ventilators) over one month prior to the implementation of a programme of change. 85% of audited patients (46 of 54) had a formal oxygen prescription with target range. Forty patients had target range 94%–98% and six patients had target range 88%–92%, all