prescriptions were judged to be appropriate. The mean PaO_2 on blood gas samples was 13.1 kPa compared with 15.1 kPa in 2005 and 14.9 kPa in 2010. Mean $PaCO_2$ was 5.3 kPa. The mean SpO_2 (pulse oximetry) was 96.8% [median 97%, range 91%–100%]. 82% of SpO_2 values were within the target range but four of six patients with target range 88%–92% were at least 2% above this range. Attitudes and practice in our Critical Care Unit have changed in the past decade and hyperoxaemia is less common now. However, practice still lags behind the declared ambition of our Critical Care colleagues to maintain normoxaemia for most patients. We have instituted changes to CCU practice in May-June 2017. These changes will inform the design of a systematic randomised cluster implementation study using a step-wedge design to implement current best practice in a wide range of Critical Care units.

P130 AUTOMATED VIDEO MONITORING OF SPONTANEOUS BREATHING RECOVERY DURING THE HIGH FREQUENCY JET VENTILATION

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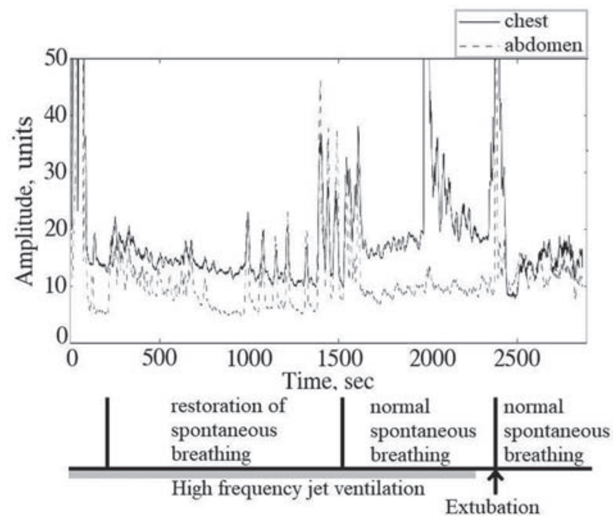
Introduction Automatic evaluation of spontaneous breathing recovery for patients during artificial ventilation is one of the central problems in the early postoperative period. The basic criteria for adequate breathing recovery are rhythmic movements and respiration muscle tone. The current paper presents the possibilities of using video processing technology to determine spontaneous breathing recovery in patients during high frequency jet ventilation (HFJV). We refer to this technology as remote body plethysmography(rBPG).

Materials and Methods The 16 subjects (male and female) involved in the experiment, aged between 24 and 76, had undergone operation of the thoracic cavity. Each patient provided written informed voluntary consent prior to study procedures. Immediately after operation, patients enter the intensive care unit, and have HFJV administered for a time between 30 min up to 2 hours or until the full recovery of muscle tone, consciousness and adequate spontaneous breathing is made. The HFJV was performed by the ZisLine JV100A device (Triton Electronics Systems Ltd., Russia, registration No 2010/08739). The reference respiration rate signal was measured by impedance pneumography with an MP 6–03 monitor (Triton Electronics Systems Ltd., Russia, registration N2007/00597). The patient body video recording was performed at a distance of 80 cm using two Logitech C920 webcams with 640 × 480 pixel resolution and 30 Hz sampling frequency. The original video processing software was used to rBPG signals assessment in real-time. The chest and epigastric movements were processed independently.

Results The Results of rBPG measurement showed that in most cases the process of restoring spontaneous breathing begins with diaphragmatic breathing. The thoracic breathing recovery can be quantified through the measurement of chest movement amplitude. The example of breathing recovery presented in figure 1. The amplitude is raised alongside muscle tone recovery.

Conclusion rBPG provides readings of measurements of diaphragmatic and thoracic breathing from epigastric and chest regions. It allows the relative contribution of each region in total respiration to be quantified. Thus, rBPG can be used for assessing respiration muscle tone recovery and for measuring respiration parameters. It can be used to accurately select the appropriate time for turning off the ventilator and for extubation.



Abstract P130 Figure 1 The chest and abdomen movement amplitude alongside spontaneous breathing recovery.

P131 WEANING OUTCOMES FROM TRACHEOSTOMY VENTILATION IN AN ACUTE RESPIRATORY CARE UNIT (ARCU): A THREE-YEAR EXPERIENCE

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Introduction Patients who had tracheostomy in intensive care unit (ICU) as part of acute admission and are slow to wean from ventilation are admitted to our acute respiratory care unit (ARCU). We evaluated the long-term outcomes of attempted weaning from ventilator support in terms of underlying diagnosis, comorbidities, length of stay (LOS), level of support at discharge and one year survival.

Methods Twelve patients admitted to ARCU as a step-down from ICU between January 2014 and December 2016 were included. Patients were identified using discharge database and data was collected from electronic records and patient notes. Patients were excluded if they had tracheostomy inserted on a previous admission.

Results The patient demographics, length of stay on ARCU and primary diagnosis leading to respiratory failure requiring intubation and subsequent tracheostomy and the LOS on ICU and ARCU are described in Table 1. All but two had significant other comorbidities including neuromuscular disorders, COPD, cardiovascular disorders and OSA. No patients died in hospital. Eight (67%) patients were discharged without any ventilatory support after decannulation, Two (17%) required overnight ventilation and were discharged with tracheostomy ventilation. One patient was transferred to the neuro rehabilitation unit and one to a different ARCU with tracheostomy (self ventilating). Complications during weaning included pneumonia, pneumothorax, delirium, persistent secretions/mucus plugging. At 12 months post-discharge two (17%) patients were dead; seven (58%) were not on any ventilatory support; three (25%) were continuing with tracheostomy ventilation.

Conclusion Respiratory weaning from tracheostomy ventilation represent a heterogenous group which is complex with diverse aetiology and multiple comorbidities. There is a considerable variation in the LOS on ARCU and is often unpredictable. Although more than two third of patients wean successfully on our unit it carries a high one year mortality. LOS is influenced by the complexity of discharge planning. We are not a dedicated weaning unit and our unit is not staffed to look after more than two tracheostomy-ventilated patients at any one time which combined with prolonged stay slows down patient flow from ICU to ARCU and from ARCU to the wards. Multidisciplinary approach and dedicated weaning units are needed that is able to look after complex needs in hospital and coordinate complex discharges.

Abstract P131 Table 1

Age (mean+/-SD, years)	56+/-17
Males	n=8
Females	n=4
LOS in ICU pre tracheostomy	Median=8, Range=2–22
	Mean- 9+/-6
LOS in ICU post tracheostomy	Median=34, Range=7–96
	Mean 41+/-30
LOS in RCU post tracheostomy	Median=7, Range=1–93
	Mean 21+/-33
Primary Diagnosis (n=12)	
Pneumonia	6
Post-procedure/surgery	3
COPD	1
ARDS	1
Other (Cardio-respiratory arrest)	1

P132 THE ROLE OF VENTILATION IN PNEUMONIC EXACERBATIONS OF COPD

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Introduction In isolated pneumonia, most trials show that NIV does not improve outcome, and may delay more appropriate intubation. However in pneumonia complicating COPD with acidaemic respiratory failure (AHRF), an RCT showed NIV reduced the need for intubation and conferred a survival benefit at 2 months.[1] UK NIV guidelines state NIV is not indicated in pneumonia; whether this was intended to apply when pneumonia complicates another condition associated with a favourable response to NIV is unclear and there is substantial variation in practice. In our institution, most patients with pneumonic exacerbation of COPD (pECOPD) and AHRF receive NIV; few decline ventilation or are immediately intubated.

Methods From a consecutive historical cohort of patients receiving assisted ventilation for spirometry confirmed ECOPD and AHRF, chest radiographs, electronic data and clinical notes were reviewed. The presence of consolidation was determined in the following hierarchy: attending consultant physician interpretation (to mimic reality); radiologist report; or researcher interpretation. Analysis performed using IBM SPSS; significance identified using student's t-test, Mann Whitney U or chi-squared test for parametric, non-parametric and categorical data respectively.

Results Among patients surviving to discharge, 90 day and 6 month mortality was 12.8% and 20.3% respectively in those with consolidation, compared to 12.9% and 18.4% respectively in those without.

Discussion Compared to those without pneumonia, patients with pECOPD were older, had more comorbid illnesses, more severe acidaemia and greater functional limitation. In addition, AHRF was more likely to have developed after admission, despite initial medical therapies (an adverse prognostic marker). Unsurprisingly, in-hospital mortality was significantly higher in those with pECOPD, but approximately 2/3 survive to hospital discharge and post-discharge outcomes between the two groups are comparable. Coexistent consolidation is a marker of adverse acute outcome and an indication for closer monitoring but should not preclude ventilation, especially when so few are considered eligible for intubation.

REFERENCE

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Abstract P132 Table 1 Population Descriptors and in-hospital mortality by presence or absence of complicating pneumonia.

	Consolidation present n=231	No Consolidation n=258	P Value
Age	75.4 (9.2)	70.4 (10.2)	<0.001
FEV1 (% predicted)	41.0% (17.8)	35.2% (14.6)	0.001
Current Smoker	45.5%	55.7%	0.273
BMI	24.9 (7.3)	24.3 (7.2)	0.312
eMRCD	5 (4–5)	5 (4–5)	0.14
Proportion 5a or 5b	131 (56.7%)	133 (51.6%)	0.276
Proportion 5b	54 (23.4%)	46 (17.8%)	0.145
Charlson Index	2 (1–3)	1 (1–2)	0.042
For escalation to Invasive ventilation	75 32.5%	102 (39.5%)	0.1
Received IPPV (+/-NIV)	13 (5.6%)	14 (5.4%)	0.922
Acidaemic on 1 st ABG	186 (80.5%)	235 (91.1%)	0.001
pH at ventilation initiation	7.23 (0.08)	7.25 (0.09)	0.09
CO2 at ventilation initiation	10.2 (2.7)	10.7 (2.9)	0.06
CRP at NIV	76 (27–184)	31 (10–74)	<0.001
Peak Pressure (IPAP)	19 (17–20)	20 (18–22)	0.464
In Hospital Mortality	83/231 (35.9%)	41/258 (15.9%)	<0.001

P133 ACUTE HYPERCAPNIC RESPIRATORY FAILURE; APPLICATION OF A NOVEL HUMAN FACTORS APPROACH TO IMPROVE RECOGNITION AND MANAGEMENT

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