increasing levels of cardiometabolic markers (Table, column 1) and adjusting these associations for the inflammatory markers did not substantially alter them (Table, column 2).

Conclusion The association between FVC and cardiometabolic markers is not explained by variation in inflammatory markers, as measured by CRP and WBC. However, due to the cross-sectional nature of the analysis, no inference can be made with regard to the directionality of the associations.

P180 NOCTURNAL OXIMETRY IN CYSTIC FIBROSIS (CF)

E Stockley, N Patel, M Rosenthal, H Tan; *Royal Brompton Hospital, London, UK*

10.1136/thoraxjnl-2013-204457.332

Background It is common for CF children in the UK to receive sleep-disrupting 4 hourly observations day and night throughout their hospital stays for intravenous antibiotics or exacerbations judging from parental and patient feedback. As oxygen desaturations occur mainly during REM sleep rather than NREM sleep, these desaturations could be missed by the intermittently performed "routine observations". Our unit performs nocturnal oximetry studies on night 1 of admission for all CF patients admitted for intravenous antibiotics and discontinues them if oxygenation is normal and the patient improving.

Aims To determine whether day time physiology or lab work is predictive of nocturnal hypoxaemia.

Methods A retrospective comparison of nocturnal oximetry studies and daytime physiology plus HbA1c of all CF patients admitted for intravenous antibiotics between January and June 2013.

Results 54 CF patients were admitted, with 19/54 elective and 35/54 acutely. Table 1 summarises the clinical characteristics and nocturnal oximetry results of the patients. There was a weak positive correlation between Mean SpO₂ and admission FEV₁ ($p = 0.0012$, $r^2 = 0.21$) and admission FVC ($p = 0.0024$, $r^2 = 0.18$). Nocturnal oxygen was commenced in 4/54 children (7.4%) as their mean SpO₂ was $< 93\%$. All of them had an FVC $< 60\%$, the only ones in the cohort. 3 of the children improved (FVC improved to 71%, 75% and 87% from 44%, 54% and 58% respectively), they were weaned off oxygen before discharge, with normal gas exchange on repeat nocturnal oximetry) and 1 died.

Abstract P180 Table 1. Nocturnal oximetry in Cystic Fibrosis (CF).

Age (years)	13[0.11–17.5] median[range]
Admission FEV ₁ (% predicted)	75[69–80] mean[95%CI]
Admission FVC (% predicted)	85[80–90] mean[95%CI]
Best FEV ₁ in past year (% predicted)	88[83–92] mean[95%CI]
Best FVC in past year (% predicted)	97[94–101] mean[95%CI]
Mean SpO ₂ (%)	97.1[91.4–98.9] median[range]
Desaturations $\geq 4\%$ / hour	1.5[0–10.05] median[range]
Percentage time sats $< 90\%$	0[0–10.9] median[range]
HbA1c (%)	5.7[4.2–7.1] median[range]

Conclusion Patients with an admission FVC of $< 60\%$ warrant close monitoring for nocturnal hypoxaemia. In CF patients who are cardiovascularly stable, performing an oximetry study on first night of admission may be a less disruptive alternative to routine intermittent observations nightly for the whole duration of the admission.

P181 TRANSCUTANEOUS CO₂ MONITORING IN HYPERCAPNOEIC RESPIRATORY FAILURE: A META-ANALYSIS OF PROSPECTIVE STUDIES

J Van Oppen, P Thiagarajan, A Khanna, M Sovani; *Nottingham University Hospitals NHS Trust, Nottingham, United Kingdom*

10.1136/thoraxjnl-2013-204457.333

Introduction The role of transcutaneous carbon dioxide monitoring ($P_{tc}CO_2$) for patients with respiratory failure has been studied in a variety of clinical settings. However, its accuracy compared to arterial partial pressure of carbon dioxide ($PaCO_2$) in patients undergoing non-invasive ventilation (NIV) for hypercapnoeic respiratory failure has not been validated. The degree to which $P_{tc}CO_2$ approximates 'gold-standard' $PaCO_2$ in this context was evaluated in a meta-analysis including 16 prospective observational studies.

Methods 16 prospective studies evaluating $P_{tc}CO_2$ as a correlate for $PaCO_2$ in patient cohorts undergoing NIV were included. In all cases, Bland-Altman analysis was used to compare agreement among measures. Mean bias between the two methods of

Abstract P181 Table 1.

Study	Type	N	Time	Mean bias/2SD
Berkenbosch et al (2001)	Paediatric trauma, ARDS	25	4 Hours	0.02 (3.27)
Chakravarthy et al (2010)	Ventilator weaning in cardiosurgery	32	4 Hours	-1.3 (7.80)
Cox et al(2006)	NIV for COPD exacerbations	22	4 hours	-0.15 (0.75)
Cuvelier et al (2005)	Long-term home NIV	12	40 minutes	-0.72 (2.98)
Gancel et al (2011)	Acute resp.failure in ED	29	2 hours	0.01 (0.81)
Hazenburg et al (2011)	Chronic resp.failure	15	8 hours	0.40 (0.87)
Janssens et al (1998)	NIV in ICU	26	4 hours	0.10 (0.69)
Janssens et al (2001)	NIV in ICU	28	8 hours	-2.8(3.8)
Johnson et al (2008)	Tracheostomised patients	41	10 hours	0.07 (0.55)
Kelly and Klim (2011)	Acute resp.failure in ED	46	Single	0.81 (1.87)
Nicolini and Ferrari (2011)	Acute resp failure requiring NIV	80	10 minutes	0.11 (0.73)
Paiva et al (2009)	Chronic resp.failure	65	6 hours	1.00 (5.20)
Parker and Gibson (2007)	Routine resp.practice	48	10 minutes	-0.04 (1.34)
Sivan et al (1992)	Paediatric resp.failure	134	Single	0.17 (1.92)
Storre et al (2007)	NIV titration	10	4 hours	0.61 (1.15)
Storre (2011)	Nocturnal NIV in chronic resp.failure	24	8 hours	0.11 (1.00)