on manual ventilation in the paediatric population are scarce. We therefore conducted a prospective, observational study to compare both devices with regard to peak pressures generated and consequences on respiratory parameters during manual ventilation of intubated and mechanically ventilated children.

Setting A paediatric intensive care unit of an university hospital.

Patients Patients admitted to the PICU; intubated with tube size 3.0, 3.5 or 4 and mechanically ventilated were eligible for the study.

Interventions Manual ventilation was performed with two devices, a Laerdal Silicone paediatric circuit and a Mapleson C circuit. After inclusion, a tap was placed at the end of the manual inflation bag tube allowing for continuous pressure measurements during manual ventilation. Subjects were blinded to pressure recording and no feedback was provided. From each measurement a maximum peak pressure, mean peak pressure (+SD), median peak pressure and a frequency was calculated.

Main

Results 412 measurements in 39 patients were performed (205/207). Both groups had significant higher peak pressures and median delivered pressure during manual ventilation (for both groups p = . 000) when compared to ventilator settings.

Discussion This study demonstrates that in order to perform MH in a safe and effective manner the pressures and volumes generated have to be monitored.

Nutrition, Growth and Morbidity

PS-265 INSULIN TREATED HYPERGLYCAEMIA, HYPERALIMENTATION AND METABOLIC CHANGES ASSOCIATED WITH GROWTH IN VERY PRETERM INFANTS RECEIVING PARENTERAL NUTRITION

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Background Hyperalimentation using a Standardised, Concentrated, Added Macronutrients Parenteral (SCAMP) nutrition regimen improves early head growth, particularly in association with insulin-treated hyperglycaemia (ITH). Early postnatal growth is associated with increased potassium/phosphate supplementation and lower plasma amino acids (AA). We hypothesised that infants randomised to SCAMP and undergoing ITH would demonstrate metabolic changes associated with growth.

Methods SCAMP and control groups were identified from the previously published RCT (ISRCTN 76597892). Infants were substratified into ITH and non-ITH within their original group randomisation. Actual mean daily protein/energy intake, weekly growth and secondary metabolic outcome data, including daily electrolyte intake (including supplementary electrolytes), daily plasma electrolyte and weekly AA (profile: 23 individual AA plasma levels) were collected.

Results Table 1 shows mean (sd) daily intake (MDI) protein/energy intake. The change (Δ) in OFC data demonstrate improved growth with ITH/SCAMP. The percentage of infants requiring electrolyte supplementation (Ksupp/Psupp) was higher in ITH versus non-ITH infants. 17/23 plasma AA were lower in SCAMP ITH versus non-ITH infants ($p < 0.05$ for cysteine, arginine, glutamine, tryptophan, tyrosine, ornithine, methionine) whereas only 5/23 AA were lower in control ITH versus non-ITH (ns).

Conclusions ITH, hyperalimentation and growth is associated with increased potassium/phosphate supplementation and lower plasma AA.

Abstract PS-265 Table 1

	SCAMP			Control		
	ITH	Non-ITH		ITH	Non-ITH	
MDI (d^3–14):	(n = 34)	(n = 34)	p	(n = 29)	(n = 42)	p
Protein (g/kg/d)	3.45 (0.37)	3.52 (0.27)	0.38	2.84 (0.20)	2.87 (0.24)	0.58
Energy (kcal/kg/d)	95.8 (9.3)	99.2 (6.2)	0.13	84.9 (6.7)	86.4 (7.6)	0.36
ΔOFC at d14 (mm)	14 (6)	11 (5)	0.03	10 (6)	10 (6)	0.94
Psupp (infants)	32 (94%)	16 (47%)	<0.01	19 (66%)	14 (33%)	<0.01
Ksupp (infants)	23 (68%)	10 (29%)	<0.01	9 (31%)	7 (17%)	0.25

PS-266 HYPERALIMENTATION AND BLOOD GLUCOSE CONTROL IN VERY PRETERM INFANTS: THE RANDOMISED CONTROLLED SCAMP NUTRITION STUDY

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Background The Standardised, Concentrated with Added Macronutrients Parenteral (SCAMP) nutrition regimen is a method of hyperalimentation shown to improve early head growth in very preterm infants. Early hyperalimentation is associated with marked hyperglycaemia. Increasing early protein intake reduces the risk of insulin-treated hyperglycaemia. We hypothesised that increasing carbohydrate and protein intake simultaneously using the SCAMP regimen would not result in more insulin-treated hyperglycaemia.

Methods Control parenteral nutrition (PN) was started within 6 h birth and infants (<1200 g; <29 weeks) were randomised to start SCAMP or remain on control. Actual nutritional intake, mean blood glucose (MBG) and insulin use data were collected for each day, d1–14.

Results Infants were randomised (d^2–5) to SCAMP (n = 74) and control (n = 76) groups. In 14-day-survivors (Table 1), SCAMP (n = 68) achieved higher mean actual protein/carbohydrate intakes than control (n = 72) from day 3–4. This was not associated with a difference in MBG or insulin use.

Conclusion The SCAMP regimen did not result in the major disturbances in blood glucose control previously described with hyperalimentation. We propose this is partly explained by differences in early protein intake.

Abstract PS-266 Table 1 Difference (SCAMP minus control) in mean daily protein/carbohydrate intake, MBG and number of infants requiring insulin

Difference in:	d1–2	d^3–4	d5–6	d7–8	d9–10	d11–12
Protein (g/kg/d)	0.05	0.21**	0.78**	0.81**	0.62**	0.58**
CHO (g/kg/d)	0.13	0.89**	1.91**	1.62**	1.64**	1.63**
Insulin use (infants)	-2	1	-1	4	-2	0
MBG (mmol/l)	0.1	0.2	0.6	0.4	0.2	0.1
MBG (95% CI)	(-0.9–1.0)	(-1.0–1.4)	(-0.6–1.8)	(-0.5–1.3)	(-0.8–1.1)	(-0.7–0.9)

*p < 0.05;**p < 0.01, CI: confidence interval