1391 BLOOD UREA NITROGEN CONCENTRATION DURING EARLY AND AGGRESSIVE PARENTAL AMINO ACID ADMINISTRATION IN EXTREMELY LOW BIRTH WEIGHT INFANTS

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Background and Aims Early administration of parenteral amino acids (AA) has been shown to limit catabolism and improve growth in extremely low birth weight (ELBW) infants. This study aimed to evaluate an earlier, more aggressive administration of amino acids, was safe and well-tolerated, without clinically significant differences in metabolic acidosis or blood urea nitrogen (BUN).

Methods The 46 ventilator-dependent preterm infants less than 1000g were retrospectively enrolled. The Early group received ≥ 3 g/kg/d amino acids, while the Late group did not received a minimum of ≥ 3 g/kg/d parenteral AA at ≤ 3 days of age.

Results An earlier, more aggressive administration of amino acids (≥ 3 g/kg/d amino acids at ≤ 3 days of age), was safe and well-tolerated, without clinically significant differences in metabolic acidosis or BUN. There is no correlation between amino acid intake and BUN in ELBW infants within 7 days of life. Using multiple regression analysis, gestational age showed a significant negative correlation with BUN concentrations in ELBW infants within 7 days of life.

Conclusions High BUN in the early postnatal period might be related not only to amino acid oxidation and the infant's immaturity but also additional combined factors other than amino acid intolerance. Future studies are required to determine whether early and aggressive administration of amino acids is enough for optimal growth and neurodevelopmental outcome of ELBW infants.

1392 DOES ENTERAL PROTEIN INTAKE AFFECT RENAL GLOMERULAR AND TUBULAR FUNCTIONS IN VERY LOW BIRTH WEIGHT INFANTS?

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objectives and aim: Very low birth weight infants require 3–4 g/kg/day protein intake to provide satisfactory postnatal growth rates and neurodevelopmental outcomes however they have fewer functional nephrons thereby, increasing vulnerability to impaired renal functions. The aim of this study was to investigate the effect of different amounts of enteral protein intake during the fortification of human milk on renal glomerular and tubular functions.

Material and Methods Preterm infants were randomized into three groups regarding their daily protein intakes as standard fortification (3 g/kg/d), moderate fortification (3.3 g/kg/d) and aggressive fortification (3.6 g/kg/d) groups. Serum urea, creatinin (Cr), Cystatin C (Cys-C) and urinary $\beta 2$ microglobulin ($\beta 2M$) levels were assessed and compared between groups.

Results Serum urea, Cr, Cys-C and urinary $\beta 2M$ levels were similar in all three groups both on discharge and postnatal day 14 ($p>0.05$). Mean Cr and $\beta 2M$ levels were significantly lower on discharge ($p<0.05$) while Cys-C levels did not differ in time ($p>0.05$).

Conclusion Enteral protein intake up to 3.6 g/kg/d did not altered the tubular and glomerular functions in very preterm infants. However, the long term renal effects in these infants maintained on a high protein intake remain unknown and should be addressed in future studies.

1393 REGIONAL STUDY FOR PREDICTIVE FACTORS OF BREASTFEEDING PRETERM INFANTS LESS THAN 33 WEEKS

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Objective To determine regional prevalence of breastfeeding very premature infants and identify factors influencing its initiation at birth and continuation at discharge.

Study Design It was a prospective observational study in preterm < 33 weeks of gestational age (GA) from January to December 2010 in Poitou-Charentes. Data were collected from infant report and using a questionnaire sent at home. The variables were analyzed with the Chi² test and Student's *t* test at $p<0.05$ and binary logistic regression for predictive factors.

Results Questionnaires collected concerns 112/150 infants (74.7%) and 95 parents (17 multiple pregnancy). At birth, 65.2% ($n=73$) were breastfed. Factors significantly associated with breastfeeding at birth were: maternal body mass index (BMI), employed mothers, mothers that have been breastfed (MoBr) and daycare other than grandparents. In a multivariate regression model, BMI, daycare by grandparents and MoBr were independent predictive factors of breastfeeding at birth with OR [IC 95%]: 1.18 [1.01–1.38], 0.24 [0.08–0.74] and 5.8 [1.49–22.56] respectively. At discharge, 46.4% ($n=52$) of infants were breastfed. Factors significantly associated with breastfeeding at discharge were: intrapartum information about breastfeeding employed mothers, non smoker mothers, low paternal BMI, high educational level of fathers, daycare by grandparents, and MoBr. The last 4 factors were independent predictors of breastfeeding at discharge in a multivariate binary logistic model with OR [IC 95%]: 0.75 [0.62–0.9], 5.35 [1.24–23.1], 0.18 [0.03–0.96] and 7.5 [1.35–41.8] respectively.

Conclusion Socio-economic, educational and family conditions influence differently breastfeeding initiation and continuation. This diagnosis is precious to breastfeeding promotion programs.

1394 WEIGHT GAIN IN BABIES OF 28–32 WEEKS GESTATIONAL AGE; IMPACT OF A STANDARDISED ENTERAL FEEDING REGIME

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Background and Aims Earlier studies have shown that optimal early neonatal growth improves neurodevelopmental outcomes in preterm infants. A standardised enteral feeding regime (SEFR) was introduced across a UK neonatal network in April 2011. Effects of this standardisation on early neonatal growth are examined in our observational study.

Methods We retrospectively compared two cohorts of babies born in our unit at 28–31+6 weeks gestation during two epochs, one before and one after implementation of SEFR. Epoch1 extended between April and December 2010, Epoch2 between April and December 2011. Patients who were transferred in or out of the unit for continuation of care were excluded.

Results 20 patients were included in Epoch1 (E1), 16 in Epoch2 (E2). Baseline characteristics (gestation, birth weight, neonatal care) were similar between groups. E1 cohort regained birth weight in 11.65(6–17) days, reaching full enteral feeds at 7.3(2–18) days. E2 cohort regained birth weight in 11.06(5–18) days and reached full feeds at 7.88(5–15) days. TPN was used in 65% ($n=13/20$) of E1 cohort for 6.7(1–12) days and in 87.5% ($n=14/16$) of E2 cohort for

6.3(2–11) days. Average weight gain was 14.5g/kg/day for E1 and 17.8g/kg/day for E2 cohort ($p < 0.05$). No patients in either epoch had necrotising enterocolitis.

Conclusions We demonstrate that feeding regime standardisation results in better early weight gain. The latter has been associated with improved long-term motor and cognitive development, as shown by Franz et al in 2009. Our sample size prohibits further conclusions. More studies including larger numbers are warranted.

1395 MASSAGE THERAPY BY MOTHER OR NURSE: EFFECT ON WEIGHT GAIN OF PREMATURE INFANTS

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Introduction Since the introduction of surfactant the survival rate of preterm infants increased significantly. This has brought the expert's attention to maximizing the growth and development of this fragile population. Many studies demonstrated that massage has some roles in the weight gain of preterm infants. Our aim is to compare the effect of massage therapy among those who were massaged by a nurse or mother or none.

Method Our randomized clinical trial has three groups;

1. The infants who only received routine care and no massage,
2. those who received massage by an expert nurse and
3. and those who received massage by their mothers.

We recorded daily weight gain, the length of stay and fluid intake. We used the Kriskal-wallis test and the SPSS software.

Results The gestational age ranged between 28 to 34 weeks. At the end of the fifth day the group who were massaged by a nurse had significantly more weight gain compared to the other two groups. With 6.5±1.5 for the nurse group, 1±4.6 for the mother group and 1.5±3.7 for the control group, P -value = 0.001. Those who were massaged by their mother had gained significantly more than the control group P -value=0.05. there was no significant difference in the length of hospital stay among groups.

Discussion Our study shows that the five days massage therapy is a safe procedure for stable preterm infants to facilitate their weight gain. Mothers can perform this procedure. However more studies are needed to increase the efficacy of their performance.

1396 CAN EARLY PARENTERAL LIPID AND HIGH DOSE AMINO ACID ADMINISTRATION IMPROVE GROWTH IN VLBW INFANTS?

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Introduction The beneficial effects of early nutrition in preterm infants are well known. Nonetheless, almost all very low birth weight (VLBW; BW < 1500g) infants develop a protein and energy deficit in the first week of life and are growth impaired at discharged home.

We hypothesized that early parenteral lipid and high dose amino acid (AA) administration from birth onwards to VLBW infants is safe and increases growth.

Methods Inborn VLBW infants were randomized to one of three different parenteral nutritional regimens within 6hrs after birth (Figure).

Abstract 1396 Figure 1 Study design

Growth rates during the first 28 days of life and during total hospital stay were calculated and the incidence of common neonatal morbidities (e.g., BPD, PDA, NEC, sepsis, IVH, ROP) was recorded.

Results Growth was not significantly different between groups (Table; mean±SD). Mortality and the incidence of common neonatal morbidities were not significantly different between groups.

Abstract 1396 Table 1 Growth rates

	Control	Standard AA + lipid	High AA + lipid
Regain birth weight (d)	8±4	8±4	9±6
Weight gain first 28 days (g/(kg.d))	12.9±5.5	12.9±5.0	12.5±5.9
Head circumference gain first 28 days (mm/wk)	6.6±3.7	5.6±2.8	5.9±2.4
Weight gain until discharge home (g/(kg.d))	26.7±9.5	24.9±5.4	27.3±6.6

Conclusion Introduction of 2g lipids/(kg.d) and 3.6g AA/(kg.d) from birth onwards seems safe and does not affect the incidence of common neonatal morbidities. Growth was not improved by increasing amino acid or lipid intake in first few days of life.

1397 WEIGHT GAIN (WG) AND SODIUM MONITORING IN VLBW INFANTS (VLBWI) FED DONOR HUMAN MILK (DM+) VERSUS NO DONOR MILK (DM-)

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Background and Aims The impact of supplementing mother's milk (MM) with donor milk (DM) upon VLBWI WG and serum Na (sNa) is unclear. This study aimed to compare WG, lowest sNa (LowNa), and number of sNa samples (NumNa) between birth and 56 days in DM+ versus DM- VLBWI.

Methods Single-center clinical/nutritional data, weekly weights and all sNa during the first 56 days were collected between 10/2009–9/2011 for inborn VLBWI still hospitalized at 28 days. DM was tested for association with WG, LowNa, and NumNa.

Results 95 VLBWI were studied, with GA 28.4±2.8 weeks, BWt 1031±295 grams, 29 (31%) DM+. Median enteral intake in the first 28 days (EI28) was 1791 ml (range 0–5882); among DM+, median DM intake (DMI28) was 787 ml (range 76–2105). DM+ versus DM- did not differ in GA, BWt, gender, race, EI28, or days on ventilator, CPAP or parenteral nutrition in the first 28 days. At 56 days, overall median (IQR) WG was 1047 (902, 1192) gm/kg BWt, overall LowNa was 132 (128.5, 135) mEq/L. NumNa was 19 (9.5, 37). In univariate analysis, DM+ and DM- did not differ regarding WG, LowNa, or NumNa (Table1). In multivariable linear mixed modeling DMI28 was associated with a statistically significant but trivial decrease in LowNa (Table2), and was not an independent determinant of WG or NumNa.