Conclusions DM supplement to MM supports growth in VLBWI without adversely affecting LowNa or NumNa.

Table 1: Univariate comparisons of VLBW infants receiving any donor human milk (DM+) and no donor milk (DM-). The two groups did not differ with respect to lowest serum Na, number of serum Na samples, or weight gain.

	DM+	DM-	P*
Lowest serum Na between birth and 56 days, mEq/L	134 (129, 135)	131.5 (128, 135)	0.509
Number of serum Na samples between birth and 56 days	15 (9, 33)	20.5 (11, 37)	0.363
Weight gain at 28 days, grams/kg BWt	239 (230, 409)	292 (230, 395)	0.193
Weight gain at 56 days, grams/kg BWt	1034 (931, 1190)	1048 (893, 1209)	0.368

*Mann-Whitney U test.

Data given as median, (25th, 75th percentile). BWt: birth weight

Table 2: Multivariate linear mixed model examining lowest serum Na between birth and 56 days of age in VLBW infants. Each 100 ml of donor milk intake was associated with a 0.12 mEq/L reduction in lowest serum Na after adjusting for age, prematurity, illness severity, and overall nutritional intake.

	Lowest serum Na, mEq/L	95% CI	P
Adjusted mean at 28 days, mEq/L	136	129, 143	<0.001
Day 35, compared with day 28	-0.18	-1.55, 1.20	0.799
Day 42, compared with day 28	1.14	-0.28, 2.56	0.113
Day 49, compared with day 28	1.13	-0.27, 2.53	0.112
Day 56, compared with day 28	1.46	0.08, 2.83	0.038
GA, per week	0.07	-0.33, 0.47	0.731
BWt, per 100 grams	0.02	-0.01, 0.05	0.268
Days on mechanical ventilator or CPAP in 1st 28 days, per day	-0.09	-0.19, 0.01	0.057
Donor milk intake in 1st 28 days, per 100 ml	-0.12	-0.21, -0.03	0.007
Total enteral intake, 1st 28 days, per 100 ml	-0.01	-0.13, 0.11	0.831
Days parenteral nutrition in 1st 28 days, per day	-0.03	-0.24, 0.17	0.745

BWt: birth weight; GA: gestational age

1398 EFFECT OF FORTIFIERS AND ADDITIONAL PROTEIN ON THE OSMOLARITY OF HUMAN MILK- IS IT SAFE FOR THE PREMATURE INFANT?

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N Haiden, A Kreissl, V Zwiauer, A Repa, C Binder, N Haninger, A Berger. *Department of Pediatrics, Medical University of Vienna, Vienna, Austria*

Background and Aims A new additional protein supplement (Aptamil Protein+®/Milupa) was developed to meet special protein requirements of infants with a birthweight below 1000g (4.0–4.5 g protein/kg/day). So far it was unknown, how this new protein supplement influences osmolality, which is known to be a risk factor for necrotising enterocolitis (NEC). The aim of this study was to evaluate the effects of fortification on the osmolality of human milk (HM).

Methods Osmolality of breast milk was measured in native HM, in HM+ HMF (human milk fortifier; Aptamil FMS 4.3%®, Milupa) and in HM+ HMF+ Protein+ gaining in 0.5 g steps up to 4 g. Measurements were performed immediately after adding on fortifier and/or protein and after 24 hours. In addition, changes in osmolality after adding therapeutic additives like iron (Ferrum Hausmann®, Vifor), multivitamin supplement (Protovit®, Bayer) and calcium-phosphorus capsules were measured.

Results Osmolality of native human milk (n=84) was 297mosm/l, (=Median, Range 278–348). Adding HMF increased osmolality up to 436mosm/l (=Median; Range 386–486). Additional Protein+ supplementation increased osmolality by 23.5mosm/l (Median) per 0.5g step, up to a maximum of 605 mosm/l (+4g). Osmolality of HM/fortifier/Protein+ mixes remained stable for 24 hours. Multivitamin supplements increased osmolality up to 842mosm/l.

Discussion Additional Protein+ increased osmolality of HM up to a critical cut off point (>400mosmol) and therefore might be a risk factor for developing NEC. Additional fortification of HM +HMF

with Protein+ should not be applied together with multivitamins or other additives.

1399 NUTRITION OF THE EXTREMELY LOW BIRTH WEIGHT (ELBW) INFANTS: ARE WE MAKING A DIFFERENCE?

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R Snyder, S Allykas, A Mennonna, MR Rogido. *Goryeb Hospital/MANA, Morristown, NJ, USA*

Background Adequate nutrition of ELBW infants is difficult to achieve, yet crucial for their survival and neurodevelopment. Awareness of the problem and consistency in the care provided is a necessary step for improving outcome.

Aim To evaluate the impact of recently instituted nutritional guidelines in ELBW in our NICU.

Methods Our NICU instituted nutritional guidelines in July 2008 after exhaustive review and discussion of best available evidence. Recommendations included early introduction of trophic enteral feeding (TF), timing and rate for advancing enteral feeds and criteria for its discontinuation, among others. We performed a retrospective review of charts in all ELBW admitted between January 2007 and December 2010. Demographic information, time to introduction of TF, age at which feedings were advanced and full feed were achieved, days on Total Parenteral Nutrition (TPN) and days of Percutaneously Inserted Central Catheters (PICC), growth parameters and outcome were analyzed and compared for ELBW population before (Period 1) and after (Period 2) the institution of nutritional guidelines.

Results

Abstract 1399 Table 1 Comparison between Period 1 and Period 2

	Period 1 (n=83)	Period 2 (n=103)
TF at 48 hs (%)	37	39
Enteral feeds > 20 ml/kg by DOL 7 (%)	42	60 *
Full feeds at DOL 28 (%)	41	80 *
Days on TPN (mean±SE)	32±3.8	22.7±2.4 *
PICC days (mean±SE)	32.7±4.2	21.4±2.5 *
NEC Stage 2 (%)	12.7	13

*p<0.05; #p<0.02.

Conclusions The institution of nutritional guidelines resulted in significant improvement in nutritional indicators in our population.

1400 BODY FAT IN VLBW IS INFLUENCED BY DURATION OF TOTAL PARENTERAL NUTRITION (TPN)

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R Snyder, S McDonough, J Ladino, K Crowley. *Pediatrics, Goryeb Childrens Hospital, Morristown, NJ, USA*

Background Adequate postnatal nutrition and growth are essential for optimal neurodevelopment in VLBW infants. In an effort to optimize nutrition, early TPN implementation is recommended while enteral nutrition is achieved. However, excessive caloric intake could result in disproportionate accretion of body fat leading to metabolic syndrome later in life.

Aim To identify the influence of early postnatal nutrition on body fat composition in VLBW infants.

Design/methods We included all infants admitted to our NICU from July 30, 2011 to December 31, 2011 with a birth weight ≤ 1500 grams that survived at least 4 weeks and received TPN. We excluded infants with major congenital anomalies. Body composition was measured weekly using an air displacement plethysmograph (PeaPod, CosMed).