ID: 60

TITLE: EARLY FORTIFICATION OF ENTERAL FEEDINGS FOR INFANTS <1250 GRAMS BIRTH WEIGHT RECEIVING A HUMAN MILK DIET INCLUDING HUMAN MILK BASED FORTIFIER

AUTHORS: Robert Huston 1; Martin Lee 2; Evelyn Rider 3; Melissa Stawarz, 4; Dawn Hedstrom 5; Melissa Pence, RD 6; Vera Chan 2; Jessica Chambers 3; Stefanie Rogers 4; Nadine Seger 5; Laurie Riemann, 5; Howard Cohen 6

AFFILIATIONS: 1 Northwest Newborn Specialists, PC and Pediatrix Medical Group, Portland, OR; 2 Prolacta Bioscience, Duarte, CA; 3 Providence Alaska Medical Center, Anchorage, AK; 4 Providence St. Vincent Medical Center, Portland, OR; 5 Billings Clinic, Billings, MT; 6 Salem Health Hospitals and Clinics, Salem, OR.

CONTENT:

An exclusive human milk diet (EHM) of mother’s own breast milk (MOM) supplemented with banked donor breast milk and fortified with a human milk-based fortifier has been shown to decrease the occurrence of necrotizing enterocolitis (NEC) compared to a bovine diet of MOM supplemented with preterm formula and fortified with a bovine-based fortifier in infants <1250 g birthweight. Growth velocity may be less for infants receiving EHM compared to a bovine diet. Studies of fortification of human milk feedings at lower feeding volumes than 80-100 mL/kg/day have found mixed results with regard to improving growth. The objective of this study was to determine if growth is improved by earlier fortification of breast milk for preterm infants supported with a human milk based fortifier.

A multi-center retrospective study of the outcomes of infants of 500-1250 g birth weight whose breast milk feedings were fortified at >60 mL/kg/day (LATE) versus < 60 mL/kg/day (EARLY) of enteral feeding volume. Primary outcomes were growth velocities and changes in z-scores for weight and head circumference (HC) from birth to discharge. Clinical outcomes were also evaluated. Weight gain velocity was calculated using the exponential method. Continuous outcomes were analyzed using a multiple linear regression model and binary outcomes were analyzed using multiple logistic regression. The adjustment variables considered were birth weight/head circumference, gestational age, gender, SGA status, chronic lung disease, PN days, and study site.

Median+IQR range for gestational age (27.6+3.4 vs 27.0+2.9 wks, p=0.03) and chronic lung disease (CLD: 42.6 vs 27.6%, p=0.008) were higher, and weight gain (12.9+2.6 vs 13.3+2.6 g/kg/day, p=0.03) was lower in the LATE vs the EARLY group. Adjusted multiple linear regression analysis found that early fortification was associated with improved growth velocity for weight (coefficient, standard error, p-value: 1.636, 0.508, p=0.007) and HC (0.030, 0.013, p=0.021) and less negative changes in z-scores for weight (0.238, 0.103, p=0.022) and HC (0.273, 0.137, p=0.046). Adjusted multiple logistic regression found that early fortification was associated with decreased occurrence of CLD (-0.965, 0.331, p=0.004). No other outcomes, including NEC, were associated with early versus late fortification.

Early fortification appears to positively affect growth for infants whose human milk feedings are fortified with a human milk based fortifier without adverse effects. The incidence of CLD was also reduced in the early fortification group.

COI: Evelyn Ryder is a consultant for and Martin Lee and Vera Chan are employees of Prolacta Bioscience (Industrial City, CA).
TITLE: PRIME (PRETERM INFANTS NEED MILK EARLY), A QUALITY IMPROVEMENT INITIATIVE IN A TERTIARY NEONATAL UNIT

AUTHORS: Murphy M1, Dunne E1, McCarthy R1, O’Hagan L1, Batson H1, Curley A1

AFFILIATIONS: 1. National Maternity Hospital, Holles Street, Dublin

CONTENT:

Maternal milk (MM) protects against necrotizing enterocolitis, sepsis and bronchopulmonary dysplasia. PRIME is a multidisciplinary initiative to improve the early provision of MM for preterm infants and enhance outcomes. Our aim was to increase the number of high-risk infants receiving MM in the first day life in our tertiary neonatal unit.

We retrospectively reviewed time to first MM for infants born <32 weeks gestational age (GA) or with a birth weight (BW) <1500g in 2016. We conducted a cross-sectional survey to evaluate the knowledge and attitudes of staff towards breast milk for preterm infants. Deficits in background knowledge and training informed a teaching programme. Education involved training sessions, development of guidelines, designing breastfeeding diaries, distribution of posters, and presentation at meetings. The first 5 infants per month born <32 weeks GA or BW <1500g were included in the post-intervention analysis. The effect of the interventions were evaluated using a before and after study design. Time to first MM was our key performance indicator.

We reviewed 123 infants born in 2016 [Median (IQR) GA 29 (26, 31) weeks, BW 1140 (820, 1410) g]. Many infants didn’t start feeds in 1st 24 hours as MM was not available; median (IQR) time to 1st MM 35 (17, 55) hours, 34% of infants received MM in the 1st 24 hours of life. Prospective data was collected from 55 infants, born May 2018 – April 2019, following interventions [Median (IQR) GA 29 (27, 31) weeks, BW 1110 (850, 1600) g]. The median (IQR) time to 1st MM was 13 (7, 25) hours and 75% of infants received MM in the 1st 24 hours.

The initial results of this hospital-wide QI initiative are promising. The time to first MM has halved in the year since this initiative commenced. Further PDSA cycles are indicated to ensure ongoing improvement.

IMAGES: 
https://www.eiseverywhere.com/eselectv3/v3/events/351149/submission/files/download?fileID=e1c419ebc784ac985ad9744842c86087-MjAxOS0wNSM1Y2UyNjY2YmU0YTg0

PRIME education poster

COI: None declared
ID: 353
TITLE: IS THE GROWTH VELOCITY DURING TRANSITION PHASE FROM PARENTERAL TO ENTERAL NUTRITION RELATED WITH BODY COMPOSITION IN PRETERM INFANTS?
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CONTENT:
Progress has been made to optimize the nutrition of preterm infants but the transition phase from parenteral to enteral nutrition (TF) remain a critical period for the achievement of an adequate growth. Nevertheless poor data are available regarding the nutritional management of this critical period and its relationship with the quality of growth of very low birth weight infants (VLBWI). According with these data the aim of this study was to evaluate if the weight growth velocity (GV) and nutritional intakes during TF is related with body composition of VLBWI al term corrected age (TCA).

A chart review was conducted on VLBWI born at author’s institution from 2015 to 2017. Weight parameters and nutrient intakes [energy (E): kcal/kg/day] and protein (P): g/kg/day were collected by computed medical chart. GV (g/kg/d) has been calculated using an exponential model. A cohort of 98 VLBWI was categorized according with GV during TF in G1: GV 50% (M-PNI) and enteral nutritional intakes >50% (M-ENI). All infants included underwent anthropometric measurements at discharge and at TCA and body composition assessment in term of percentage of fat mass (FM) and fat free mass (FFM) deposition at TCA by using an air displacement plethysmography.

The mean birth weight and gestational age were 1243±209 g and 30.2±1.9 weeks. No differences in basal characteristics and comorbidities’ occurrence were found among groups. The total P and E intakes during TF were similar among groups [E: 104.0±20.6 vs 109.2±13.5; P: 4.07±1.03 vs 3.9±0.6 respectively for G1 and G2]. During M-PNI, G2 had higher enteral P and a slightly higher enteral E intakes compare to G1 [1.4±0.7 vs 1.1±0.5 (p=0.03) and 53.5±21.7 vs 46.3±16.1 (p=0.06) respectively]. During M-ENI, G2 showed higher parenteral P and E intakes compare to G1 [1.7±0.9 vs 1.3±0.7 (p=0.002) and 43.9±23.4 vs 30.7±17.2 (p=0.01) respectively]. At discharge and at TCA, weight, length and head circumph erence were similar among groups. At body composition assessment, G2 had higher FFM compare to G1 (83.6± 4.7 vs 82.1±4.3% respectively for G2 and G1; p=0.03).

An adequate GV (> 15g/kg/d), is supported by high enteral protein and energy intake during M-PNI and high parenteral energy and protein intakes during M-ENI. Although GV during the TF seems to not influence the quantity of growth at discharge and at TCA, an adequate GV during this critical period is associated with an improvement in quality of growth at TCA.

COI: None declared
ID: 380
TITLE: ALPHA-LACTALBUMIN ENRICHED WHEY PROTEIN CONCENTRATE TO IMPROVE GUT, IMMUNITY AND BRAIN DEVELOPMENT IN PRETERM PIGS
AUTHORS: Charlotte Holme Nielsen 1; Duc Ninh Nguyen 1; Anne B. Lau Heckmann 2; Per Torp Sangild 1; Thomas Thymann 1; Stine Brandt Bering 1
AFFILIATIONS: 1 Comparative Pediatrics and Nutrition, University of Copenhagen, Denmark
2 Arla Food Ingredients, Viby, Denmark

CONTENT:
Background: Preterm birth predisposes to developmental complications including immature gastrointestinal and immune functions, postnatal growth restriction and delayed neurodevelopment. Human milk is important for neonatal development, but infant formula supplementation may be needed to secure proper growth. Alpha-lactalbumin (α-La) is a major component of human milk (~4 g/L in early milk), and its biological activity may contribute to the benefits of breastfeeding. We hypothesized that supplementation of milk with an α-La-enriched whey protein concentrate (WPC) would stimulate gut, immune and brain development in preterm neonates.

Methods: We tested this by feeding cesarean-delivered preterm pigs (90% gestation) dilute bovine milk (2:1 in water) without (REF group, n = 22 from two separate litters), or with α-La enrichment of WPC provided at two different levels (HIGH 18 g/L, LOW 6.3 g/L, n = 19-20). Total protein contents was 27 g/L (REF) and 55 g/L in the two enriched diets. All pigs were reared by identical procedures, and clinical variables and functional endpoints (e.g., T-maze cognition test) were assessed at intervals during the study. Gut microbiota and organ weights were recorded at day 19.

Results: Both HIGH and LOW pigs grew faster than the REF pigs, but with no difference between the two supplemented groups (29 vs. 19 g/kg/d). The HIGH pigs had higher bone mineral composition and density but lower relative intestinal weights and proximal villus heights than LOW pigs. Other gut endpoints (e.g., intestinal brush border enzymes, goblet cell density) and immune parameters (e.g., phagocytic capacity, lymphocyte subsets) were similar between REF, HIGH and LOW pigs. Likewise, cognition outcomes (open field, spatial T-maze tests) did not differ between HIGH and LOW groups, and both were similar to values in REF pigs. Relative to LOW pigs, the HIGH pigs had higher colon microbiota alpha-diversity and levels of acetic and butanoic acid, and tended to have reduced gut transit time (p = 0.07).

Conclusion: Protein supplementation of milk with WPC improved growth in preterm pigs. Further enrichment with α-La, beyond the levels in human milk, had marginal effects on food transit and gut microbiota, but did not affect gut, immunity or brain functions. WPC may be a good supplementary milk protein source for both preterm and term infants.

COI: The project is partly sponsored by Arla Food Ingredients, Viby, Denmark. The other authors have no conflicts of interest to declare.
ID: 437  
TITLE: ACHIEVING EARLY ENTERAL FEEDING WITHIN 8 HOURS OF BIRTH: A SERIES OF QUALITY IMPROVEMENT INITIATIVES OVER 5 YEARS IN A TERTIARY NICU  
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CONTENT:

The importance of providing early enteral feeds to premature babies is increasingly evident. Offering early breast milk contributes to gut maturation and feed tolerance, and may be protective against necrotising enterocolitis. There is evidence that delaying feeds, conversely, can be associated with prolonged hospital stays and an increased incidence of late onset sepsis. There are many drivers for a delay in commencing feeds; often there is concern around perinatal events – and the very practical consideration of needing mother to express milk to enable giving it. As a unit there has been a long standing proactive approach to feeding; despite this we were failing to achieve feeding within the first few hours of life. Over the last few years, we have put in place several measures in order to facilitate early delivery of milk to our most vulnerable patients.

A multi-faceted quality improvement project was undertaken within our medical tertiary NICU. This has been in the form of several coexisting PDSA cycles surrounding the introduction of a new feeding guideline in 2016. The guideline risk stratifies infants under 36 weeks gestation, all were to receive enteral feeding on the first day of life and optimistically within 6 hours of birth. This guideline represented a significant change in practice by prioritising enteral nutrition even in the most high risk infants. Enhancing breastfeeding and midwifery support, staff education around preterm nutrition; and the attitude to the use of donor expressed milk were important. Additionally a collaborative effort with maternity (Project Joey) to enhance golden hour care was completed.

Amongst our preterms (<27 weeks); the number of babies recorded as NBM on the first day has reduced from 58% in 2012, to 100% eligible babies receiving an enteral feed on day 1. (Two were excluded for surgical conditions). All babies received either maternal or donor expressed milk. The average time to first enteral feed in our unit is now 7 hours, reduced from 18 hours in 2012 (range 2 – 19 hours). 89% of eligible preterms in 2018 (40/44) received MEBM during their stay. 66% received donor milk as their first feed, and 93% received DEBM at least once during their admission. Overall early feeding improved for all preterm infants (<36 weeks) with the number of babies receiving any breast milk (maternal and/or donor) increasing from 21% to 50%. These results demonstrate significant improvement in the practice of early feeding; though with increasing reliance on donor breast milk.

Over time we have made significant improvements to early feeding in premature babies admitted to our unit. This has been a result of many interventions working in parallel. The most important factor in the success of this project has been evolving staff understanding and support of early enteral feeding through positive leadership and reinforcement at all levels. Our next initiative will be to improve volume of maternal expressed milk over donor breast milk.

COI: None declared
ID: 506

**TITLE:** IMPACT OF HOME BREAST MILK FORTIFIER ON EXCLUSIVE BREAST FEEDING RATES IN BABIES BORN ≤35 WEEKS GESTATION AT BIRTH

**AUTHORS:** Caroline King 1, Stephanie Tagani 2

**AFFILIATIONS:** Imperial College Healthcare NHS Trust London

**CONTENT:**

With improving support more preterm babies are discharged breast feeding. However, this can be difficult to sustain when babies are sent home up to 4-5 weeks before their due date when immature oral feeding patterns persist combined with a high expected growth rate. One method to help sustain both growth and breast feeding is the continuation of breast milk fortifier (BMF) post discharge.

In a tertiary neonatal unit, a service evaluation was carried out to look at breast feeding rates at the first outpatient appointment following introduction of the principle of home BMF. The practice occurred during the years 2009 to 2016 in babies where the dietitian was available to assess need. As a result, not all eligible babies were given home BMF. Data was collected for all babies born ≤35 weeks who were eligible for follow up locally. Parents were instructed to give the BMF at half the dose the baby was on as an inpatient in a small concentrate made up with expressed breast milk at intervals during the day. Babies were weighed weekly and followed up by a dietitian to advise on continued BMF dosing.

See table for population demographics and breast feeding outcomes. Babies discharged on BMF had between 1-6 sachets per day with an average of 3.5, all but 3 babies had stopped BMF at follow up. The percentage of mothers who were exclusively breastfeeding at follow up was significantly higher in the home BMF group.

Continuing BMF post discharge in babies born ≤35 weeks may help protect breast feeding. A randomised controlled trial is needed to confirm this. Biochemical indices of protein nutrition should be collected to assess whether BMF is the most appropriate supplement. Head circumference and length assessment would also be useful to determine if symmetrical growth is achieved.

**IMAGES:**
https://www.eiseverywhere.com/eselectv3/v3/events/351149/submission/files/download?fileID=581030c465afa357f13de75b92d55458-MjAxOS0wNSM1Y2UyNjY2YzdhNTZh

Babies discharged exclusively breast feeding with or without home BMF - Effect on exclusive breast feeding at follow up

**COI:** None declared
ID: 597

TITLE: BREASTFEEDING IN BABY FRIENDLY NICU AND OUR EXPERIENCE

AUTHORS: Elif Keleş, Nurten Kürekçi, Döne Eroğlu, Sila İpek, Emel Aktaş, Aytaç Kenar, Başak Kaya Gürsoy, Canan Türkylımaç, İbrahim Murat Hifcanoğlu, Esra Onal, Ebru Ergenekon, Esin Koç

AFFILIATIONS: Neonatology, Gazi University Faculty of Medicine, Ankara, Turkey

CONTENT:

Breastfeeding in the preterm infants in neonatal intensive care units (NICU) decreases morbidity and mortality. Our unit is a baby friendly NICU-certified unit that supports breastfeeding. Baby friendly NICU has to ensure the milk pumping right after the birth, early skin contact, use of kangaroo and good communication between mother and nurse team. In this study, we aim to compare infant breastfeeding data before and after the baby friendly NICU certification.

537 infants hospitalized in NICU between November 2017 and December 2018 were included in the study. Breastfeeding, formula feeding, human milk fortifier and milk pumping data were recorded.

The Colostrum was obtained in 96.5% of the mothers in first few days of infants’ life. Rate of breastfeeding was 91.2%. 78.8% of those were breastfed on the first day. While 96.8% of the patients were breastfed on discharge; the rate of breastfeeding on discharge was 89.4%. On discharge, 49.8% of infants receiving breastmilk had only breastfeeding, whereas 42.1% and 7.9% were both breastfeeding and pumping milk and only pumping milk, respectively. Breastfeeding rates according to gestational weeks are shown in the table. Data related to pumping method, breast problems and galaktagogoue use were analyzed. No significant difference was found between the pre- and post-baby friendly NICU in breastfeeding data.

No significant difference was found between the pre and post baby friendly NICU in breastfeeding data due to the fact that our unit supports breastfeeding intensively before having this certification. The rate of breastfeeding for babies less than 28 weeks is lower than the other groups, because the requirement of fortifying breastmilk are higher than the other groups. Breastfeeding rates of high-risk infants are thought to improve their outcome.

IMAGES: https://www.eiseverywhere.com/eselectv3/v3/events/351149/submission/files/download?fileID=11d5a47f9f74cc0ae224c5a2cda94cf-MjAxOS0wNSM1Y2UyNjY2YzImNTM1

COI: None declared
ID: 603

TITLE: IMPROVED OUTCOMES FROM FEEDING WITH DONOR PRETERM MILK

AUTHORS: Gialeli Giannoula 1; Kapetanaki Anastasia 1; Dritsakou Kalliopi 1; Ioannoy Ioanna 1; Siachanidou Tania 2; Liosis George 1

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CONTENT:

Recent studies highlight the unique contribution of human milk to the dramatic survival increase of the VLBW infants. Unfortunately, during the first days of life, only a small percentage of mothers who gave birth prematurely can effectively support their preterm newborns with their own milk, which has very high amounts of nutrients. When mother’s own milk is insufficient neonatologists use donor human milk. However the use of this type of human milk for preterms has many limitations as it contains insufficient amount of nutrients especially proteins and calories.

Aim: is to identify the importance of feeding preterm infants with donor human milk from preterm mothers.

DMPM 18 VLBW infants treated with DMPM along with their mother’s own raw milk (group A) compared to 42 VLBW ones treated with donor milk from full-term mothers in combination with their mother’s own raw milk (group B). In both groups, as infants received human milk>100 ml/Kg/d, the milk was fortified with targeted fortification. There were not significant differences between the two groups in respect to Birth Weight, Birth Height, Head Circumference as well as Crib Score.

GroupA infants suffered from significant less episodes of sepsis compared to group B (p=0.037) and fewer episodes of feeding intolerance, but this differences were not statistical significant. GroupA infants remained less days in ventilation and needed fewer days with oxygen requirements but these differences were statistical significant, only for the days in ventilation (p=0.0430). DMPM treated infants regained earlier their birth weight, and reached sooner full enteral feeding, however, these differences did not achieved the level of significance. Moreover, DMPM treated infants were presented with better somatometric characteristics at discharge but these differences were statistically significant only for body weight (p=0.038). Probably due to the fact that all the infants of the study were treated with human milk a very small percentage (3.4%) of the infants studied suffered NEC and ROP.

If postnatal growth failure is to be avoided, neonatologists must pay close attention to the increased needs of nutrients, especially proteins, the first vulnerable days of life. The provision of DHM from premature mothers may be the solution for VLBW infants until the mother can support her newborn with her own milk.

The study is being continued so as to prove the importance of donor preterm human milk to support VLBW infants.

COI: None declared
ID: 628

**TITLE:** MACRONUTRIENT CONTENTS OF COLOSTRUM: DOES NATIONALITY HAVE AN EFFECT?

**AUTHORS:** Esra Beser Ozmen 1, Esin Okman 1, Fatma Nur Sari 1, Evrim Alyamac Dizdar 1, Cuneyt Tayman 1, Serife Suna Oguz 1

**AFFILIATIONS:** 1 Neonatal Intensive Care Unit, Zekai Tahir Burak Women’s Health Education and Research Hospital, University of Health Sciences in Ankara, Turkey

**CONTENT:**

Breastmilk (BM) is considered the ideal and natural way of feeding for all infants. Although the previous studies evaluated the factors influencing the content of BM, data concerning the effect of nationality on macronutrient contents of BM is rather inadequate. Therefore; we aimed to compare the macronutrient and energy contents of colostrum samples of Turkish and Syrian mothers and emphasize the significance of nationality on breast milk composition.

The study was conducted at Zekai Tahir Burak Women’s Health Education and Research Hospital. Colostrum samples from term lactating mothers were obtained within the first 48 hours of lactation. Milk protein, fat, carbohydrate (CHO) and energy levels were measured by using a mid-infrared human milk analyzer. Demographic characteristics of the mothers and the infants were recorded.

Colostrum samples of 180 term lactating mothers (Turkish: 96, Syrian: 84) were obtained during the study period. Median gestational age (38 vs. 38 weeks; p>0.05), birth weight (3123 vs. 3115 g; p>0.05) of the infants were similar in Turkish and Syrian groups. There were no significant differences between the groups in terms of body mass index of the mothers, mode of delivery and infant gender. However, Syrian mothers gained less weight during pregnancy compared to Turkish mothers (p=0.029).

The median protein, fat, CHO and energy levels of colostrum samples were respectively, 3.3 g/dl, 2.7 g/dl, 4.9 g/dl, 66 kcal/dl in Turkish mothers whereas, 2.6g/dl, 2.3g/dl, 5.1 g/dl, 58 kcal/dl in Syrian mothers (Table 1). Protein, fat and energy levels of colostrum samples were found to be significantly higher in Turkish mothers compared to Syrian mothers (p=0.001, p=0.017, p<0.001, respectively).

Nationality and insufficient nutrition during pregnancy might affect the macronutrient contents of colostrum of term lactating mothers. Milk composition plays a crucial role in infant growth. So, further research evaluating the association between the milk composition and infant growth in different populations is warrantly needed.

**IMAGES:**
https://www.eiseverywhere.com/eeselectv3/v3/events/351149/submission/files/download?fileID=2c38ca7d1ab86943411df91e04290c7f-MjAxOS0wNSM1Y2UyNjY2Y2FiYWE5

**COI:** None declared
ID: 783

**TITLE:** EFFECT OF EXCLUSIVE BREASTFEEDING ON THE TRAJECTORY OF CHILDHOOD GROWTH AND NUTRITION

**AUTHORS:** Sui-Ling Liao1,2, Shen-Hao Lai1,4, Jing-Long Huang1,3

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**CONTENT:**

To evaluate the effect of exclusive breastfeeding on the trajectory of serum vitamin D and other micronutrients deemed to affect body growth; and to compare anthropometric measurements between exclusively breastfed and mixed-fed children.

This study is part of a prospective birth cohort called the PATCH. Anthropometric measurements of the children were obtained during scheduled clinical visits. Blood tests were performed at ages 12, 24, and 36 months. Clinical records of breastfeeding and detailed questionnaires on dietary habits were also obtained.

Results showed that after 1 year of age, children who were exclusively breastfed for more than 4 months had lower mean z scores for body weight and height when compared to those who were mixed-fed. They also had a higher prevalence of having low body height parameters (<15th percentile). Laboratory results revealed these children to have lower serum ferritin at 1 year, and persistently low serum 25(OH)D throughout the first three years of life. No difference was noted in serum zinc level.

Although most exclusively breastfed children had growth parameters within the WHO standards, their growth were considerably slower than average. Whether this was associated with underlying nutrient deficiency deserves further investigation. Our study highlighted the importance of supplementing iron during the first year and vitamin D for at least 3 years in exclusively breastfed children.

**COI:** None declared
ID: 816

TITLE: GENDER DIFFERENCES OF ADIPOKINES LEVELS IN CORD BLOOD AND ON DAY 3 IN DISCORDANT TWINS

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AFFILIATIONS: 1 Neonatology Dept., Clinic for Gynecology and Obstetrics, Clinical Center of Serbia, Belgrade, Serbia
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CONTENT:

Background - Leptin and adiponectin levels are higher in adult and pubertal female as compared with males. It was supposed that leptin concentration is enhanced under influence of estrogens and the amount of adipose tissue mass in women while adiponectin is suppressed by androgens in boys during the progression of puberty and later. Data on adipokines according to sex in cord blood (CB) and in early infancy are inconsistent. In some reports sex dimorphism of leptin is present only in term newborns contrary to adiponectin. The aim of our study was to investigate whether gender differences of adipokines concentrations exist in newborns with intrauterine growth restriction (IUGR).

Patients and methods: 36 discordant (birth weight BW discordance ≥20% calculated in relation to the heavier appropriate for gestational age - AGA twins) and 42 concordant (birth weight discordance ≤10%) twin pairs ≥32 gestational weeks (GW) were included in the study. BW of the smaller twins in discordant group was less than 10th percentile (IUGR twins) with abnormal umbilical artery Doppler velocimetry. Umbilical venous CB and venous blood samples on day 3 (D3) were obtained from each pair of twins in the fasting state for hormone determination (leptin, adiponectin and insulin). Mothers with chronic and gestational disorders (eclampsia, gestational diabetes) and fetal/neonatal disorders with impairment of fetal growth and adipokine levels (anomalies, asphyxia, sepsis) were excluded.

Results: No gender difference were found in discordant and concordant twins for leptin, adiponectin and insulin in CB-median (range): Leptin- AGA M (male) 4.28 ng/ml (0.46-22.83) vs F (female) 8.38 (1.21-18.22), p 0.09; IUGR M 4.28 (2.08-5.6) vs F 4.48 (0.87-14.3), p 0.51; Adiponectin- AGA M 67.6 mcg/ml (55,1-124) vs F 70.7 (50.8-95.8), p 0.86; IUGR M 72.5 (36.6-134) vs F 63,35(52.2-88.9), p 0.27. Insulin: AGA M 8.4 microJ/ml (2.1-175) vs F 6.64 (2.56-39.75), p 0.94; IUGR M 25,54 (2.87-40.47) vs F 4.13 (0.8-169.7), p 0.053. Adiponectin and insulin were significantly higher in male IUGR twins on D3: Adiponectin D3: AGA M 76.15 (59.3-246.0) vs F 77.1 (41-160), p 0.51; IUGR M 124 (121.8-129) vs F 90.35 (27.9-144), p 0.019. Insulin D3: AGA M 2.74 (0.8-64.5) vs F 2.7 (0.8-169,7), p 0.79; IUGR M 40.29 (6.84-50.8) vs F 16.28 (0.28-92.2), p 0.020. Leptin D3: AGA p 0.20; IUGR p 0.172.

Conclusions: Although leptin levels were higher in female than in male IUGR and AGA twins in CB and on D3, that differences were not significant. Small sample size could explain lack of statistical significance. Higher levels of adiponectin together with insulin in male IUGR twins on D3 is an unexpected finding and reason is unclear. Further investigations are necessary in this field.

COI: None declared
ID: 824

TITLE: MOTHER'S MILK WITH ETHANOL AND COW'S MILK - A DANGEROUS COCKTAIL

AUTHORS: Ulrike Wurst, Benjamin Ackermann, Corinna Gebauer, Ulrich Thome

AFFILIATIONS: Department of Neonatology, University Hospital for Children and Adolescents, Leipzig, Germany

CONTENT:

Ethanol intoxications in newborns are generally due to false preparation of formula with alcoholics or consumption of alcohol by the breastfeeding mothers. Rarely, intoxications occur in hospitalized newborns, e.g. from excessive use of alcoholic hand sanitizers. We herein report a strange case of acute ethanol intoxications on our NICU.

The extremely premature infant (23 weeks gestational age at birth, parents Syrian refugees) presented with seven episodes of sudden severe destabilization after the 45th day of life. We observed tachycardia, apnea, hypotonia and lactic acidosis (9.6mmol/l)

We identified the acute episodes of destabilization in an extremely premature infant as severe ethanol intoxications due to alcoholized breastmilk, possibly aggravated by transcutaneous absorption of alcoholic hand sanitizer. Cultural differences and high language barrier due to the family’s background caused these life-threatening events. Establishing a confidential relationship between parents and the medical staff is essential on the NICU.

COI: None declared.
ID: 913
TITLE: NEONATAL OUTCOME IN PREGNANCIES COMPLICATED WITH DIABETES – CASE-CONTROL STUDY
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CONTENT:

Abstract
Uncontrolled diabetes, pre-existent or pregnancy-induced, is associated with increased neonatal morbidity and mortality. Aim: To evaluate the impact of maternal diabetes on neonatal short term outcome.

Material and methods:
All newborns delivered by mothers with diabetes between 2015 and 2017 in our regional level III unit were included in the study. For each infant of a diabetic mother two other infants with gestational age ± 1 week and birth weight ± 100g were selected from the unit database. Anthropometric data, Apgar score, birth status and postnatal complications were comparatively analyzed between the infants of diabetic mothers and the control group. Statistical analysis was performed using SPSS 19.0 for Windows for p significant if <0.050 (95% CI).

107 infants delivered by diabetic mothers and 207 infants in the control group were included in the study (just one control case could be found for 5 infants of diabetic mothers). Compared to the control group, infants of diabetic mothers were more often delivered by C-section (72.6% vs 40.6%, p<0.001), had lower Apgar scores at 1 minute (9.1±1.1 vs 9.4±1.0, p=0.003), presented more often neonatal respiratory distress (17.0% vs 7.7%, p=0.013), and ventricular septal hypertrophy (15.0% vs 0%), and were more often admitted to NICU (17.0% vs 4.8%, p<0.001). No significant differences were noted as regards other neonatal conditions evaluated, including hypoglycemia.

Maternal diabetes during pregnancy may complicate the neonatal course, increasing the risk for various neonatal morbidities. Hypoglycemia, the most common complication in these infants was found with equal frequency in case and control groups, most probably due to careful prevention measures applied in infants from diabetic mothers.

COI: None to declare
**ID:** LATE BREAKER  
**TITLE:** WHERE SHOULD BREASTFEEDING SUPPORT RESOURCES BE FOCUSED? SERVICE EVALUATION OF INFANT FEEDING AND ASSOCIATED DEMOGRAPHIC FEATURES OF PREMATURE INFANTS AT A LEVEL THREE NEONATAL UNIT  
**AUTHORS:**  
**AFFILIATIONS:**  

**CONTENT:**

**Background**
Breast milk is the optimum nutrition for infants. Mother’s milk improves short term (lower rates of sepsis etc.) and long term (neurodevelopmental) outcomes for premature infants. Demographic factors have been identified as influencing the decision to breastfeed. Parents of infants admitted to the neonatal unit are particularly reliant on health professionals for support and guidance. Mothers of preterm infants have identified a lack of staff support contributing to the failure to supply sufficient breast milk or transition to breastfeeding.

To inform how to increase breastfeeding rates a service evaluation of infant feeding and demographic factors was performed.

**Methods**
Service evaluation conducted at a level three neonatal unit based in Nottinghamshire. All infants born at less than 33 weeks gestation and live at discharge in 2018 were included. Data was collected retrospectively from BadgerNet, including information about maternal feeding choice, relationship status, and infant gestation. The postcode of the mother was also collected and the English Indices of Deprivation 2015 was used to provide relative deprivation score.

The type of milk at first feed and discharge was compared with the above data.

**Results**
A total of 119 infants were included. 73.1% of infants received breast milk as their first feed. At discharge 33% of infants were receiving breast milk, 29% were mixed feeding and 38% were formula feeding. 81.5% had maternal choice documented, 68% of mothers wished to breast feed, 18.5% wanted to formula feed. Of those who wanted to breast feed 80.2% received breast milk for first feed and 35.8% received solely breast milk at discharge.

A greater proportion of mothers wished to breast feed from areas with a higher deprivation score (less deprived areas). There was no clear trend of deprivation score and discharge milk (table 1).

Extremely premature infants were less likely to be receiving breast milk at discharge. 42.3% of infants born at less than 28 weeks gestation were discharged on formula alone, compared with 36.5% and 36.7% of infants born at 28-31 weeks and 32-33 weeks respectively.

**Conclusion:**
A significant proportion of mothers who wish to breastfeed are formula feeding their infants at discharge. Further qualitative information should be obtained from parents. Mothers from more deprived areas are less likely to wish to breastfeed. Resources could focus on greater antenatal education for mothers from such areas.

Low rates of extremely premature infants receive breast milk at discharge; highlighting need to support this population.