ID: 34
TITLE: FEASIBILITY AND IMPACT ON GROWTH OF CONCENTRATED STANDARDISED PARENTERAL NUTRITION IN VERY PRETERM INFANTS IN A TERTIARY NEONATAL UNIT IN THE UNITED KINGDOM
AUTHORS: Tng Chang Kwok; Ramune Snuggs; Rowan Toyer; Emmanuel Oyewole; Kamil Effendi; Lucy Stachow; Deepa Panjwani
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CONTENT:
Cumulative nutritional deficit in very preterm infants may lead to poor neurodevelopmental outcome. Optimisation of early nutrition, with emphasis of earlier commencement of parenteral nutrition (PN) with amino acids and addition of lipids within 24 hours old, prevents postnatal growth failure. Concentrated standardised PN may reduce the delay in commencing PN as compared to conventional individualised PN. However, the feasibility of concentrated standardised PN in a busy tertiary neonatal unit setting in the United Kingdom as well as its impact on growth in very preterm infants are unclear.

In December 2017, the PN provided in Leicester neonatal service was switched from individualised PN to standardised concentrated PN based on the ‘SCAMP’ regimen. Retrospective and prospective data collection were performed on infants receiving PN within 24 hours old born between September to November 2017 (individualised PN arm) and similar period in 2018 (concentrated standardised PN arm) respectively. Infants are excluded if they are transferred out or demise before completing PN in Leicester neonatal service. Growth parameters at birth, 28 days old and 36 weeks corrected gestation/discharge were obtained and converted to z scores using the LMS method. Mann Whitney test was used to compare continuous data.

21 and 20 infants with mean gestational age of 29.6 and 28 weeks respectively were included in the 2017 individualised PN and 2018 concentrated standardised groups respectively. There was no difference in the demographics of infants in both groups. Concentrated standardised PN was commenced earlier by median of 8 hours old (n=20) compared to 25 hours old (n=19) in the individualised PN group (U=42, p<0.0001). There was no statistical difference in the change in weight z score from birth at 28 days old (median -0.47 (n=20) in 2018 vs -0.66 (n=19) in 2017, U=178.5, p=0.75) and at 36 weeks corrected gestation/discharge (median -0.72 (n=20) in 2018 vs -0.86 (n=21) in 2017, U=106, p=0.7). 29% reduction in procurement cost was seen when concentrated standardised PN replaced individualised PN.

Standardised PN is feasible in a busy tertiary neonatal unit setting in the United Kingdom. It allows earlier commencement of PN and reduction in cost. The lack of difference in growth parameters seen may be due to the small sample size. However, further efforts should be made to improve the extrauterine growth restriction seen in these preterm infants.

IMAGES:
https://www.eiseverywhere.com/eeselectv3/v3/events/351149/submission/files/download?fileID=1577749dc041a43f77285f8cea4bed-MJAxOS0wN3M1Y2UyNjY2Yml5OTAz

Weight z score for infants receiving individualised parenteral nutrition (PN) in 2017 and standardised PN in 2018

COI: None declared
ID: 78

TITLE: TIME TRENDS OF AWARENESS AND KNOWLEDGE ABOUT MOTHER-TO-CHILD INFECTION IN JAPANESE PREGNANT WOMEN

AUTHORS: Sachiyo Fukushima 1; Kazumichi Fujioka 1; Sadayuki Nagai1; Ruka Nakasone1; Shutaro Suga1; Shinya Abe1; Mariko Ashina1; Shohei Ohyama1; Toshihiko Ikuta1; Kousuke Nishida1; Kenji Tanimura2; Hideto Yamada2; Kazumoto Iijima1

AFFILIATIONS: 1 Department of Pediatrics, Kobe University Graduate School of Medicine, Kobe, Japan
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CONTENT:

Transmission of infections from the pregnant mother to her developing fetus can lead to spontaneous abortions, fetal deaths, intrauterine growth restriction, and severe congenital anomalies. To reduce the incidence of these infections, it is essential to educate women regarding the types of pathogens commonly involved in maternal-fetal transmission, such as cytomegalovirus (CMV) and parvovirus B19 (PVB19). Previously, we conducted a survey on pregnancy-related infections and reported that the vast majority of Japanese women are not aware of methods to prevent the transmission of CMV and PVB19 infections. In this study, we compared the results of a newly-conducted questionnaire (October 2012 to January 2018) with a previously reported survey (June 2011 to September 2012) to assess the effect of maternal education.

The survey contained questions to assess a woman’s knowledge of transmission routes, time of susceptibility to infection, the maximum frequency of fetal infection in cases of maternal infection. The followings were the known knowledge to be assessed. For transmission routes, CMV is transmitted by “contact with children’s urine and saliva, or semen,” Rubella virus is transmitted by “droplet,” Toxoplasma gondii is transmitted by “cat feces or eating undercooked meat,” and parvovirus B19 is transmitted by “droplet.” For all four pathogens, the most susceptible time of infection that may cause severe fetal disease is the first trimester. The maximum frequency of fetal infection when being maternal infection is ≥80% for Rubella, 50–80% for Toxo, and 10–50% for CMV and PVB19.

Participants’ characteristics, such as age, history of childbirth and spontaneous abortions, and gestational age at the time of survey completion, were also collected. Results were divided into two time epochs of 32 months: Phase I (October 2012 to May 2015, n=914) and Phase II (June 2015 to January 2018, n=519), and then compared with historical controls (n=343). Data are expressed as number (percent) or median (range). Statistical analyses were performed using chi-square test, and a p <0.01 was considered statistically significant.

There were no significant differences in patient demographics between the three groups. Compared with controls, women had significantly greater knowledge of Rubella and Toxo at the Phase I time epoch, and of CMV at both Phases. Awareness of transmission routes for both Rubella and CMV was significantly higher at Phases I and II than that for controls. For time of susceptibility, awareness was significantly higher for both Rubella and CMV at Phase I than in the control group. The knowledge about maximum frequencies of the maternal-fetal infections were significantly higher for Rubella at both Phases, and for CMV at Phase I than controls. The knowledge of PVB 19 infections were not different between both Phases.

In summary, maternal knowledge regarding Rubella, Toxo, and CMV maternal-fetal infections have improved compared with the previous report. However, the awareness of PVB 19 infections is insufficient. Thus, we conclude that the dissemination of information regarding PVB 19 infections is inadequate and needs improvement in Japan.
Data are displayed as median (range), number (percent), or percent.

* p<0.01 vs Historical Control

COI: None declared
ID: 454

**TITLE:** THE EARLY SERUM BIOCHEMICAL MARKER FOR EVALUATING THE RISK OF METABOLIC BONE DISEASE IN EXTREMELY LOW BIRTH WEIGHT INFANTS

**AUTHORS:** Yin-Ling Tan; Hung-Chieh Chou; Ting-An Yen; Po-Nien Tsao; Chien-Yi Chen

**AFFILIATIONS:** Department of Pediatrics, National Taiwan University Children Hospital, Taipei, Taiwan

**CONTENT:**

Parenteral nutrition (PN) is an important source for nutrition in preterm infants who could not tolerate enteral feeding but the precipitations of solution limited the intake of calcium and phosphorus. Those who had prolonged PN should be aware of the development of metabolic bone disease. The purpose of this study was to explore the early marker of metabolic bone disease by analyzing the serial change of serum biochemical in extremely low birth weight (ELBW).

We retrospectively collected data on ELBW delivered in our hospital. Inclusion criteria were: premature infants <30 weeks gestation, BW 14 days) and control group (Nil per os <14 days). The intake of calcium and phosphate in the first 14 days and serum level of calcium, phosphorus and alkaline phosphate at day 7, 14, 28, 42, 56 and 112 were compared. Osteopenia is diagnosed by radiographic changes.

Totally 95 preterm infants are included, and 35 of them was in the group of prolonged PN. All infants do not have the recommended intake of calcium and phosphate in the first 14 days. Compared to control group, the infants in the prolonged PN group have lower calcium intake since day 11, and lower phosphate intake since day 6. Significant lower serum phosphorus level (mg/dL) was noted in the prolonged PN group on day 14 (3.65±1.2 mg/dL vs 4.67±1.45, p<0.01), 28 (3.21±0.95 vs 5.83±1.18, p<0.001), 42 (3.94±1.1 vs 6.22±0.78, p<0.001) and 56 (5.06±1.16 vs 6.11±0.85, p<0.01). Higher levels of alkaline phosphatase (U/L) was found since two months old in the group of prolonged PN (458±189 vs 335±111, p<0.05). There is no significant difference in serum calcium level between two groups in all time point. Osteopenia is diagnosed in 4 patients the prolonged PN group but none in the control group.

Prolonged PN exposure cause lower intake of calcium and phosphate in early life, and associated with early hypophosphatemia noted since 2 weeks old. The serum calcium level is not affected and higher alkaline phosphatase level was noted since 8 weeks after birth. Routine monitoring serum phosphate level started 2 weeks after birth is important to prevent osteopenia in ELBW infants.

**COI:** None declared
ID: 457
TITLE: IMPACT OF COMPUTER CALCULATION PROGRAM FOR INDIVIDUALIZED PARENTERAL NUTRITION ON SELECTED CLINICAL PARAMETERS OF EXTREMELY LOW BIRTH WEIGHT (ELBW) INFANTS
AUTHORS: Marika Chojecka 1, Izabela Miechowicz 2, Marta Szymankiewicz-Bręborowicz 3, Tomasz Szczapa 4
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Poznan University of Medical Sciences
Poznan, Poland

CONTENT:
Adequate nutrition supply in the first weeks of life of preterm neonates is an essential part of intensive care. It may influence the efficacy of treatment in critically ill neonates, their extrauterine growth and development. Malnutrition increases risk of infection and mortality rates, extends duration of mechanical ventilation and hospitalization. Parenteral administration is often necessary to meet nutritional needs of premature neonates in their first days or weeks of life. The aim of the study was to assess the effects of introduction of a computer calculation program for individualized parenteral nutrition (PN) on selected clinical parameters of ELBW infants in a tertiary NICU.

Retrospective medical records analysis of 94 ELBW preterm infants born over a one-year period before (2013, 47 patients) and after (2016, 47 patients) introduction of computerized provider order entry (CPOE) for parenteral nutrition. Composition of PN on the 1st, 3rd and 7th day of life (DOL) was analyzed. Growth was assessed based on difference in weight, head circumference and body length percentiles on Fenton charts. Duration of PN and selected neonatal complications were also analyzed. Abdominal surgery, congenital malformations, inborn errors of metabolism and death before 7th day of life were considered exclusion criteria. Statistical analysis was performed with Mann-Whitney test, t-Student test and chi2 Pearson test; p<0.05 was considered significant.

Both groups were comparable with regard to birth weight (786 vs 786 g, ns) and gestational age (27 vs 27 weeks, ns). Analysis revealed that respectively on the 1st, 3rd and 7th DOL more energy (mean 32.2 vs 62.9; 45.4 vs 69.9; 73.6 vs 85.1 kcal on, p<0.01), fluids (mean 84.1 vs 97.7; 118.7 vs 145.9; 147.5 vs 164.2 ml, p<0.01), protein (mean 1.9 vs 2.6; 2.8 vs 3.3; 3.2 vs 3.8 g, p<0.01), lipids (mean 0.1 vs 1; 0.9 vs 2.2; 2.4 vs 2.9 g, p<0.01) and carbohydrates (mean 6.1 vs 7.4; 7.3 vs 8.7; 10.4 vs 11.5 g, pp>0.05) and conjugated hyperbilirubinemia (21 vs 9%, p=0.08). There were no significant differences in growth parameters between groups. Duration of PN was significantly shorter in the CPOE group (mean 31 vs 25 days, 0.01>p>0.05).

It has been found that CPOE has a positive impact on the quality of PN and compliance with guidelines. The use of CPOE may shorten the duration of PN. It seems that CPOE can also have beneficial effects on selected clinical outcomes of ELBW, however it requires further studies on a bigger group of patients.

COI: Non declared.
ID: 539

TITLE: ASSESSMENT OF NEONATAL GROWTH AND WELLBEING FOLLOWING THYROID HORMONE-BASED THERAPY IN A RODENT MODEL OF INTRAUTERINE GROWTH RESTRICTION (IUGR).

AUTHORS: Delphi Kondos-Devic 1; Flora Wong 2; Angela Cumberland 1; Madhavi Khore 1; David Walker 1; Mary Tolcos 1.

AFFILIATIONS: 1Neurodevelopment in Health & Disease Program, School of Health & Biomedical Sciences, RMIT University, Melbourne, Australia.
2 Department of Paediatrics & The Ritchie Centre, Monash Medical Centre, Monash University, Melbourne, Australia.

CONTENT:

We have previously shown that thyroid hormone (TH) transporter - monocarboxylate transporter-8 (MCT8) is decreased in the neonatal IUGR rat brain, perhaps contributing to impaired brain development in IUGR. We also found that administration of the TH analogue, diiodothyropropionic acid (DITPA), which doesn’t require MCT8 to enter cells, from postnatal day (P) 1-6 promotes myelin recovery by P7. However the preclinical safety profile of DITPA is unknown.

Aims: Here, we determine if DITPA treatment in IUGR rats from P1-13 (equivalent to brain development at 23-40 weeks of gestation in humans) affects neonatal growth and wellbeing.

At day 18 of pregnancy (term = 22 days), rats underwent bilateral uterine vessel ligation (n=29 litters) or sham surgery (n=15 litters) to generate IUGR or control pups. DITPA (0.5mg/100g; i.p.) or saline was administered daily from P1-P13 to IUGR (DITPA n=60; Saline n=57) and control (DITPA, n=42; Saline, n=46) pups. Body weight was measured daily from P1-P14, and brain weight, body composition (via dual-energy x-ray absorptiometry), thyroid function (serum free T3 and T4), serum liver enzymes (alanine transaminase, ALT, alkaline phosphatase, ALP) and cholesterol were assessed at P14.

Body weight was reduced in IUGR pups compared to control at P1 (p<0.0001), P7 (p<0.0001) and P14 (p<0.001). In IUGR pups at P14, there was a reduction in brain weight (p<0.0001), bone content (p<0.0001), bone mass (p<0.001), lean tissue mass (p<0.0001) and fat mass (p<0.001) compared to controls. DITPA did not improve or worsen these effects. In IUGR pups free T4 and ALT were decreased (p<0.01 for both) and ALP was increased (p<0.05) compared to controls. Free T3 and cholesterol were unaffected. In control and IUGR pups, DITPA treatment increased free T3 (p<0.0001), ALT (p<0.01; only in IUGR), and ALP (p<0.05), but reduced free T4 (p<0.0001).

DITPA does not adversely impact neonatal growth or wellbeing following IUGR, despite altering free thyroxine levels and showing hepatic thyromimetic activity.

COI: None declared
ID: 623
TITLE: THE STATUS OF SERUM 25(OH)D LEVELS IN NEWBORN INFANTS AND THEIR MOTHER IN TAIWAN
AUTHORS: SHIH HSIN WANG 1; DING-AN YAN 2; CHIEN-YI CHEN 3; HONG-JIE ZHOU 4; PO-NIEN TSAO 5
AFFILIATIONS: 1 Paediatric Dept., Far Eastern Memorial Hospital, New Taipei City, Taiwan
2-5 Department of Pediatrics, National Taiwan University Children Hospital, Taipei, Taiwan

CONTENT:

Vitamin D is now recognized not only for its importance in bone health but also for other health benefits, including reducing the risk of immune diseases, cancer, cardiovascular disease, and adverse pregnancy outcome. The health impact of vitamin D deficiency is especially important during infancy, which rickets and osteomalacia will develop. In Taiwan, the epidemiological data about the incidence of vitamin D deficiency in newborn and their mother is lacking, which limit the development of our own policy in vitamin D supplementation. The purpose of this study is to investigate blood vitamin D level in the newborn infants and their mother.

The mother who delivered term infants in National Taiwan University Children Hospital are invited to the study. After informed consent is signed, around 2.5 cc blood is collected from the mother and her infants within 3 days after delivery. Total circulating 25(OH)D levels (ng/ml) are measured in serum sample by LIAISON® (DiaSorin, Inc, Stillwater, MN, USA).

Totally 37 newborn infants and 33 mothers are included. In the newborn groups, the mean 25(OH)D level of newborn group is 16.7±9.2 ng/mL, 15 of 37 infants (40.6%) have 25(OH)D level below 12 ng/mL. Only 11 of them (29.7%) have adequate 25(OH)D level (above 20ng/mL). In their mother group, the mean level of their mother is 18.8±10.3 ng/mL, and 8 of 33 mothers (27.6%) have 25(OH)D level below 12 ng/mL. There are 11 mothers (27.6%) have adequate have 25(OH)D level. There is correlation of the levels between newborn and their mother (Pearson correlation 0.529, p=0.0016)

The preliminary data showed that most of the newborn infants and their mothers may not have adequate serum 25(OH)D level after delivery in northern Taiwan. Further larger follow-up study is warranted.

COI: None declared.
ID: 639

TITLE: THE USE OF SODIUM GLYCEROPHOSPHATE IN NEONATAL PARENTERAL NUTRITION SOLUTIONS TO OPTIMIZE THE CALCIUM AND PHOSPHATE INTAKE IN PRETERM INFANTS

AUTHORS: Chi-Man Kuok 1; Hsueh-Ju Wang 2; Ya-Ting Hsieh 2; Ling-Yu Liu 2; Li-Juan Shen 2; Shu-Chiao Lin 2; Chien-Yi Chen 3

AFFILIATIONS: 1 Department of Pediatrics, Far Eastern Memorial Hospital, New Taipei City, Taiwan
2 Department of Pharmacy, National Taiwan University Hospital, Taipei, Taiwan
3 Department of Pediatrics, National Taiwan University Children Hospital, Taipei, Taiwan

CONTENT:

Preterm infants require higher intake of calcium and phosphate to facilitate adequate bone growth, but requirement is seldom met in parenteral solution because of the limit solubility of calcium and phosphate. The purpose of this study was to compare the solubility of organic and inorganic phosphate with calcium gluconate in neonatal parenteral nutrition (PN) solutions for clinical use.

PN solutions were compounded by calcium gluconate at 35 mEq/L with potassium phosphate (KPO4) or sodium glycerophosphate (NaGP) at 25 mmol/L. The other component included 1% amino acid and 10% dextrose. The compatibility of each solution was evaluated by visual inspection and Light Obscuration Particle Count Test using United States Pharmacopeia 788 standards after mixture. The preparation complies with the test if the average number of particles present does not exceed 25 per mL equal to or greater than 10 μm and does not exceed 3 per mL equal to or greater than 25 μm. To simulate the clinical condition, solution was also evaluated in NaGP group after storing at room temperature for 24 hours or at 4°C for 48 hours prior to analysis.

There is no visual deposition in the PN solution using NaGP in any of the concentration and at any stored condition. The average number of particles equal to or greater than 10 μm per mL in NaGP group is 5.2±2.1 just after mixture, 3.1±2.7 after 24 hours and 1.7±1.4 after 48 hours. In the contrast, obvious deposit was noted in KPO4 group just after mixture, and the average number of particles is 7793.5±1309.8 per mL. The particle count exceeds the limit significantly.

The compatibility of NaGP and calcium gluconate is well in PN solution. Use of NaGP in neonatal PN eliminate the concern of calcium and phosphorus precipitation and increased the supply to preterm infants to meet their requirement for growth.

COI: None declared
ID: 665

TITLE: IGF-1 AND INSULIN LEVEL IN PREMATURE NEWBORNS ON DIFFERENT TYPES OF FEEDING.

AUTHORS: Anna Dorofeeva, M.D. 1; Antonina Chubarova, M.D., Ph.d., professor 2;

AFFILIATIONS: 1 Russian National Research Medical University named after N. I. Pirogov, Moscow, Russia
2 N.F. Filatov Children's City Hospital of Moscow Healthcare Ministry, Moscow, Russia

CONTENT:

Insulin-Like Growth Factor-1 (IGF-1) is a mediator of growth hormone. It determines growth hormone somatotropic effect in body tissue.

IGF-1 and insulin level were studied in 63 preterm neonates (28 to 36 weeks of gestation at birth) at 40 weeks of postconceptional age. Patients were divided into groups according to types of feeding: breast-fed (BF, n=45) and formula feeding (FF, n=18).

The IGF-1 in the BF was 34.51±17.14 ng/ml, in the FF group 32.57±25.89 ng/ml (normal range in both groups according to the WHO: 10-159 ng/ml). The level of insulin in BF 2.95±2.54 mU/ml and 1.94±1.94 mU/ml in FF respectively, that can be taken as low (WHO normal range is 3-15 mU/ml). BMI in breast-fed children – 11.45±1.32, in formula feeding 11.60±1.91.

The body composition was also determined by plethysmography (using plethysmograph Pea Pod) at post-conceptual age of 40 weeks gestational age. Using plethysmograph during the research allows to determine the percentage of fat mass (FM) in body tissue. The FM according to Pea Pod were 9.88±4.02% in BF and 10.43±4.11% in FF group. Z-scores in those groups were 0.22±0.63 and 0.06±0.97 respectively, significant differences in body composition in these groups were not observed (p>0.05).

In this study there was no significant difference in the body composition in premature newborn depending on type of feeding. Neonates accumulate fat mass regardless of the type of feeding. The level of IGF-1 corresponds to that according to WHO. The level of insulin in group on formula feeding lower than corresponding WHO range, in BF group the level of insulin does not differ from the age normal range.

COI: None declared
ID: 713

TITLE: EARLY AND LATE PROBLEMS OF SGA INFANTS: DOES THE SGA DEFINITION NEED TO BE RE-EVALUATED?

AUTHORS: Serdar Beken 1, Saygın Abalı 2, Eda Albayrak 3, Ayşegül İnamlık 3, Barbaros Ömer Cebeci 4, Cem Bertan Yavaşoğlu 4, Zeynep Ay 4, Ayşe Eylül Dönmez 4, Melis Karabay 4, Müge Halıcı 4, Ezgi Bülbül 4, Didem Kaya 4, Gülten Zeynep Ekşi 4, Serap Şemiz 2, Ayşe Kor

AFFILIATIONS: 1. Neonatology Department, Acıbadem University School of Medicine Atakent Hospital, İstanbul, Turkey
2. Paediatric Endocrinology Department, Acıbadem University School of Medicine Atakent Hospital, İstanbul, Turkey
3. Paediatrics Department, Acıbadem Univ

CONTENT:

Small for gestational age (SGA) babies are under risk of neonatal morbidity and mortality. These babies on the long term are also under the risk of growth retardation, puberty problems and metabolic syndromes. SGA is defined as birth weight being under 10 percent of gestation week by neonatal team while pediatric endocrinology team define it as birth weight being under -2 standard deviation (SD). In this study, the early neonatal problems and postnatal growth data of the babies whose birth weights were under 10 percent but over -2 SD and the ones under -2 SD were compared.

Records of 4481 babies born in Acıbadem University Atakent Hospital were studied. Birth weight scores were calculated according to gestation week, babies under 10 percent were determined. Among the 3860 babies included in this study, 147 babies’ birth weight were under 10 percent and among these babies 28’s were under -2 SD. According to birth weights: Group 1 was defined with babies under -2 SD, Group 2 with babies between -2 SD an 10 percent and Group 3 with babies at the same gestation week and with the same gender whose randomly selected birth weights changed between -0.5 and +0.5 SD. Groups were compared by hospitalization, any hypoglycemic event, capillary glucose levels and their antropometric values in their follow-up.

Groups were found to be similar in gestation week, gender and type of delivery. Group 1 and 2 were observed to have more hospitalization, more frequent hypoglycemic event and received more IV fluids (p<0.05). Height SDS values at the mean age of 2.2±1.0 of healthy babies, who are monitored in our hospital, were -0.94±1.1, 0.1±0.9 and 0.6±0.9 respectively for group 1, 2 and 3 (p<0.001). According to height SDS, meaningful difference was found between group and 2, and also between group 2 and 3 (p=0.029). Positive meaningful correlation was found between height SDS and birth weight SDS (r=0.417; p<0.001).

Discussion of interdisciplinary SGA definition is still ongoing. This study shows that SGA as “being under 10 percentile” can be used for early neonatal complications whereas -2SD can be used for the long term follow-up.

COI: None declared
ID: 719
TITLE: PHENYL BUTYRATE AS AN OFF-LABEL TREATMENT OPTION IN SEVERE NEONATAL CHOLESTASIS
AUTHORS: Rudi Ascherl; Corinna Gebauer; Ulrich Thome
AFFILIATIONS: Universitätsklinikum Leipzig, Germany

CONTENT:

Most regimens used in neonatal choletasis aim at decreasing intestinal reabsorption of bile salts. Originally intended for the treatment of urea cycle disorders phenyl butyrate (PB) has recently been used in deficiencies of ABC transporters. PB influences posttranslational modification of proteins: It promotes proper protein folding and, in those with wild type proteins, increases the longevity of transporters and therefore their number on the cell membrane by reducing ubiquitination. This way PB can amplify canalicular ABC transporters MRP2 and BSEP augmenting export of bile salts and bilirubin. In addition PB can mitgate endoplasmatic reticulum stress caused by bilirubin in neuronal cells.

We present the case of a critically ill preterm born at 31.6 weeks by emergency CS due to decreasing fetal heart rate. An abdominal mass later turning out to be a mesoblastic nephroma was found on ultrasound only hours before delivery and was resected on t

This is the first report about using PB in a preterm without primary liver disease in Europe. We want to introduce PB as a off-label treatment option in severe IHC not responding to canonic regimens.

IMAGES:
https://www.eiseverywhere.com/eselectv3/v3/events/351149/submission/files/download?fileID=98ba3c825cb1981ef64a05fe5cb85d44-MjAxOS0wNSM1Y2UyNjY2Y2NiZWEz

Total bilirubin determined by a point-of-care blood gas analysis unit over time. Therapies: PT phototherapy, UDCA ursodeoxycholic acid, Ctyr colestyramine, 4PB phenylbutyrate. Direct bilirubin is estimated by linear regression of the fraction of direct bi

COI: None declared
ID: 720
TITLE: DOES THE CARNITINE LEVELS CHANGE IN SGA BABIES?
AFFILIATIONS: 1. Neonatology Department, Acıbadem University School of Medicine Atakent Hospital, İstanbul, Turkey
2. Paediatric Endocrinology Department, Acıbadem University School of Medicine Atakent Hospital, İstanbul, Turkey
3. Paediatrics Department, Acıbadem University

CONTENT:

The babies which are classified as small for gestational age (SGA) or large for gestational age (LGA) according to their gestational week should be monitored after birth due to excess postnatal energy requirement. Carnitine is an essential cofactor for fatty acid (FA) metabolism which has a role in energy balance. The aim of this research is the evaluation of relationship between postnatal carnitine level and intrauterine growth.

For this research the records of 4481 babies who were born at Acıbadem University Atakent Hospital between 2015-2019 are evaluated. The babies who have one of following criteria are excluded from the research: GW (gestation week) under 37, hospitalization immediately after birth, multiple pregnancies, congenital anomalies. The profile results of carnitine/acylcarnitine that are taken before discharge and are analyzed by tandem mass spectrometry are recorded. The results indicate that in total there were 11 babies who had abnormal results and these babies were also excluded from the research. 3520 babies which are included in the research are divided into three groups (SGA (n=80), AGA (n=3061) and LGA (n=379)) according to their gestational week and birth weights.

The results indicate that in total there were 11 babies who had abnormal results. 6 of these babies’ propionyl carnitine/free carnitine ratio is high. While for the remaining 5, one for each baby following abnormalities were detected: the high ratio of propionyl carnitine, C6 carnitine, C5OH carnitine and C18:1 carnitine and also decreased ratio of free carnitine. During the follow up of these 11 babies, no permanent metabolic disorders were found.

No differences were detected between groups according to GW and gender (p>0,05). In SGA, AGA and LGA babies, free carnitine levels were (average±SD) 29,9±12,05; 22,6±8,32 and 23,1 + 7,72 mol/L respectively. In SGA group, free carnitine levels were found to be high (p<0,001). A negative correlation was determined between birth weight standard deviation score and free carnitine (r=-0,179; p=0,01).

The maternal-fetal carnitine passage is important for the neonatal energy homeostasis due to the fact that the fetus isn’t able to synthesize carnitine. In this research it is indicated that the free carnitine level is higher in the SGA babies who were born without any fatty acid oxidation disorder. It is thought that in the babies with intrauterine energy disorders, the placental carnitine passage shows a compensatory increase.

COI: None declared
ID: 771
TITLE: URINE METABOLOMIC ANALYSIS FROM LATE-PRETERM NEWBORNS: CO-RELATION WITH MORBIDITY
AUTHORS: Irini Christopoulou1; Konstantina Matzarapi2; Stella Chasapi2; George Spyroulias2; Anastasia Varvarigou1
AFFILIATIONS: 1. Neonatal Unit, University hospital of Patras, Greece
2. Department of Pharmacy, University of Patras, Greece

CONTENT:

Metabolomics represent a new and promising area of research in neonatology. It has been successfully applied to monitor the rapid metabolic changes after birth and to detect the metabolic responses that may be characteristic for specific neonatal disorders. This will help us to develop new therapies and to improve prognosis.

In neonatology late pre-term newborns (34W -36W), represents almost 80% of all preterm births and although mortality rate is low, they are prone to considerable morbidity. But not all late-preterm newborns are the same. Some can stay with their mothers in the postnatal ward, while others needed to be admitted in the NICU.

The aim of our study was to develop a reference model of urinary metabolomics in healthy late preterm newborns and to compare with a corresponding model of the late preterms who have been hospitalized in NICU. The study included 51 healthy term newborns and 54 late-preterm newborns who were hospitalized in NICU.

Urine samples were collected immediately after birth and at the end of the third day of life. Metabolic profiling of the samples was performed by H-NMR spectroscopy. Statistical analysis was conducted in R-environment using in-house scripts.

Principle component analysis showed that there were significant differences in urine metabolome of the late pre-terms at the first and third day of their life. 79 metabolites were identified from which 20 showed statistically significant change between D1 and D3.

Seven metabolites of those (7/20) were decreased in the third day of life like myo-inositol and dimethylglycine, while the rest (13/20), like gluconate and leucine were increased.

We also observed differences in the urine metabolome between the late-preterm and the terms newborns in both D1 as well as D3.

Our preliminary data confirmed the rapid changes in the urinary metabolic profile after birth. Ongoing research will enable us to develop the reference model of urinary metabolomics in healthy newborns during the period of adaptation to the extra-uterine life.

COI: None declared
ID: 773
TITLE: IS NEONATAL GROWTH POSSIBLE IN LOW TO MIDDLE RESOURCED NEONATAL INTENSIVE CARE UNITS?
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CONTENT:

The Neonatal unit at University Teaching Hospital in Lusaka, Zambia is the country’s only tertiary Neonatal unit. It is a busy unit with regularly 100 inpatients, accepting patients with weights of 700g or more. There is no total parental nutrition (TPN) or breast milk fortifier available. The only supplements used are multivitamin and oral iron. The unit has feeding guidelines in place with two streams one for infants greater than 1.5kg and the other for infants less than 1.5kg or less than 32 weeks. Generally it is expected a preterm neonate would gain 15g/kg/day and term 20g/kg/day. With limited resources, we wanted to review growth is still possible in this low income resourced setting.

Collected data on all preterm and term infants admitted to the unit 14 days or longer from March to April 2019. Recorded birth and current weight, time to first feed, full feeds, maximum feed volume. Projected growth based on weight and length of stay was calculated along with actual growth in g/kg/day.

In total there were 59 infants. 19% only had birth weights documented. 12% lost weight, and 3% had static weights. 50% had weight gains below expected 15g/kg/day. 8% had weight gain within recommended range of 15-20g/kg/day and 8% had weight gain above this. No infants had head circumferences documented at any point. Average length of stay was 23 days. Average birth weight was 1.6kg, lowest being 700g and maximum 4.2kg. Time to first feeds on average 1.5 days, average time to full feeds was 5 days. All received expressed breast milk, those deemed preterm received maximum 200mls/kg/day and term infants 150mls/kg/day.

Despite the challenges the unit faces, with a small data set, this shows that infants do grow with just breast milk. Due to the large number of very junior doctors with minimal neonatal experience, a daily review sheet has been created to help focus reviews. This includes documenting weights, feed volumes, multivitamins and iron supplements and head circumference. This will be re audited to see if this can be a low cost way to improve growth.

COI: None declared
ID: LATE BREAKER
TITLE: HIGH PREVALENCE OF SUBCLINICAL VITAMIN K1 DEFICIENCY AMONG HUMAN MILK-FED PRETERM INFANTS IN EARLY INFANCY
AUTHORS:
AFFILIATIONS:

CONTENT:

Background:
Vitamin K (VK) status of preterm infants post-NICU discharge and in early infancy is unknown. Exclusive breast milk feeding is often the only factor identifiable in cases of idiopathic VK deficiency bleeding. Despite the low VK content of human milk, VK supplements are not routinely given to human milk-fed preterm infants after NICU discharge; in contrast, vitamins A, B, C, D, and E are widely given.
We examined the VK status of breast milk fed preterm infants nearing discharge and in early infancy. Our hypothesis was that, in the absence of VK supplementation, exclusively/predominantly human milk fed preterm infants have a high prevalence of subclinical VK deficiency in early infancy.

Methods:
Prospective, multicentre, observational cohort study of preterm infants born <33 weeks’ gestation who were exclusively or predominantly human milk fed approaching NICU discharge. We excluded infants with cholestasis. With ethics approval and parental consent, we determined VK status by assaying serum concentrations of vitamin K1 (VK1) and PIVKA-II (Protein Induced by Vitamin K Absence/antagonism of blood clotting factor II; undercarboxylated prothrombin) at two time-points: ~35 weeks postmenstrual age (PMA) for baseline VK status, and at ~2 months corrected age (CA) (primary outcome). Satisfactory VK status was taken as normal PIVKA-II (<50.9 mAU/mL); VK deficiency was taken as raised PIVKA-II (≥51.0 mAU/mL). VK status at ~2 months CA was evaluated in relation to feeding history.

Results:
45 infants recruited in four UK neonatal centres underwent VK status assessment prior to NICU discharge at median PMA 35+1 (IQR: 34+6 – 36+3) weeks, and 37 completed the study with later assessment at median CA 8 (IQR: 5-14) weeks. Prior to discharge only 1/45 (2%) was VK deficient, a baby of birth gestation 23+6 weeks aged 11 weeks postnatal with PIVKA-II 83.7 mAU/mL and undetectable (<0.1 µg/L) serum VK1. At the later follow up visit, only 12/37 (32%) remained exclusively breast milk (BM) fed, while 25/37 (68%) were formula milk (FM) or mixed BM-FM fed. Overall by 8 weeks CA, 9/37 (24%) infants had developed VK deficiency as shown by raised PIVKA-II: 8/12 (67%) BM-fed were VK deficient vs. only 1/25 (4%) FM/mixed feeding babies, p=0.0001. VK1 concentrations were significantly lower and PIVKA-II concentrations significantly higher in exclusive BM vs. FM/mixed fed babies, Table.

Table: Measures of vitamin K status of preterm infants in early infancy according to mode of feeding.

<table>
<thead>
<tr>
<th></th>
<th>Exclusive breast milk fed</th>
<th>Formula/mixed fed</th>
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<tbody>
<tr>
<td>Vitamin K1 (µg/L)*</td>
<td>0.15 (&lt;0.10–0.59)</td>
<td>1.91 (0.16–5.31)</td>
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<td>[IQR: 0.11–0.24]</td>
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<td>[IQR: 1.29–2.32]</td>
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<tr>
<td>PIVKA-II (mAU/mL)</td>
<td>80.8 (23.6–496.6)</td>
<td>21.2 (14.1–129.1)</td>
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<td>[IQR: 36.2–232.7]</td>
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<td>[IQR: 18.8–25.9]</td>
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<td>Data are median (range) [IQR, interquartile range]</td>
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*VK1 reference range: 0.15-1.55 µg/L
Conclusion:
Preterm infants who remain exclusively human milk fed post NICU discharge are at high risk of developing VK deficiency. Routine post-discharge VK1 supplementation of preterm infants may prevent subclinical VK deficiency in early infancy.

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