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3. ORAL COMMUNICATIONS

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001 | ORAL | New devices

BIOMARKERS IN MATERNAL BLOOD PREDICT NEONATAL MORBIDITY

Chaiworapongsa T, MD[1,2], Whitten AE, MD[1,2], Romero R, MD, D Med Sci[1], Korzeniewski SJ, PhD [1,2], Schwartz A, MPH[1,2], Cortez JC, MD[1,3], Pappas A, MD[1,3], Chaemsaithong P, MD[1,2], Dong Z, PhD[1], Hernandez-Andrade E, MD, PhD[1,2], Hassan SS, MD[1,2], Yeo L, MD[1,2]

1Perinatology Research Branch, NICHD, NIH, DHHS, Detroit, MI, and Bethesda, Maryland, USA

2Department of Obstetrics and Gynecology, Wayne State University, Detroit, MI, USA

3Department of Pediatrics, Division of Neonatal and Perinatal Medicine, Wayne State University, Detroit, MI, USA

Abstract:

Objective: To determine whether maternal plasma biomarkers (angiogenic and anti-angiogenic factors) determined at the time of diagnosis of a SGA fetus can identify patients who would deliver neonates with perinatal complications.

Methods: A prospective cohort study included singleton gestations with ultrasound biometry indicating SGA (EFW <10th percentile) was performed. Umb and mean UT Doppler pulsatility indices (PI) were determined when SGA was diagnosed. Maternal blood biomarkers included placental growth factor (PlGF), and anti-angiogenic factors such as soluble Flt-1 and soluble endoglin (sEng) were measured. Logistic regression models were constructed to examine the values of these markers in risk assessment for the occurrence of any composite adverse perinatal outcome (Fetal Vulnerability Index or FVI which include 5 minute Apgar <4, Umb artery pH<7.0, seizures, intubation in the delivery room, stillbirth, neonatal death, and admission to the neonatal intensive care unit for >48 hours). Thresholds used to define abnormal analyte concentrations had been previously selected to identify subsequent obstetrical complications (development of preeclampsia or indicated preterm birth).

Results: 1) 20% of neonates had at least one adverse composite outcome; 2) both continuous and dichotomous maternal plasma concentrations of angiogenic/anti-angiogenic factors, mean UT artery PI, and Umb artery PI were significantly associated with the presence of neonatal morbidity (FVI); 3) neonates of women having abnormal angiogenic and/or anti-angiogneic factor concentrations were 5 to 8 times more likely to experience ≥ one neonatal morbidity (adjusting for combined nulliparity and previous preterm delivery); 4) abnormal concentrations of each angiogenic/anti-angiogenic factor remained significantly associated with neonatal morbidity, adjusting for abnormal UT artery Doppler velocimetry (mean PI z-score >2); 5) Among women with normal UT artery PI (mean PI z-score <2), the odds of being affected by ≥ one neonatal morbidity was 3 to 4 fold greater in those with abnormal PlGF/sVEGFR-1 MoM ratio or sEng MoM concentrations, respectively (OR 3.3[95%CI 1.4-7.6]; OR 3.7 [95%CI 1.7-8.2]); and 6) Compared to UT artery PI z-score alone, the addition of sEng MoM significantly increased the AUC in predicting neonatal morbidity (AUC: 0.69 vs. 0.72; p=0.03).

Conclusion: Biomarkers in maternal plasma measured at the time of the diagnosis of SGA can identify fetuses who will develop neonatal complications. This is the first time that maternal blood biomarkers are reported to predict adverse neonatal outcome in SGA.

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002 | ORAL | Fetal growth restriction

FETUIN-A, A NEGATIVE ACUTE PHASE REACTANT PROTEIN, IN PREECLAMPSIA

Chaemsaithong P, MD[1,2],Chaiworapongsa T, MD[1,2], Romero R, MD, D Med Sci[1], Korzeniewski SJ, PhD [1,2], Schwartz A, MPH[1,2], Miranda J, MD[1,2], Dong Z, PhD[1], Hernandez-Andrade E, MD, PhD[1,2], Hassan SS, MD[1,2], Yeo L, MD[1,2]

1Perinatology Research Branch, NICHD, NIH, DHHS, Detroit, MI, and Bethesda, Maryland, USA
2Department of Obstetrics and Gynecology, Wayne State University, Detroit, MI, USA

Abstract:

Objective: Preeclampsia (PE) is characterized by a systemic intravascular inflammatory process. Fetuin/ α2-Heremans-Schmid glycoprotein (fetuin-A) is one of the negative acute phase protein reactants thought to play a role in the attenuation of inflammation. Previous studies examining serum fetuin-A concentrations in PE have reported conflicting results, -either higher or lower concentrations than in normal pregnancy. The aims of this study were to: 1) determine whether plasma concentrations of fetuin-A differ between women with PE and those with uncomplicated pregnancies; and 2) examine the relationship of fetuin-A with other negative acute phase protein reactants, including albumin, and transferrin, in the setting of PE.

Method: A cross-sectional study was conducted to include patients in the following groups: 1) women with uncomplicated pregnancy (n=129); and 2) women with preeclampsia (n=97). Maternal plasma concentrations of fetuin-A, albumin, and transferrin were determined by ELISA.

Results: 1) Women with PE had a significantly lower median plasma concentration of fetuin-A (μg/mL) (285.9 vs. 314.9), albumin (g/dL) (2.9 vs. 3.6) and transferrin (mg/dL) (460.2 vs. 645.3) than those with uncomplicated pregnancies (each $p<0.001$); and 2) Among women with PE, the plasma concentrations of fetuin-A were positively correlated with plasma albumin and transferrin concentrations (spearman correlation = 0.47 and 0.54, respectively; $p<0.001$ both).

Conclusions: Maternal plasma fetuin-A, albumin and transferrin concentrations are lower in patients with PE than in those with uncomplicated pregnancies. This suggests that lower maternal plasma concentrations of fetuin-A in preeclampsia reflect a response to systemic inflammation. Moreover, these observations support the hypothesis that fetuin-A behaves as a negative acute phase protein reactant in preeclampsia.

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003 | ORAL | Fetal growth restriction

MATERNAL BLOOD BIOMARKERS IN THE FIRST AND SECOND TRIMESTER OF PREGNANCY PREDICT PRETERM PREECLAMPSIA

Chaiworapongsa T, MD[1,2], Romero R, MD, D Med Sci[1], Tarca AL, PhD[1,3], Korzeniewski SJ, PhD [1,2], Schwartz A, MPH[1,2], Chaemsaithong P, MD[1,2], Miranda J, MD[1,2], Hernandez-Andrade E, MD, PhD[1,2], Hassan SS, MD[1,2], Yeo L, MD[1,2]

1Perinatology Research Branch, NICHD, NIH, DHHS, Detroit, MI, and Bethesda, Maryland, USA
2Department of Obstetrics and Gynecology, Wayne State University, Detroit, MI, USA
3Department of Computer Science, Wayne State University, Detroit, MI, USA

Abstract:

Objective: The prediction of preeclampsia (PE) remains suboptimal. The objective of this study was to determine whether a combination of multiple biochemical markers in maternal plasma in the first, early, and late second trimesters could identify patients who subsequently develop preterm PE.

Methods: A longitudinal nested case-control study was conducted including only singleton gestations. Cases were patients who developed PE and delivered < 37 weeks of gestation, and controls were women with uncomplicated pregnancies who delivered an appropriate weight for gestational age neonate at term (≥ 37 weeks). Maternal plasma samples were collected during at least 2 of 3 gestational age intervals (6-15.9, 16-19.9 and 20-25.9 weeks). Human MAP 2.0 (Myriad RBM Inc, Austin, TX) was used to determine the plasma concentrations of 87 proteins implicated in cardiovascular disease, inflammation, coagulation, angiogenesis, and metabolic disease. To assess the predictive performance of the panel of analytes, a robust split-sample (training and testing sets) procedure repeated 100 times was used. A Linear Discriminant Analysis (LDA) model was used to determine the optimal number of analytes (maximum set at 6) to discriminate between cases and controls. The same classifier development pipeline was also applied using the whole dataset for training to obtain a final model that also included covariates (parity and maternal age).

Results: Sensitivities for the identification of patients who subsequently developed preterm PE for each gestational age interval obtained using the split-sample simulation, and also for the final model are reported in the Table at fixed specificities (80%, 85% and 90%).

	Analytes only				Final model (Analytes + covariates)			
	Sensitivity				Sensitivity			
FPR	Interval I	Interval II	Interval III	Intervals I -III	Interval I	Interval II	Interval III	Intervals I -III
20%	69%	67%	67%	72%	83%	86%	89%	89%
15%	63%	63%	64%	67%	80%	86%	89%	77%
10%	57%	55%	58%	61%	74%	63%	86%	74%

Interval I (5-13 weeks), Interval II (13.1-20 weeks) and Interval III (20.1-25.9 weeks)

Examples of biomarkers selected for inclusion in the final model were: von Willebrand factor, placental growth factor, alpha-fetoprotein, interleukin-16, and apolipoprotein C.

Conclusion: Preterm PE can be identified in early gestation with a combination of multiple biochemical markers (involved in coagulation, angiogenesis, feto-placental function, chemotaxis and acute phase protein reactants) with a high degree of sensitivity (86%) and a false-positive rate of 10%. Such observations are important, because these patients may benefit from aspirin or other interventions.

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004 | ORAL | Fetal growth restriction

BIOMARKERS IDENTIFY MOTHERS WITH SMALL FOR GESTATIONAL AGE FETUSES WHO WILL DEVELOP PREECLAMPSIA OR REQUIRE AN INDICATED EARLY PRETERM DELIVERY

Chaiworapongsa T, MD[1,2], Whitten AE, MD[1,2], Romero R, MD, D Med Sci[1], Korzeniewski SJ, PhD [1,2], Schwartz A, MPH[1,2], Chaemsaithong P, MD[1,2], Miranda J, MD[1,2], Dong Z, PhD[1], Hernandez-Andrade E, MD, PhD[1,2], Hassan SS, MD[1,2], Yeo L, MD[1,2]

1Perinatology Research Branch, NICHD, NIH, DHHS, Detroit, MI, and Bethesda, Maryland, USA

2Department of Obstetrics and Gynecology, Wayne State University, Detroit, MI, USA

Abstract:

Objective: To determine whether a set of biomarkers easily measured in maternal blood in pregnancies with SGA fetuses can identify the mother who will develop preeclampsia (PE) or require an indicated preterm delivery < 34 weeks.

Methods: A prospective cohort study was conducted of singleton gestations diagnosed with SGA (estimated fetal weight <10th centile) between 24 and 34 weeks (n=314). Plasma concentrations of soluble vascular endothelial growth factor receptor-1 (sVEGFR-1), soluble endoglin (sEng), and placental growth factor (PlGF) were determined in maternal plasma obtained at the time of diagnosis. Doppler velocimetry of the umbilical (Umb) and uterine (UT) arteries were performed. Analysis included logistic regression. Doppler pulsatility index (PI) z-scores, and adverse pregnancy outcomes including subsequent development of PE and indicated preterm delivery < 34 weeks of gestation was recorded. The area under the ROC curve (AUC) was compared among predictive models using clinical factors, biochemical markers, Doppler z-scores, or the combination of the three.

Results: 1) The prevalence of PE and indicated preterm delivery was 7.3% (n=23) and 12.4% (n=39), respectively; 2) women with an abnormal plasma MoM concentrations of angiogenic/anti-angiogenic factors were 7-14 times more likely to develop PE and 6-8 times more likely to require preterm delivery < 34 weeks of gestation than those with normal MoM concentrations; 3) holding both UT and Umb z-scores constant, each biochemical marker MoM remained significantly associated with PE, and a subset of markers (sEng and sVEGFR-1) remained significantly associated with indicated delivery at < 34 weeks of gestation; 4) each biochemical marker MoM and UT z-score achieved a significantly larger AUC than clinical factors alone (parity, history of PE, body mass index and age) for the identification of women who subsequently developed PE (AUC: 0.63 vs. 0.79-0.89; each $p<0.05$) or an indicated preterm delivery <34 weeks of gestation (AUC: 0.57 vs. 0.76-0.85; each $p<0.05$); and 5) the addition of each biochemical marker (except sVEGFR-1) to the Umb z-score significantly increased the AUC from 0.66 to 0.79-0.89 in identifying patients who would develop PE and the addition of PlGF, sEng or PlGF/sEng ratio significantly increased the AUC from 0.69 to 0.83-0.85 in identifying those who underwent indicated delivery at < 34 weeks compared to the Umb z-score alone (each $p<0.05$).

Conclusion: Identification of the mother who will develop preeclampsia or who will require early preterm delivery because of maternal and/or fetal indications is possible with a set of biomarkers which can be readily measured in maternal blood. This has practical consequences for obstetrical management and monitoring of mothers with SGA fetuses.

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005 | ORAL | New devices

A LONGITUDINAL STUDY OF FETUIN-A, THE MOST ABUNDANT PROTEIN IN FETAL BLOOD: CHANGES PRECEDE THE ONSET OF PREECLAMPSIA

Chaemsaithong P, MD[1,2], Chaiworapongsa T, MD[1,2], Romero R, MD, D Med Sci[1], Tarca AL[1,3], Miranda J, MD[1,2], Dong Z, PhD[1], Hernandez-Andrade E, MD, PhD[1,2], Hassan SS, MD[1,2], Yeo L, MD[1,2]
1Perinatology Research Branch, NICHD, NIH, DHHS, Detroit, MI, and Bethesda, Maryland, USA
2Department of Obstetrics and Gynecology, Wayne State University, Detroit, MI, USA
3Department of Computer Science, Wayne State University, Detroit, MI, USA

Abstract:
Objective: Fetuin-A is a negative acute phase protein reactant which protects against lethal systemic inflammation, and has been proposed to inhibit trophoblast invasion in preeclampsia (PE). The objective of this study was to determine if the profile (changes as a function of gestational age) of maternal plasma concentration of fetuin-A in patients with PE differs from that of women with uncomplicated pregnancies.

Method: This longitudinal nested case-control study included 200 singleton pregnancies in the following groups: 1) patients with an uncomplicated pregnancy who delivered neonates with appropriate weight for gestational age (n = 160); and 2) patients who developed PE (n = 40). PE was further classified based on gestational age at delivery into preterm (< 37 weeks) (n=14) and term (>37 weeks) (n=26) sub-groups. Longitudinal samples were collected at each prenatal visit, scheduled at 2-4 week intervals from the first or early second trimester until delivery. Plasma concentrations of fetuin-A were determined by ELISA. Linear mixed effects models were used for analysis.

Results: 1) The profile of plasma fetuin-A concentration differed among study groups, best described by a quadratic function among uncomplicated pregnant women, and by a 3rd degree polynomial function among women who developed PE; 2) Significantly lower maternal plasma fetuin-A concentrations than in uncomplicated pregnancies were observed prior to the clinical diagnosis of PE; and 3) women with term PE had a significantly lower mean plasma fetuin-A concentration than in those with uncomplicated pregnancies after 35 weeks of gestation onwards ($p<0.001$) (Figure).

Conclusion: Maternal plasma fetuin-A concentrations are significantly lower in women who subsequently develop PE. This is the first report of the most abundant protein in fetal blood studied longitudinally in normal and abnormal pregnancy.

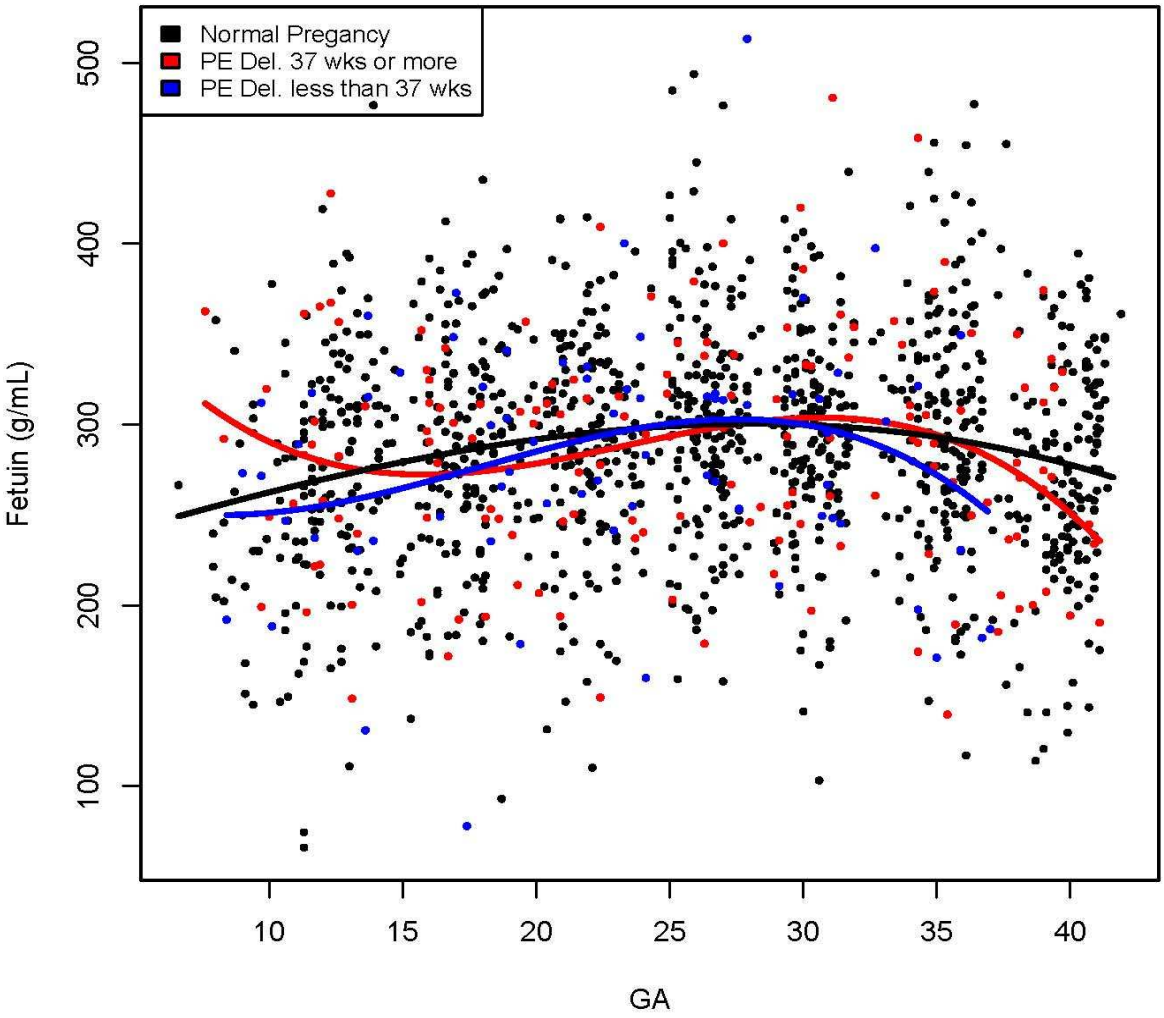

Figure: Maternal plasma concentration of fetuin-A in patients with uncomplicated pregnancies (black), preterm preeclampsia (blue) and those with term preeclampsia (red).

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137 | ORAL | Proven Strategies to Improve Outcome

IMPACT OF INCREASED UTILIZATION OF ANEUPLOIDY SCREENING ON GENETIC INVASIVE TESTS: THIRTEEN-YEAR EXPERIENCE IN A SOUTHERN EUROPEAN COUNTRY

C. Comas; MA. Rodríguez, M. Echevarria, I. Rodríguez, B. Serra.
Fetal Medicine Unit. Department of Obstetrics and Gynecology. Institut Dexeus. Barcelona

Abstract:
BACKGROUND: Invasive prenatal diagnosis is done to detect fetuses with chromosome abnormalities (CA). However, invasive prenatal tests imply a risk of pregnancy loss of 0.5-1%. Therefore, attempts have been done to screen those women at an increased risk of fetal CA, primarily Down's syndrome (DS). Early aneuploidy screening programs are available for our population since 2003. OBJECTIVE: To evaluate the effect of the introduction of the early aneuploidy screening program on the number of genetic invasive procedures referral to our institution. METHODS: Descriptive study of referrals for DS screening and genetic invasive procedures (amniocentesis and chorionic villus sampling -CVS-) in a single private reference center. Data from all consecutive cases since 1999 to 2011 were analysed. Second trimester screening for DS was carried out by AFP and ß-hCG at 14-18 gestational weeks. From 2003 onwards, early combined screening for DS was carried out at 11+0 to 13+6 gestational weeks, including maternal age, biochemistry (free ß-hCG and PAPP-A) and nuchal translucency. Our healthcare guidelines have traditionally recommended early screening under 35, but this cut-off has been progressively moved to 38 and recently to all population. To compare the historical evolution of proportions a Chi-square test for trend was used. RESULTS: A total of 24226 screening and 11045 invasive procedures have been analyzed. Overall, detection rate by early screening program was 89,9% for a false-positive rate of 6,2%. Over a 13-year period, utilization of non-invasive screening methods has significantly increased from 57% to 89% ($p<0.0001$). The percentage of invasive procedures has declined from 49% to 12% ($p<0.0001$), although the percentage of tests performed for maternal anxiety has increased from 22% to 55% ($p<0.0001$)(Figure 1). The proportion of CVS has progressively increased from 3% to 13% ($p<0.0001$) (Figure 2). The percentage of CA detected increased from 2,5% to 5,9% ($p<0.0001$) (Figure 3). The evolution of indications for cytogenetic study is shown in Figure 4. CONCLUSIONS: This is the biggest experience of screening and invasive prenatal diagnostic practice in Spain. Our prenatal strategy through a 13 years period currently shows: 1. An optimal DS screening uptake; 2. A 50% decrease in number of invasive procedures, with a parallel decline in medical indications; 3. An optimal DS detection (despite the significant decrease in invasive procedures); 4. A shift towards an earlier diagnosis, as a result of increasing the CVS practice; 5. Despite of the expanding screening policies, maternal anxiety remains one of the main referral indications for prenatal invasive test.

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153 | ORAL | Developmental Origins of Adult Diseases

PERINATAL MANAGEMENT OF CONGENITAL HEART DISEASE IN NOVA SCOTIA: A 20 YEAR RETROSPECTIVE ON SURVIVAL AND OUTCOMES

Paul D'Alessandro; K. Jangaard (1)

(1) Department of Paediatrics, Division of Neonatal-Perinatal Medicine, Dalhousie University, Halifax, Nova Scotia, Canada

Abstract:

Introduction/Background: Effective antenatal diagnosis of congenital heart disease can direct perinatal management and improve outcomes in certain conditions. Our aims were to examine antenatal detection rates for hypoplastic left heart syndrome (HLHS), transposition of the great arteries (TGA), and tetralogy of Fallot (TOF) among live births at our tertiary care centre, and measure outcomes in infants with antenatal diagnoses. We hypothesized high, moderate, and low detection rates for HLHS, TOF, and TGA respectively. Methods: Charts for live births between July 1989 and December 2010 were identified from the Nova Scotia Atlee Perinatal Database and reviewed retrospectively. Stillbirths and infants with extra-cardiac abnormalities were excluded. Results: Of the 215,618 live births in Nova Scotia during this time, 23 infants were born with HLHS, 25 with TGA, and 40 with TOF. The rates of antenatal diagnosis of HLHS, TOF, and TGA among live births were 57.7%, 60.0%, and 68.9%, respectively. The number of HLHS live births declined to zero by 2008. 1 year survival for all infants born with HLHS was 0, regardless of timing of diagnosis. A prenatal diagnosis of TOF was not associated with increased survival or decreased morbidity. A prenatal diagnosis of TGA was associated with significantly shorter time to NICU admission (1.1h vs. 29.5h, $p<0.03$). There were no significant differences between maternal or neonatal factors between cohorts. The commonest morbidities at most recent follow-up were ADHD and behavioural difficulties. Conclusions: The low incidence of antenatal HLHS diagnosis with a decline in HLHS live births suggests an increase in terminations. Incidence and benefit of antenatal diagnosis of TOF remains moderate. Preliminary data suggests that antenatally diagnosed infants born with TGA receive definitive management faster. Further review of TGA outcomes is pending. The notable incidence of ADHD could reflect latent hypoxic sequelae or chronic disease-related psychosocial issues.

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159 | ORAL | Proven Strategies to Improve Outcome

ROLE OF STANDARDIZED PARENTERAL NUTRITION BAGS FOR NEONATES

Leow Yumei Cynthia Leow; CC Oh (1), SL Neo (1), MC Chua (2)
(1) KK Women's and Children's Hospital, Department of Pharmacy (2) KK Women's and Children's Hospital, Department of Neonatology

Abstract:
Introduction Studies have suggested starting premature neonates on parenteral nutrition (PN) right after birth may result in better nutritional status. This study aim to determine if standardized parenteral nutrition results in more efficient and accurate ordering of PN and optimization of nutritional intake in premature neonates born at the institution as opposed to use of customized PN. Methods A single center, non-randomized, historically controlled observational study was carried out comparing 30 and 38 neonates on customized and standardized PN respectively. Data on the nutritional status of the neonates on standardized PN was collected from end November 2010 to January 2011. This was compared and evaluated against corresponding data from a group of neonates who were on customized PN during their hospital stay between July to September 2010. Mean number of interventions per month and number of starter bags prepared and wasted was also monitored. Subjects included in this study were neonates admitted to the Neonatal Intensive Care Unit during the abovementioned periods, were born at gestational age = 33 weeks, weighed = 1500g at birth and received = 5 days of PN. Neonates with severe co-morbidities or terminal conditions, major congenital malformations, gut pathology and malformations and/or genetic and chromosomal abnormalities were excluded. Other subjects excluded were those who passed away before completing their first course of PN or whose first course of PN had an overlap of both standardized and customized PN. Results Neonates on standardized PN had higher amino acid and calorie intakes from Day 1 to 3 of life but this trend was not sustainable. Nevertheless, subjects on standardized PN were able to initiate enteral feeds 1.4 days earlier on average and also required fewer combination drips over their first course of PN compared to subjects on customized PN. Eventually however, the differences did not translate to a significant difference in weight gain between the 2 groups at the last day of PN or Day 14 of PN (whichever earlier). Mean number of interventions made to PN orders each month after implementation of standardized PN decreased tremendously from 114.3 interventions per month to 5.7 interventions per month. Mean of 33 starter bags were prepared each month and on average, 4.3 bags were wasted each month. Conclusion To limit growth failure, PN with high protein content should be commenced on Day 1 of life and this may be achieved through the use of starter PN bags. Parenteral lipid should also be graded up in a quicker manner to ensure that preterm neonates obtain optimal calories from birth as this may translate to optimal catch-up growth and neurodevelopment. Total amino acid and calorie intake from both parenteral and enteral sources for neonates on standardized PN could be monitored so as to better evaluate if there is a need to increase the calorie and amino acid content of our existing maintenance bags or introduce new maintenance bags with higher calorie and amino acid contents to further optimize the nutrition of VLBW and ELBW neonate patients on PN in our institution.

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186 | ORAL | Prematurity

CERVICAL PESSARY FOR SHORT CERVICAL LENGTH IN THE MID-TRIMESTER

George Daskalakis; D. Zaharakis, N. Papantoniou, E. Domali, M. Theodora, S. Mesogitis, A. Antsaklis

1st Department of Obstetrics and Gynecology, Athens University, Athens, Greece

Abstract:

Aim: To identify the outcome of pregnancies with a short cervical length in the second trimester, following an Arabin pessary placement. Methods: Prospective randomized study. All cases with a short cervix (<25 mm) were eligible to participate in the study. The gestational age should be between 18 and 25 weeks. The cervical length was measured with a transvaginal ultrasound scan usually in the same time of the second trimester anomaly scan. All women were re-evaluated by the same operator (D. Z.) in order to confirm the eligibility criteria. The group A consisted of women with a short cervix who were randomized to cervical pessary, while the group B consisted of women with a short cervix who had bi-weekly ultrasonographic cervical assessment. All women received 200 mg transvaginal progesterone capsules from the time of randomization until the 34 completed weeks. Exclusion criteria were the presence of ruptured membranes, a fetal growth restriction or fetal congenital anomalies. The pessary was removed at 37 weeks or earlier in cases of onset of labor, premature rupture of membranes, vaginal bleeding or medically indicated labor induction or elective cesarean section. Results: The group A consisted of 52 singleton and 8 twin pregnancies, while the group B of 46 singleton and 7 twin pregnancies. The gestational age at randomization was 24+1 weeks and 23+2 weeks for group A and B respectively, while the median cervical length for group A was 13.88 mm and for group B was 15.1 mm. For singleton pregnancies in the group A, the preterm delivery rate before 37 weeks was 25% and before 34 weeks was 5.7%, while in the group B the corresponding numbers were 32.6% and 13%.For twins the preterm delivery rate before 37 and 34 weeks was 75%, 12.5% and 71.4%, 28.6% for group A and B respectively. The mean birth weight and the rate of NICU admission was 2420 g and 23.3% for group A and 2180 g and 30.2% for group B. Conclusion: The rate of preterm delivery was lower in the pessary group.This suggests that the pessary may have a value as a treatment for women with a mid-trimester short cervix.

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191 | ORAL | Effect of Progesterone on prostaglandins receptor expression

EVALUATION OF PROSTAGLANDIN F2A RECEPTOR (PTGFR) SUPPRESSOR IN HUMAN DECIDUA CELLS

Shintaro associate professor; Hitomi Okabe MD (1), Kiyoko Kato Prof. (1), Kikumi Matsuoka Ms. (2), Hiroyuki Seki Prof. (2), Satoru Takeda Prof. (1)

(1) Juntendo Unoversity School of Medicine, Obstetrics and Gynecology (2) Saitama Medical Center, Obstetrics and Gynecology

Abstract:

ABSTRACT Introduction: In the present study, to confirm Prostaglandin F2a receptor (PTGFR) suppressor in human decidua cells, we investigated the effects of cytokines and progesterone(PG) on the levels of Prostaglandin-endoperoxide synthase 2 (PTGS-2) and PTGFR as well as the induction of senescence in the primary cultured human decidual cells treated with interleukin(IL)-1ß as a preterm labor model. Methods: We investigated in vitro treatment of decidual cells with IL-1ß(5ng/ml). Microarray, real time RT-PCR, Western Blot, and SA-ß-gal staining were performed. Results: Microarray analysis showed nuclear factor-kappa B (NF?-B) to be a key factor in decidua treated with IL-1ß. In the decidual cells treated with IL-1ß, the levels of PTGS-2, PTGFR , Nuclear factor-kappa B (NF?-B), IL-17 and IL-8 mRNA were increased as compared to the cells treated with vehicle. In contrast, PG(10-6M) + IL-1ß inhibited the expressions of all of these genes as compared to treatment with IL-1ß alone($p<0.05$). The proportion of SA-ß-gal positive cells was higher among those treated with IL-1ß than in cells treated with vehicle. The p21 protein level was increased in the cells treated with IL-1ß as compared to those in the cells treated with vehicle and PG. Neither the p21 protein level nor SA-ß-gal positive cells were increased in normal endometrial glandular cells ($p<0.05$). Discussion: The present investigation has demonstrated that the NF?-B pathway may act in human premature delivery. On the view of IL-8 mRNA expression which was most significantly reduced by treatment with IL-1ß + PG, IL-8 was thought to be a target for prevention of preterm birth and should investigated further. Conclusions: The differences in the profiles of up-regulated genes between IL-1ß and IL-1ß + PG treatment suggest that PG changes the suppression of genes favoring an anti-inflammatory milieu. Keywords: IL-1ß, NF?-B, PTGS-2 (COX-2), progesterone (PG) , IL-8

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205 | ORAL | Emergencies at Birth

PROBIOTICS FOR PRETERM PREMATURE RUPTURE OF MEMBRANES

Alexis Karampelas; Daskalakis G. (1), Papantoniou N. (1), Gavrili V. (2), Mesogitis S. (1), Angelopoulos P. (3), Antsaklis A. (1)

1.First Department of Obstetrics and Gynecology, University of Athens, Alexandra Hospital, Athens, Greece. 2.Department of Neonatal Medicine, Alexandra General Hospital Athens, Greece. 3.Department of Mathematics, National Technical University of Athens, Zografou, Greece

Abstract:

AIM: Preterm premature rupture of membranes (PPROM) is an obstetrical complication with high neonatal morbidity and mortality. Its occurrence is 2-4% of pregnancies and it is responsible for about 1/3 of preterm deliverie. Probiotics and their certain Strain of commensal lactobacilli can safely colonize vagina after vaginal administration, displace and kill pathogens and modulate the immune response that cascade inflammatory reaction leading to preterm delivery. The aim of this study was to evaluate the perinatal outcome in singleton pregnancies with PPROM following vaginal administration of probiotic suppositories. METHODS: This is an ongoing double blind study in pregnant patients with confirmed PPROM between 24th and 34th week of gestation. All singleton pregnancies were treated with prophylactic antibiotics and antenatal corticosteroids from their admission. The probiotics group received simultaneous treatment with vaginal probiotics for ten days. All patients gave a signed informed consent form prior to the study. The primary outcome was time to delivery interval (latency period). Infant outcomes included mortality, infection, respiratory disease, and neonatal recovery. RESULTS: So far, a total of 93 cases of singleton pregnant women were analyzed (control group n=51, probiotics group n=42).The mean gestational age of PPROM was 35 weeks for the study and 34 weeks for the control group, respectively. The mean latency period in the study group was significantly longer than in the control group (5.05 vs. 3.03 weeks p=0.015). The mean infant weight was higher for the study group (2186 vs 2081 gr. p=0.53). The Neonatal Intensive Care Unit (NICU) admission rate was higher in the control (63%), than in the study group (35.9%) (p=0.01). The average duration of recovery was 21 days for the probiotics group and 17 for the study group (p=0.56), while the mean mechanical ventilation time (SIMV and NCPAP) was 8.1 days for the study and 6.9 days for the control group (p-0.7). Five infants of the study and 3 of the control group developed BPD syndrome, while 2 infants of each group died in the early neonatal period, mainly due to septicemia and severe respiratory insufficiency. CONCLUSIONS: Vaginal administration of probiotics in singleton pregnancies complicated with PPROM seems promising. It was associated with a longer latency period and a reduction in the mean NICU admission rate. These are the preliminary results of an ongoing study with the final results awaited in about two years.

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227 | ORAL | Developmental Origins of Adult Diseases

POLYMERS REVERSE INACTIVATION OF SURFACTANT(KELISU)INDUCED BY PLASMA

Xiaozhuang Gan; Lifeng Hou (1), Liping Sun (2), Shenghuan Dong (2), Guowei Song (2)
(1) Capital Institute of Pediatrics, NICU; (2) Capital Institute of Pediatrics, Respiratory Function Laboratory

Abstract:
Objective: Pulmonary surfactant (PS) has the ability to reduce surface tension ,improve lung oxygenation . A variety of substances including plasma has been found to affect adversely the surface tension-lowering activity of PS, and this effect may be important in pathogeneses of a number of human diseases such as acute lung injury(ALI), acute respiratory distress syndrome (ARDS), neonatal respiratory distress syndrome (NRDS) and meconium aspiration syndrome (MAS). Plasma protein may leak into the alveolar space , increase vascular permeability, inhibit PS activity and make it dysfunction.Surfactant preparations used for ALI/ARDS should be relatively resistant to inactivity . Our objective was to verify whether plasma-induced surfactant inactivation may be prevented or reduced by polymers. Methods: We measured the maximum surface tension (?max) and minimum surface tension (?min) of nonionic polymer dextran,polyethylene glycol(PEG),ionic polymer hyaluronan(HA), PS (Kelisu), plasma and their mixtures by captive bubble surfactometer , respectively. Their stability index (S.I.) was calculated. Results: The ?min of the different polymers, plasma and their mixtures were more than 10mN/m and the S.I. were less than 0.8. The ?min and S.I. of Kelisu (0.84mg/mL) were 1.78±0.03mN/m and 1.71±0.01, respectively. Different of polymers significantly enhanced the ability of Kelisu to lower the ?min and increase S.I. in presence of plasma.The ?min and S.I. of Kelisu mixed with 1%,2%,3% plasma were 21.96±0.15(mN/m),22.31±0.34 and 28.02±1.36;0.14±0.03, 0.12±0.01 and 0.36±0.03, respectively. When mixed with 5% PEG,5% Dextran or 0.25% HA, the ?min decreased to 1.60±0.04 (mN/m),1.35±0.06,18.66±0.73;1.13±0.01,1.28±0.01,16.68±0.31 and 1.16±0.01,1.22±0.01,1.23±0.01,respectively, and the S.I. were 1.76±0.01, 1.77±0.01,0.31±0.03;1.82±0.01,1.80±0.00,0.46±0.03 and 1.82±0.01,1.81±0.00, 1.81±0.01,respectively. The similar effect were seen when different concentrations of polymers with Kelisu and plasma.The ?min of PEG(0%?2.5%?5%?10%)+ PS +plasma(2%) group were 22.32±0.34(mN/m),1.09±0.01,1.35±0.06,0.96±0.02, respectively;the ?min of Dextran(0%?2.5%?5%?10%)+ PS +plasma group were 22.32±0.34 (mN/m),2.03±0.04,1.28±0.01,1.10±0.09, respectively;the ?min of HA(0%?0.125%?0.25%?0.5%)+ PS + plasma group were 22.32±0.34 (mN/m),9.60±0.20,1.22±0.01,0.92±0.01, respectively. Conclusions: The PS (Kelisu) made in China has good ability to reduce the surface tension. Nonionic and ionic polymers are capable of reversing inactivation of surfactant induced by plasma in vitro. The data suggests that HA be more effective than PEG and Dextran when mixed with Kelisu.

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240 | ORAL | Asphyxia

TRANSPLACENTAL CORTICOSTEROID THERAPY AND PARAMETERS OF VENOUS CIRCULATION IN HYPOAXAEMIC FOETUSES

Ivana Babovic; S.PleÅ¡inac (1), I.Pilic (2), D.Kocijancic (2), N.Radunovic (1)

1 School of Medicine,University of Belgrade 2 Clinica for Gynecology and Obstetrics, Clinical Center of Serbia

Abstract:

Introduction The influence of glucocorticosteroid therapy on foetal lung maturation is evident, but little is known about its effects on parameters of foetal venous circulation.The aim of the study was to assess the influence of transplacental foetal corticosteroid therapy(CST) on parameters of foetal venous circulation which indicates a degree of foetal hypoxia. Method The prospectiove study was conducted at the Clinica for Gynaecology and Obstetrics during two years (2010-2011).We evaluated the influence of transplacental CST (Dexamethasone 6mg/12h two days)on foetal ductus venosus (DV) and vena cava inferior (VCI) velocities in 52 foetuses 24h before the first and the after the last dose. Results There is positive correlation with the statistical significance in systolic/diastolic ratio (S/D) in DV before and after the CST r=0.373;p=0.018 Reverse flow during contraction of the right atrium in DV was found in 58.2% of foetuses after CST.Reverse flow during the contraction of the right atrium in VCI was found in five foetuses before CST and in seven foetuses after CST.There is positive correlation without statistical significance between the vena cava pre-load indices before and after CST (r=0.130;p=0.428) We found positive correlation with the ststistical significance between systolic flow in VCI before and after CST (r=0.487;p= 0.002) Conclusion Corticosteroid therapy influences parameters of foetal venous circulation.Its influence is determinated by duration of fetal hypoxia.The parameters of foetal venous circulation can be a predictor of perinatal outcome.

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268 | ORAL | Asphyxia

CORD BLOOD BRAIN DERIVED NEUROTROPHIC FACTOR: DIAGNOSTIC AND PROGNOSTIC MARKER IN FULLTERM NEWBORNS WITH PERINATAL ASPHYXIA

Shereen Atef; Safaa S. IMAM (1), Ghada I. GAD and Mohamed A. SHAWKY1

1)Department of Pediatric, 2)Department of Clinical Pathology, Ain Shams University, Abbasiah, Cairo, Egypt

Abstract:

Backgrounds: This prospective case control study was designed to evaluate cord blood brain derived neurotrophic factor level in full term newborns with perinatal asphyxia as a marker of central nervous system insult and predictor of severity of hypoxic ischemic encephalopathy, with follow up of its level during the reperfusion phase. Material and Methods: The study included twenty fullterm neonates with perinatal asphyxia (cases) and twenty controls. Cord blood samples were obtained at birth and peripheral blood samples at 72 h postnatal from cases only. Plasma brain derived neurotrophic factor level was measured using enzyme linked immunosorbent assay. The clinical severity of encephalopathy was graded based on Sarnat and Sarnat staging. Results: Cord Plasma brain derived neurotrophic factor level was significantly increased among cases compared to controls. Among cases, brain derived neurotrophic factor level at delivery and after 72 h significantly correlated with the severity of encephalopathy according to Sarnat staging being higher as severity increases. Brain derived neurotrophic factor level significantly increased after 72 h of life compared to its level at delivery among cases. Brain derived neurotrophic factor levels at delivery and at 72 h postnatal were predictors of severe Sarnat stage and poor outcome. Conclusion: We concluded that brain derived neurotrophic factor level as a marker of central nervous system insult is increased in full term newborns with perinatal asphyxia. It can serve as an indicator for the severity of encephalopathy and adverse outcomes.

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271 | ORAL | The Determination of Pregnancy Results and Type of Birth using Fetal Renal Artery Doppler Values in Idiopathic Oligohydramnios and Polyhydramnios Pregnancies

THE DETERMINATION OF PREGNANCY RESULTS AND TYPE OF BIRTH USING FETAL RENAL ARTERY DOPPLER VALUES IN IDIOPATHIC OLIGOHYDRAMNIOS AND POLYHYDRAMNIOS PREGNANCIES

Ibrahim Akin; Ahmet Uysal (1), Fatma Uysal (2), Özgür Öztekin (2), Muzaffer Sanci (1), Çigdem Ispahi (1)

(1) MH Aegean Maternity and Teaching Hospital, Obstetrics and Gynecology (2) MH Aegean Maternity and Teaching Hospital, Radiology

Abstract:

Abstract: Aims: To research the determination of pregnancy results using fetal renal artery Doppler values in idiopathic oligo-polyhydramnios pregnancies. Materials-Method: A total of 110 pregnancies with fetal distress within normal parameters were included in the study; 31 idiopathic oligohydramnios, 29 idiopathic polyhydramnios and a control group of 50 normal pregnancies. All patients in the groups were subject to Doppler investigation of umbilical artery (UA), middle cerebral artery (MCA), fetal descendant thoracic aorta (DTA) and fetal renal artery (RA). Fetal RA resistive index (RI) and pulsatile index (PI) values were measured. Values were compared according to type of birth, newborn weight and APGAR scores. Results: The average patient age, gravida and week of pregnancy were 25±4, 1.6, and 37.4±1, respectively. There was no statistically significant difference between the groups when UA S/D, MCA S/D, DTA S/D, DTA RI, DTA PI, and RA S/D measurements were compared. However in the oligohydramnios group RA RI and RA PI values were significantly higher than the other two groups. Evaluating within the groups, birth weight in the polyhydramnios group and cesarean section due to fetal distress in the oligohydramnios group were significantly high. Conclusion: In the oligohydramnios group, without affecting fetal distress parameters, Doppler USG evaluation identified an increase in renal artery resistance. Again in this group, cesarean rate due to fetal distress during labor was significantly higher than in the other two groups. This situation appears to be an important indicator for predicting perinatal mortality and morbidity.

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274 | ORAL | Emergencies at Birth

FETAL BRAIN INJURY RISK FACTORS AND MRI FINDINGS ASSOCIATED WITH LONG-TERM NEURODEVELOPMENTAL IMPAIRMENT

Vladimir Banovic; Snjezana Skrablin, Maja Banovic,Marko Rados, Ivan Babic
Medical School University of Zagreb; Dept.of Obstetrics and Gynecology Zagreb; Medical School University of Zagreb; Dept. of Radiology

Abstract:
Objective: To determine the incidence of fetal brain injury with fetal brain MRI in pregnancies complicated with preterm labor (PL), preterm premature rupture of the membranes (PPROM) and intrauterine growth restriction (IUGR). To correlate the results of fetal brain MRI with conventional antenatal surveillance methods, criteria of immediate and long-term neurodevelopmental outcome. Methods: The study analyzed 70 high-risk pregnancies with fetal brain MRI, complicated with PPROM, IUGR and PL. MRI was performed once using 1.5 T (Tesla) MRI after 24 weeks of gestation. Long-term neonatal outcome included a two-year neurodevelopmental follow-up by pediatric neurologist. Results: Abnormal fetal brain MRI was found in 40% of high-risk pregnancies. The highest incidence of abnormal fetal brain MRI was in the PL group. There was no relation of abnormal MRI finding and conventional fetal surveillance methods (ultrasound, Doppler blood flow analysis, CTG, biophysical profile) or immediate neonatal outcome (1. minute Apgar score, umbilical cord pH). Antenatal brain injury was diagnosed using the prenatal MRI in 46% of children with long-term neurodevelopmental handicap. Binary logistic regression proved fetal brain MRI, compared to other surveillance methods, as the best predictor for long-term neurodevelopmental disability. Conclusions: Abnormal fetal brain MRI in high-risk pregnancies is predictive for long-term neurodevelopmental impairment
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277 | ORAL | Prematurity

GENOME DNA METHYLATION IN PRETERM INFANTS.

Elena Volianiuk; Asiya Safina (1)
(1) Kazan State Medical Academy

Abstract:
The aim of our study was to monitor DNA methylation in the blood cells in preterm infants being under the mechanical ventilation. Separation of fragmented genome DNA was performed in 1% agarose gel. Densitometric analysis was performed using TotalLab software (v.2.01). We observed 90 premature infants, with 27 of them - on mechanical ventilation, 42 - after respiratory therapy and 21 - without use of mechanical ventilation. Gestation period of preterms was within 28-35 weeks, and for 88.5% of infants it was less than 34 weeks. Body weight of newborns ranged from 1120 to 2380 grams, for 65.5% of children the weight was less than 1500 grams. We found that total genomic DNA methylation was significantly reduced in preterm infants, as for under the respiratory therapy, and for babies after its completion (55.4 ± 4.4% and 53.8 ± 5.7%, respectively) compared with infants who did not required mechanical ventilation (88.85%).Thus, oxidative stress under the respiratory therapy affects the level of total DNA methylation. It seems very promising to the study further the parameters of oxidative stress in conjunction with the studying the methylation of the genes coding antioxidant enzymes, which are pathogenetically important factors in the development of bronchopulmonary complications in preterm infants.

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278 | ORAL | Elastography

CERVICAL ULTRASOUND ELASTOGRAPHY MAY HOLD POTENTIAL TO PREDICT RISK OF PRETERM BIRTH

Khalil Mohammed Rohi; Poul Thorsen (1); Niels Uldbjerg (2)

1) Department of Obstetrics and Gynaecology, Lillebælt Hospital, Kolding 2) Department of Obstetrics and Gynaecology, Aarhus University Hospital

Abstract:

Abstract Introduction: Freehand ultrasound real-time elastog¬raphy (RTE) is a simple technique allowing direct visualization of the elastogramme superimposed on the B-mode ¬image. The objective of RTE is to investigate stiffness and related parameters such as local tissue strain with a view to adding new information related to tissue morphology and architecture. Material and methods: This was a pilot study in 12 healthy pregnant women who underwent transvaginal ultrasound. The RTE (Hitachi) information was colour-coded and superimposed on the B-mode scan. Elastography images were analyzed by means of a software tool to identify thresholds for the colours red (soft), green (medium hard) and blue (hard). The cervical strain rate was measured in three different parts. Additional information obtained included age of gestation, number of pregnancies and deli¬v¬eries, previous preterm births and gestational age at deli¬very in current pregnancy. Results: The softness of cervix increases towards portio. Within the colour spectrum, green was predominant. Strain ratio can be used as a comparative index among different subjects rather than as an absolute strain measurement. Conclusion: The elastographic image allowed for easy correlation between colour distribution and the anatomical structures as it is superimposed on the B-mode image. The elasticity of the cervix increases towards portio.

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291 | ORAL | Prematurity

PERINATAL OUTCOMES IN PREGNANCIES FOLLOWING ASSISTED REPRODUCTIVE TECHNOLOGIES. RUSSIAN EXPERIENCE.

Natalia Aleksandrova; Oleg Baev Dmitrii Degtyarev
Research Center for Obstetrics, Gynecology and Perinatology Ministry of Healthcare and Social Development of the Russian Federation

Abstract:
Objective: to evaluate perinatal outcomes in pregnancies following assisted reproductive technologies. Design: prospective study. Main outcome measures: very preterm birth, preterm birth, very low birth weight, low birth weight, small for gestational age, caesarean section, admission to neonatal intensive care unit, and perinatal mortality, minor congenital malformations, congenital malformation. Material and methods: study group consisted of 365 pregnant women following ART (IVF/ICS/EF), among them - 258 women with singleton pregnancy. Control group includes 394 pregnant women after spontaneous conception, with 302 women with singleton pregnancy. Results: total amount of live newborns in study group was 346, in control group - 415. For singletons, mean weight was not significantly less in study group than in control one (3181.1±556.2 gr vs. 3271±542 g, $p<0.05$), as well as for twins (2403.7± 497.5 g vs. 2336.27± 344.8 g, $p>0.05$). Risk for low (< 2500 g) and very low birth weight (< 1500 g) for pregnant woman after ART was 3.00 and 1.28 times higher than spontaneous conception for singletons; 1.25 and 1.5 for twins, respectively. More over for singletons there were rate for admission to a neonatal intensive care unit was 5.6 higher than in pregnancy after spontaneous conception. For singletons, the preterm birth rates for frozen embryo cycles were 20.59% compared with 21.65 and 23.46.3% for fresh IVF/ICSI singletons, the very preterm birth - 3.09, 2.47 and 2.94% ($p>0.05$) correspondingly. For twins, the preterm birth rates were 88.89, 89.29 91.67% (FE/IVF/ICSI), and the very preterm birth - 11.11, 10.71, 8.33% correspondingly ($p>0.05$). For cases with dichorionic twins perinatal outcomes were also better (longer gestation periods, fewer newborns with low and very birth weight and less frequent admission at ICU) regardless of the way of conception (spontaneous conception or ART). The mean duration at INU department for 60% of newborns was not longer than 1 week. The most frequent causes to admission to ICU were: birth asphyxia, neonatal jaundice, intraventricular hemorrhage, respiratory distress. No differences regarding congenital malformation were found for singletons and twins (ventricular septum defect, anus atresia and duodenum atresia). Conclusion. In general, perinatal outcomes of ART pregnancy worse than after spontaneous conception. But there was no difference in the frequency of any congenital malformations after ART pregnancy and spontaneous conception.

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298 | ORAL | Prematurity

COMPARISON OF INTRAMUSCULAR VERSUS VAGINAL PROGESTERONE FOR PREVENTION OF PRETERM BIRTH.

Yun Sook Kim; DongHan Bae
Soonchunhyang University, Obstetrics and Gynecology Department

Abstract:
1. Introdusction: Preterm birth is the leading cause of perinatal mortality and morbidity, and its prevention is an important. Spontaneous preterm labor is most common cause of preterm labor. Many research has shown that the use of progesterone prevent and treat premature uterine contractions. To compare vaginal and intramuscular progesterone administration to prevent preterm labor in women with singleton pregnancies and at increased risk of preterm birth. 2. Patients, Methods: This study was prospective comparative clinical trial. Patients: One hundred pregnant women at 18-24 weeks gestation at the high risk of preterm labor were classified into two groups: 50 women who received micronized progesterone tablets 200?mg vaginally daily (Group A) and 50 women who received 250?mg progesterone intramuscular injection per week (Group B). Methods: Estimation of gestational age, assessment of fetal weight, and transvaginal cervical length examination were done every week until delivery. We checked incidence of preterm delivery, mean gestational age, and the incidence of adverse events of intramuscular versus vaginal route of progesterone administration. 3. Results: The incidence of preterm delivery was statistically insignificant in both groups. In addition, the rate of adverse events reported in women received injectable progesterone was significantly higher than the rate of adverse events reported in women who received vaginal progesterone therapy. 4. Conclusion: Transvaginal progesterone was as equally effective as intramuscular progesterone in the prevention of PTL in women at the high risk of preterm birth and less complications. Undesirable complication like uterine spasm in transvaginal progesterone group must be studied further more.

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379 | ORAL | Developmental Origins of Adult Diseases

EFFECT OF MATERNAL PRELOAD ON HEMODYNAMIC IN PATIENTS WITH FETAL GROWTH RESTRICTION

Hong Juan Ding; H Wu, M Chen, XM Liu
Nanjing Maternity and Child Health Hospital, Department of Obstetrics, Nanjing, PR China

Abstract:
Objective To study the changes of some functional variables of antithrombosisv-thrombolysis system and maternal hemodynamic.Then observe the effects in patients with Fetal growth restriction.Methods Using ELISA methods and thrombosis auto-analyzer,some variables were detected in 65 normal late-pregnant women,and 62 FGR patients,which including antithrombin activity(ATIII),fibfinogen(Fbg),plasminogen activity(PLG),activity of tissue-type plasminogen activator (tPA) and plasminogen activator inhibitor(PAI-1),D-dimer.And using noninvasive instrument to check matrix change of hemodynamic. Results 1.Compared with the late-pregnant women,the levels of Fbg?PLG and PAI-1 were obviously higher in FGR women(P<0.05),the levels of ATIII were obviously lower in FGR women(P<0.05),the activities of tPA and D-dimer had no significant changes (P>0.05). 2. the value of SVRI?SVR were obviously higher in FGR women(P<0.05). But HR?CI?CO?SI?SV had no significant changes (P>0.05).Conclusions Most of the FGR women appear in the prethrombus state.And had higher systemic vascular resistance. This study have an important value in the prevention and treatment of FGR, Obviously it can provide reliable theoretic basis for anti-coagulation to treat FGR.

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443 | ORAL | Prematurity

PRETERM PREMATURE RUPTURE OF MEMBRANES BEFORE 32 WEEKS OF GESTATION: MATERNAL & NEONATAL OUTCOME

Aisha Elbareg; Elmahashi Mohamed Omer (1) Essadi Fathi Mohamed (2)
1-Misurata Central Hospital / Misurata University, Obstetrics & Gynaecology Dept 2- Misurata Central Hospital,Obstetrics & Gynaecology Dept

Abstract:
Objective: To evaluate the maternal and neonatal outcome of pregnancies after preterm premature rupture of membranes (PPROM) before 32 weeks of gestation. Design: Retrospective controlled study. Setting: Department of obstetrics & gynaecology at Misurata Teaching Hospital, Misurata, Libya. Subjects and methods: Medical records of 160 patients delivered at Misurata Teaching Hospital after PPROM before 32 weeks of gestation over 3 years from July 2009 to June 2012,were reviewed and divided into 3 groups based on the gestational age at which PPROM occurred as follows: (A: 45) 18-20 weeks, (B: 28) 21-24 weeks and (C: 87) 25-31 weeks. Exclusion criteria used were: patients who delivered within 12 hours of rupture of membranes, chorioamnionitis at time of admission, multiple gestations and fetuses with structural or chromosomal abnormalities. The data were analysed using student's t test or Chi squared test, P< 0.05 was considered to be statistically significant. Results: In A&B groups: the mean latency period was1.2 weeks. The mean gestational age at delivery was 22.7 weeks. Maternal complications: 36% chorioamnionitis, 13% placental abruption, 9% retained placentas, and 11%. postpartum hemorrhage. Infants died shortly after birth 93%,but none borne alive between 18 and 20 weeks. Only 2 infants born at 24 weeks and remained alive after 72 hours. The main prognostic factor was the initial amniotic fluid index (2.7 cm versus 0.5 cm) (P< 0.05). In C group: mean latency period was 14 days and mean gestational age at delivery was 27.8 weeks. The neonatal morbidity rate was significantly higher in neonates whose mothers developed chorioamnionitis (28%) versus those who did not (P< 0.05), compression limb abnormalities occurred in 30%of neonates and lung hypoplasia in 31%. Conclusion: PPROM prior to 24 weeks of gestation was associated with very poor pregnancy outcome. Survival rate improved significantly after 30 weeks.

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444 | ORAL | Prematurity

INTESTINAL MICROBIOTA IN PRETERM NEONATES: ESTABLISHMENT AND DEVELOPMENT.

Gonzalo Solis Sanchez; Nuria Fernández (2), Silvia Arboleya (3), Nuria Salazar(3), Abelardo Margolles (3), Clara G. de los Reyes-Gavilán (3), Miguel Gueimonde (3)

(1) Neonatal Service, Hospital Universitario Central de Asturias, SESPA, Oviedo, Asturias, Spain. (2) Paediatrics Service, Hospital de Cabueñes, SESPA, Gijón, Asturias, Spain. (3) Department of Microbiology and Biochemistry of Dairy Products. Instituto de Productos Lácteos de Asturias (IPLA-CSIC), Villaviciosa, Asturias, Spain

Abstract:

Microbial colonization of the infant gut plays an essential role in the development of newborns. The establishment of the gut microbiota in preterm neonates during the first three months of life was assessed and compared with that of full-term breastfed infants. We assessed the establishment of the gut microbiota and its metabolic activity in preterm neonates (n = 21) during the first 3 months of life and compared it with that of vaginally delivered, exclusively breast-fed full-term infants (n = 20) using qualitative and quantitative culture-independent methods. Microbial composition was determined in faeces by PCR; short chain fatty acids (SCFA) were quantified by Gas-Chromatography-Flame Injection Detector/Mass Spectrometry (GC-FID/MS). Also, we characterized the microbiota of six 10 days-old neonates by deep 16S rRNA gene metagenomic analysis and compare the results with those obtained by qPCR. All techniques allowed clearly differentiating preterm from full-term breastfed infants. Premature infants showed higher levels of facultative anaerobes and lower levels of anaerobes such as Bifidobacterium, Bacteroides and Atopobium as well as lower levels of SCFA during the first days of life. Deep 16S rRNA gene metagenomic analysis and qPCR lead to similar conclusions in the six 10 days-old neonates analised. The deep alterations found in the process of microbiota establishment in preterm infants could be very important in their future development, and indicated the need for intervention strategies.

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446 | ORAL | Impact of cesarean section delivery on intestinal Bifidobacteria and Lactobacillius in newborn babies within the first 3 days after delivery

IMPACT OF CESAREAN SECTION DELIVERY ON INTESTINAL BIFIDOBACTERIA AND LACTOBACILLIUS IN NEWBORN BABIES WITHIN THE FIRST 3 DAYS AFTER DELIVERY

Yu Jialin; Haibo Zhang
Children's Hospital of Chongqing Medical University

Abstract:
Objective:This study was designed to investigate the effect of cesarean section delivery on the development of gut microflora in neonates in the first 3days of life. Methods:Eighty tree cases of healthy formula-fed term infants were enrolled in the study and divided into two group: vaginal delivery group(n=39) and cesarean section delivery group(n=43). The faecal bifidobacteria and lactobacillius of neonates were consecutively quantified by real-time polymerse chain assays during the first 3 days after birth. Results:Bifidobacteria logarithmic absolute value(lg copies/g)of the first three days after birth were 5.65±0.64 ,6.36±1.00 ,6.69±1.06 in cesarean section group respectively and 5.66±0.75,7.19±1.15,7.49±1.29 in vaginal delivery group . Lactobacillius logarithmic absolute value(lg copies/g) of the first three days after birth were 4.66±0.73,4.71±0.84,5.16±0.55 in cesarean section group respectively and 5.88±0.41,6.30±0.99,5.79±0.33 in vaginal delivery group .The above value had statistical difference between group to group in different time ($p<0.005$). Conclusions: Cesarean section decrease significantly the count of primary intestinal bifidobacteria and lactobacillius in formula-fed term infants. Key word: neonate;cesarean section;gut;bifidobacteria; lactobacillius

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458 | ORAL | Emergencies at Birth

A COMPARISON OF CEREBRAL TISSUE OXYGENATION VALUES IN FULL TERM AND PRETERM NEWBORNS BY THE SIMULTANEOUS USE OF AN ABSOLUTE AND A RELATIVE TRENDING NIRS OXIMETERS.

Tomasz Jerzy Szczapa; L. Karpinski (2), J.Moczko (3), M. Weindling (4), A. Kornacka (2), K. Wroblewska (2), A. Adamczak (1), A. Jopek (2), K. Chojnacka (2), J. Gadzinowski (1)
(1) Department of Neonatology, Poznan University of Medical Sciences, Poznan, Poland (2) Department of Neonatal Infectious Diseases, Poznan University of Medical Sciences, Poznan, Poland (3) Department of Computer Science and Statistics, Poznan University of Medical Sciences, Poznan, Poland (4) Department of Women's and Children's Health, University of Liverpool, Liverpool Women's Hospital, Liverpool, United Kingdom

Abstract:
INTRODUCTION/BACKGROUND: Near-infrared spectroscopy (NIRS) is a noninvasive method for monitoring regional tissue oxygenation (StO2), which can be particularly valuable in neonates requiring intensive care. Different techniques of measurement are used in various NIRS devices. The aim of the study was to compare the simultaneous values of cerebral StO2 measured with a 2-wavelength LED-based oximeter and a 4-wavelength laser-based oximeter in term and preterm newborns. PATIENTS, METHODS: StO2 measurements were carried out in clinically stable, spontaneously breathing newborns on the first and third days of life. StO2 values were recorded simultaneously from two NIRS oximeters: FORE-SIGHT laser absolute oximeter and INVOS LED relative trending oximeter. The recording was divided into two 3-hour periods, between which oximeter sensor positions were switched to the contralateral side. Agreement between StO2 values measured simultaneously by both oximeters and repeatability of StO2 measurements before and after the change of sensor position were analyzed using the Bland-Altman method. RESULTS: 15 term and 15 preterm newborns were enrolled in the study. In both groups of babies, mean values of cerebral StO2 recorded by the two devices were similar but the INVOS oximeter recorded a wider range of StO2 with lower minimum values and wider standard deviations. Comparison of StO2 values recorded simultaneously by both monitors revealed relatively good agreement with a bias up to 3.5% and limits of agreement (LOA) up to 13.6%, which is probably acceptable for clinical purposes. In terms of the repeatability of measurements, after switching the sensor position to the opposite side of the forehead, better agreement was found for the FORE-SIGHT monitor (INVOS LOA 13.3%-14.6% vs FORE-SIGHT LOA 7.2%-9.4%). CONCLUSION: Absolute oximeter StO2 values using the FORE-SIGHT device and relative oximeter StO2 values using the INVOS device seem to be comparable in stable newborns. In this study, the FORE-SIGHT monitor showed less variability of recorded StO2 values and closer agreement of StO2 measurements between values recorded before and after changing the NIRS sensor position.

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467 | ORAL | Developmental Origins of Adult Diseases

EFFECTIVENESS OF PREVENTIVE TREATMENT OF PERINATAL HYPOXIC-ISCHEMIC INJURIES OF CENTRAL NERVOUS SYSTEM IN NEWBORN BABIES.

Marina Levkovich; A. Afonin, S.. Bobrova, I. Loguinova, E.Papsheva, N. Drukker
Obstetrics and pediatrics

Abstract:
Objective. To evaluate the effectiveness of treatment of perinatal hypoxic-ischemic injuries of central nervous system (CNS) in newborns at preclinical stage of disease. Materials and Methods. 42 full-term newborn babies without neurological symptoms in the early neonatal period, born by women with the complicated course of gestation and childbirth, were under observation. In the serum of the umbilical blood of all babies the content of neuron-specific enolase (NSE), which is an objective biochemical marker of the brain neuron injury, was defined. NSE level definitely exceeded control values and was more than 10 mkg/l; it allowed to diagnose perinatal hypoxic-ischemic injury of CNS at preclinical stage of disease. All newborns were divided into 2 groups: in the 1st group (20 babies) no treatment was provided, in the 2nd group (22 babies) preventive treatment was prescribed for a month starting from the early neonatal period (L-carnitine and glycine in the age-related doses). Control group was comprised of 15 healthy babies born by women with physiologic course of gestation and childbirth. The level of neuron-specific enolase (NSE) in the serum of the umbilical blood was defined using immune-enzyme assay technique with Roshe Company kits (Switzerland). Distribution-free method of statistics (Mann-Whitney test) was applied. Results. It is established that in all 20 babies of the 1st group (100%), who did not receive preventive treatment, in 1-2 months after their birth clinical symptoms of cerebral pathology (delayed clinical manifestation of perinatal CNS injury of hypoxic-ischemic genesis) appeared in the form of hypertensive syndrome and neuro-reflex-hyperexcitability syndrome. In 14 out of 22 babies of the 2nd group (63.6 %) after preventive treatment of perinatal hypoxic-ischemic injury of central nervous system at the early (preclinical) stage of disease, that is during the first month of life, clinical manifestation of cerebral pathology was not recognized henceforth during the whole first year of life. In other 8 babies of the 2nd group (36.4 %) neurological symptoms became apparent with delay at the age of 2-3 months (6 babies had neuro-reflex-hyperexcitability syndrome and 2 babies had syndrome of vegeto-visceral disorders). Conclusions. The results of the provided treatment indicate high effectiveness of preventive treatment of perinatal hypoxic-ischemic injuries of central nervous system at the early (preclinical) stage of disease.

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468 | ORAL | Prematurity

ABUSE OF INTERVENTIONS IN OBSTETRIC CARE IN BRAZIL AND ITS CONSEQUENCES TO NEWBORN

Maria do Carmo Leal; Ana Paula Esteves Pereira Silvana Granado Nogueira da Gama Rosa Maria Domingues Marcos Dias Mariza Theme Marcos Nakamura
Fundação Oswaldo Cruz

Abstract:
BACKGROUND: The model of childbirth care in Brazil is overly medicalized, and women from all social groups have been submitted to many unnecessary interventions during birth, mainly caesarean section and misuse of oxytocin drip. We hypothesized that these procedures interfere in the natural course of foetal intrauterine development generating 'abnormal' rates of late preterm (34-36 weeks) and early term (37-38 weeks) births in Brazil. METHODS: The English/Wales data source is from the Office for National Statistics, 2009, available on the internet. The Brazilian data (2010-2011) were taken from a nationwide hospital-based cohort study (23 940 women). The England/Wales birth cohort was taken as the standard of gestational age distribution. For the Brazilian data the exposure variables were private health insurance, socioeconomic classification, age, number of previous deliveries, which were analyzed stratifying by mode of birth. The outcomes were gestational age at birth and birth weight. RESULTS: The low birth weight rate in Brazil was 20% greater than in England/Wales. As for prematurity (<37 g), the rate was 60% higher in Brazil than in England / Wales and the rate of post-maturity was the reverse. For late preterm births (34-36 weeks) and early term births (37-38 weeks) the rate was 80% higher in Brazil. All exposure variables studied stressed the difference in the gestational age distribution when compared to England/Wales birth cohort. The greater difference between the countries was observed for the frequency of births with 38 weeks of gestation in Brazilian women with a private health insurance who were submitted to a caesarean section; 300% higher than in England/Wales. In Brazil, caesarean section rates were 53% reaching 90% in the private sector. The use of oxytocin drip, episiotomy and fundal pressure (Kristeller manouver) were very high and it was also high the rate of hospitalization of infants in the NICU, reaching 11% of births, being higher in the private health sector. DISCUSSION: High rates of preterm and early-term births added to a deficit of births over 38 weeks points out to an unusual pattern in Brazil, drawing a curve of gestational age at birth deviated to the left, when compared to England/Wales. This deviation is stressed for the caesarean births in general, particularly for childbearing women users of the private sector. Many unnecessary interventions were performed mainly in women belonging to the more affluent social groups, who may be more prone to the undue iatrogenic effect of medical technology. The advantages arising from their social situation are being lost by excessive iatrogenic interventions to which they are submitted. The overly medicalized model of childbirth care in Brazil also reaches the public sector which is mostly used by socially disadvantaged women and, besides having worse health conditions, they receive poorer quality and less 'humanized' antenatal and birth care. There are great losses for a significant proportion of newborn children in Brazil, who have been subtracted from living part of their intrauterine life and the process of labour, they are separated from their mothers at birth, and need medical support to breathe.

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NEONATAL MORTALITY RATES OF EXTREMELY LOW BIRTH WEIGHT INFANTS. ASSESSMENT IN 54.556 CONSECUTIVE LIVE BIRTHS

JR Cervilla; A Iglesias Deus, A Perez Muñuzuri, ML Couce Pico, JM Fraga
Neonatal Unit. Pediatric Dpt. Hospital Clinico Universitario (CHUS). Santiago Compostela. SPAIN

Abstract:
Background Extreme Low Birth Weight (ELBW) < 1000g group had experienced a great improvement in NICUs care, it have resulted in a decreased mortality rate (MR) in themselves. ELBW still pose an heavy burden on economic, social and health system with short and long-term morbidities. Our aim in this study was to assess the changes occurred in livebirths rates (LB), ELBW-BR (birth-rate) and ELBW-MR comparing two periods (1992 - 2002) and (2003 - 2012). Patients and Methods Total LB, extended MR (accounting for deaths in the first 28th days and beyond while they were hospitalized), ELBW births and ratios of MR over total LB and also over ELBW-BR occurred in our NICU in the last 21 years has been reviewed by the same neonatologist team over the years using protocolized methods. Results Total LB increased by 1% (27.196 vs. 27.360). There were a huge increment in ELBW-BR by 51% from 69 (2.5 o/or) to 104 (3.8 o/oo births) and. A reduction in the EMR by 31% (from 106 to 73), was paralled with an increasing rate of ELBW-MR by 22% (32 to 39). The ratio of ELBW-MR to ELBW births diminished significantly (p< 0.05) by 19% (46.4 percent vs. 37.5 percent). The percentage of ELBW-MR over total MR rose by 77% (30.2 percent vs. 53.4 percent). Conclusions In spite of the increasing rate of ELBW births, there were a significant reduction in the MR due to ELBW infants (< 19%) in comparison with the number of ELBW that were born. Regarding total NMR the accounted percentage of ELBW-MR rose by 77% . Improvement in non-invasive ventilation techniques and cardiovascular management developed in our NICU are associated with the reduction in ELBW-MR rates. ELBW-MR in the last decade accounted for all NMR (53.4%) is similar to reported data from USA 2008 (55%), but our ELBW-BR (3.8 o/oo) is much lower than of USA - ELBW births in 2005 (8.0 o/oo). References 1. Mathews TJ, MacDorman MF. Infant mortality statistics from the 2005 period linked birth-infant death data set. Natl Vital Stat Rep 2008;57(2):1

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COMBINED FACTORS FOR PREDICTING PRETERM DELIVERY

Maria Magdalena Manolea; Anda-Lorena Dijmarescu, Liliana Novac, Simona Neamu, Dominic Iliescu, Alexandru Goganau, Hristina Spataru
University of Medicine and Pharmacy Craiova, Romania

Abstract:
Introduction. The objective of the present study was to determine the predictive accuracy of the combination of transvaginal ultrasonography of the cervix and the fetal fibronectin (fFN) between 22 and 28 weeks of gestation for preterm delivery. Methods. There were included in the study 152 pregnant women with singleton gestations and a high risk for preterm delivery. At 22, 25 and 28 weeks of gestation we measured the cervical length and the vaginal and cervical fetal fibronectin concentrations. The cervix was categorized as short (=25 mm) with or without funneling, ballooning of the membranes into a dilated internal os, but with a closed external os, or normal (>25 mm); the vaginal and cervical fetal fibronectin was categorized as positive or negative. We also took in account the fact that an absent cervical gland area has been considered a predictor of preterm delivery. We analyzed its predictive efficacy in women at high risk for preterm delivery and compared with cervical length <25 mm and fetal fibronectin (fFN) in cervicovaginal secretions. Results. Among women with negative fetal fibronectin results at 22 to 25 weeks of gestation, those with a short cervix were more likely to have positive fetal fibronectin results at 28 weeks of gestation, and among those with normal cervical length those women who had positive fetal fibronectin results were more likely to have a short cervix at later evaluation. 72% of women who had positive fetal fibronectin results at 22 to 25 weeks of gestation had negative results at 28 weeks of gestation, whereas 91% women who had a short cervix at 22 to 25 weeks of gestation still had a short cervix at 28 weeks of gestation. The absence of cervical gland area was found in 69% of the cases. The sensitivity, specificity, and positive and negative predictive values of either a short cervix of <25 mm or funneling of >25% or both were 75%, 68%, 35%, and respectively 90%. A positive result for fFN and a short cervix lenght with absent cervical gland area are independent predictors for preterm delivery ($p < 0.0001$). Conclusions. Among pregnant women with risk for preterm delivery, regardless of other risk factors, a short cervix predicts a subsequent positive fetal fibronectin result, and a positive fetal fibronectin result predicts subsequent cervical shortening. A short cervix lenght with absent cervical gland area represents an independent predictor for preterm delivery. Combined use of rapid fFN and cervix ultrasound evaluation improves the diagnostic efficiency and allows identification of women at risk for preterm delivery and in need for further prophylactic or therapeutic intervention.

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483 | ORAL | Obstetrics

EVALUATION OF EFFICACY AND SAFETY OF HYGROSCOPIC DILATOR DILAPAN-S FOR CERVICAL RIPENING IN LABOR PREINDUCTION

Lukas Hruban; Petr Janku (1), Jana Kadlecová (1), Lenka Mekinová (1)
(1) Department of Gynaecology and Obstetrics, Masaryk University, Brno, the Czech Republic

Abstract:
Objective: To evaluate the effectiveness and safety of mechanical pre-induction cervical ripening before labor induction using osmotic cervical dilators Dilapan-S. Material and Methods: A retrospective study of 68 patients who gave birth at the Gynaecology and Obstetrics University Hospital Brno in 2010-2011 and osmotic cervical dilators Dilapan-S for pre-induction cervical ripening before labor induction were used. Only patients which completed the 36th week of gestation, singleton pregnancy and foetus in head longitudinal position have been included. Efficacy of pre-induction and the mode of delivery was assessed. The incidence of contraction activity during pre-induction, uterine hypertonus, signs of intrauterine foetal distress and infectious complications in the mother and newborn were evaluated. Results: The most common indications for pre-induction cervical ripening was post-term pregnancy (38.2 %), diabetes mellitus (19.1 %) and maternal hypertensive disorders (10.3 %). Previous Caesarean section was present in medical history of 16 patients (23,5%). The mean cervix score before pre-induction was 2.9 (min. 2 - max. 4) and 6,1 after pre-induction. . The final cervix score 5 or more were achieved by 54 patients (79 %) . In 3 cases were applied 3 pieces of Dilapan-S and all achieved cervix score >5. In all other cases, were applied 2 pieces of Dilapan-S. The mean duration of pre-induction was 14 hours 21 min. Contraction activity during pre-induction was observed in 18 patients (26.5 %), as mild were rated by 16 patients. Cardiotocography (CTG) during pre-induction was performed in 67 patients (98.5 %). Uterine hyperactivity was not recorded. 37 patients (54.4 %) delivered vaginally, 31 patients (45.6 %) delivered by Caesarean section. When comparing the subgroup of patients with a Caesarean section in medical history (n = 16) and the subgroup of patients without previous CS (n = 52), there was no significant difference in the ratio of completed vaginal birth (50.0 % versus 53.8 %). The pH value of 7.10 and less was found in five patients (7.3 %). In the subgroup of patients with a history of Caesarean section, the value of pH < 7.10 and less does not occurred. Apgar score at 5th minute less than 5 in our group was not observed. 2 patients underwent the postpartum period febrile illness with antibiotics therapy, which in one case was evaluated as pyelonephritis and in the second case as in open abdominal wound infection after Caesarean section. 4 infants (5.8 %) were treated for acute conjunctivitis which corresponds to an average incidence in the population. Other complications in the mother or infant were not recorded. Conclusion: Osmotic cervical dilators Dilapan-S are highly effective and safe in pre-induction cervical ripening before labor induction in the group of patients with an unfavourable cervix score. The advantage is the low incidence of adverse contractile activity during pre-induction. It can be effectively used even in patients with a history of previous Caesarean section. Infectious complications in mothers and newborns in our sample were not recorded.

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485 | ORAL | Prematurity

EFFECTS OF PREBIOTIC AND PROBIOTIC COMBINATION ON NECROTIZING ENTEROCOLITIS AND SEPSIS PROPHYLAXIS IN VERY LOW BIRTH WEIGHT INFANTS

Ozge Serce; T.Gursoy (2), G. Karatekin (2), F. Ovali (2)

Izmit Maternity and Child Health Hospital, Neonatology Unit, Kocaeli, Turkey. (2) Zeynep Kamil Maternity and Child Health Education and Training Hospital,Neonatology Unit, Istanbul, Turkey

Abstract:

Introduction: Since prebiotics with probiotics act synergistically and prebiotics enhance the survival of probiotics, we investigated the possible protective efffect of combination of these products on necrotizing enterocolitis (NEC) and sepsis in very low birth weight infants. Patients, Method: Very low birth weight infants (=32 GWs, =1500 g birth weight) who started enteral feeding were randomized either to receive daily feeding supplementation with prebiotic and probiotic combination (1/2 sachet every 12 hours) or placebo until discharge. The study design was double blinded. 'Modified Bell Classification' was used to define NEC. Sepsis was diagnosed with the clinical symptoms beginning after 72 hours of age and confirmed with positive blood culture. Dependent and independent variables were compared by chi-square and fisher exact test and Mann Whitney U test. Results: Preliminary results are reported. Birth weight and gestational age of the study (n=43) and the control (n=60) groups were 1280(255) vs. 1205(395) g, and 31(3) vs. 30(4) weeks respectively. Time to reach full feeds (10(8) vs. 9(8) day, p: 0,53) were not different between the groups. The incidence of NEC decreased significantly [1(2,3%) vs. 10(16,7%), p: 0,024] in the study group. Only one of the neonates (9%) with NEC died. The incidence of late culture proven sepsis was not different between groups [8(13,3%) vs. 7(16,3%)]. Conclusion: Although prebiotic and probiotic combination has protective effect on the incidence of NEC, it does not affect the rate of late culture proven sepsis.

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PERINATAL MODIFICATION OF GLUCOCORTICOID RECEPTOR GENE PROMOTER IN PRETERM INFANTS

Masato Kantake; Hiroshi Yoshitake(2), Yoshihiko Araki(2), Toshiaki Shimizu(3)
(2)Institute for Environmental & Gender-specific Medicine, Juntendo University Graduate School of Medicine
(3)Department of Pediatrics, Juntendo University Graduate School of Medicine

Abstract:
Background Early life experiences influence the physiological and mental health of an individual through epigenetic modification of DNA, which is thought to be highly stable across the lifespan. Preterm birth, an adverse early life event, is associated with significant long-term neurodevelopmental impairments. However, little is known about the epigenetic regulation of genes in preterm infants or the molecular basis of neurodevelopmental disabilities in later life. We hypothesized that preterm infants may have increased cytosine methylation of the glucocorticoid receptor (GR) gene, which is the primary regulator of stress reactivity through the hypothalamus-pituitary- adrenal (HPA) axis, and it may result in neurodevelopmental disability in later life. We report epigenetic modification of the GR promoter 1-F region in infants born prematurely during perinatal period and 3-6 years of age. Methods As a preliminary study, GR promoter methylation in 4 children (3-6 years of age) who were born prematurely and show neurodevelopmental disabilities were examined. Next, a cohort (n=30, 16-term and 14-preterm) of infant was recruited to our prospective study in the day of birth from January to July, 2012, in our hospital. Peripheral blood from each subject was obtained from the umbilical cord or peripheral vein. We calculated the methylation rates in the GR promoter region using Mqunat method. Findings In the preliminary study, 3 out of 4 children had higher methylation in GR 1-F promoter than healthy control children. In the cohort study, at birth, methylation rates were significantly higher in preterm infants compared with term infants in 12 CpG sites out of 38 CpG sites within GR 1-F promoter, including five potential nerve growth factor inducible protein A (NGFI-A) binding sites. Four days after birth, the differences in methylation rates, especially at potential NGFI-A binding sites, were very different between the two groups. In eight CpG sites, methylation rates were significantly higher in preterm infants compared with term infants. Four of these eight CpG sites were highly methylated only on postnatal day-4. In two CpG sites, term infants displayed significantly higher methylation rates compared with preterm infants on postnatal day 4. Discussion Our data show that exposure to stress during both the prenatal and postnatal periods influences the programming of the HPA axis through methylation of the GR promoter in premature infants, which may result in neurodevelopmental impairments. Moreover, we show that differences in GR promoter methylation status between term and preterm infants may be reset four days after birth. High GR promoter methylation may lead to low GR expression in peripheral immune cells, which may results in prolonged inflammation.

Inflammation is a diffuse process in preterm infants, with elevated concentrations of cytokines, chemokines, adhesion molecules and matrix metalloproteinases. This inflammation continues and is involved in processes leading to organ damage in preterm newborns, such as chronic lung disease in childhood and obesity or cardiovascular disease in adulthood. Our study also raises the possibility that glucocorticoid resistance followed by a failure to down-regulate the inflammatory response may play an important role in these adult diseases.

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496 | ORAL | Developmental Origins of Adult Diseases

PAIN IN INFANTS AND CHILDREN; FOCUS ON PHYSIOLOGICAL PAIN ASSESSMENT TOOLS

Storm Hanne
Simulation lab, University of Oslo, Norway

Abstract:
Background and objective: In the US it is mandatory to assess and treat pain. Similar guidelines are established in Europe. The objective is to discuss the physiological pain assessment tools for infants and children and to conclude if they can fulfil a validated standard for pain assessment. Methods: The physiological pain assessment tools for infants and children; heart rate (HR), peripheral oxygen saturation (only for infants), and emotional sweating (skin conductance responses/sec (SCR/sec)) are dicussed according to the criteria from Berede (1) Results: HR is influenced from respiratory rhythm, changes in blood volume status, drugs acting on the blood circulation, environmental temperature, and emotional stress, and is therefore less specific to pain than the SCR/sec which only is influenced from emotional stress. For infants and children, the inter-individual variation for SCR/sec is low compared to HR and peripheral oxygen saturation when the patients are at the same pain/discomfort level. Different from HR, SCR/sec is not dependent of age. Both HR and SCR/sec reacts immediately and works in real time. At patients postoperatively, at the intensive care units, and at the neonatal units, SCR/sec has high sensitivity to monitor pain, but lower specificity. SCR/sec is therefore most accurate to assess pain when compared to HR and peripheral oxygen saturation. All physiological pain tools should be used as adjunctive warning tools to correct against the lower specificity. Conclusions: SCR/sec is suitable for pain assessment if used as an adjunctive warning tool. 1. Berede C. Anesthesiology 2009 111, 473-4..

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503 | ORAL | Prematurity

INCIDENCE OF BPD AFTER CUROSURF IN PREMATURE BABIES BELOW 31 WEEKS OF GESTATION

Nina Yarakova; T. Pramatarova (1), P. Radulova (1), B. Slancheva (1), A. Nikolov (2)
University maternity Hospital Maichin Dom, Sofia (1) Neonatology department (2) Obstetrics department delivery room

Abstract:
Introduction. Routine surfactant therapy lead to increased survival rate in preterms below 31g.w., but some of them suffer from complications (like BPD). Aim of the study is to look for a correlation between parameters of surfactant therapy and the incidence of BPD. Patients, methods. The study is retrospective: preterm newborns below 31 g.w., treated with Curosurf at the NICU were divided in 2 groups: gr.I - 87, gr. II (oxygen dependent at day 28) - 42. All babies were matched according g.w., birth weight, gender, way of delivery, Apgar score, pH u.a., BE, antenatal corticosteroids, inborn infection, time and dose of Curosurf applied; duration of artificial ventilation and oxygen therapy, incidence of BPD and ROP. Results. There is no significant difference regarding Apgar, pH, antenatal corticosteroids, time and dose of Curosurf. In gr.II we found statistically significant: lower mean birth weight; higher incidence of male sex and inborn infections; longer duration of artificial ventilation and oxygen therapy, incidence of BPD and ROP (28,29 g.w.); higher incidence of BPD at 36 g.w. in preterms below 28 g.w. An overall low incidence of severe ROP (3) and mortality due to BPD is registered. Conclusions. Main role for severe complications play extreme prematurity and inborn infections.

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526 | ORAL | Proven Strategies to Improve Outcome

ANTIOXIDATIVE ENZYMES IN PREGNANCY WITH PATHOLOGICAL CARIOTYPE

Aleksandra Nikolic; M. Bogavac (2), Z. Grujic (2), R. Djordjevic (2), J. Bosic (3)
1.University of Novi Sad, Medical faculty,Department of Urgent laboratory diagnostics, Clinical Center Vojvodina 2.University of Novi Sad, Medical faculty, Department of gynecology and obstetrics, Clinical Center Vojvodina 3.University of Novi Sad, Medical faculty,Institute of kardiology , Sremska Kamenica

Abstract:
Introduction: Fetal trisomy 21 is the most frequent form of aberrant karyotype in pregnancy and screening methods for the early detection of fetal trisomy 21 are urgently needed. Cu, Zn-superoxide dismutase is an enzyme with important roles in oxidative stress equilibrium and the physical location of the gene encoding Zn, Cu-superoxide dismutase on chromosome 21 makes it a likely candidate for the Down syndrome screening. The aim of this study: was to investigate the role of the fetal trisomy 21(Down syndrome) on the redox system status in mothers and to investigate the possibility of using anti- oxidative enzymatic activities in the prenatal screening for the Down syndrome fetuses in the first trimester of pregnancy. Methods: Erythrocyte hemolysates from the study group (30 pregnancies with the fetal trisomy 21) were obtained and compared with the control group erythrocyte hemolysates (50 healthy pregnancies with the normal karyotype) for the following pro-oxidative (lipid peroxidation) and anti-oxidative parameters (SOD, catalase, gluthatione peroxidase activities and acidum uricum). The standard biochemical markers of the aberrant karyotype in the first trimester (free beta-HCG, PAPP-A) were also compared between the control and the study group. Results: Our data indicate that there is a significant increase in the lipid peroxidation and superoxide dismutase activity in the study group compared to the control group and no change in the catalase activity between the two groups. Additionally, we found a significant decrease in the gluthatione peroxidase activity in the study group compared to the control group, and an increased level of acidum uricum and of the index of oxidative stress in the study group. The analysis of our data suggests that there may be a change in the oxidative stress balance in the study group which may lead to the excessive hydrogen peroxide production. The analysis of the oxidative stress parameters in the control group suggests that there is a balance between the pro- and anti-oxidant parameters. The test for the biochemical markers of the aberrant karyotype (free beta HCG and PAP-AP) was positive in 93.75% of the pregnancies with the fetal trisomy 21. Conclusion: Of all parameters investigated, the values for the SOD activity in the 13th and 14th gestation week showed the best correlation with the standard biochemical markers and had the best prognostic value (1.43 MoM and 1.27 MoM).

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530 | ORAL | Emergencies at Birth

THE EFFECT OF SERUM PROCALCITONIN MEASUREMENT ON THE DIFFERENTIAL DIAGNOSIS OF ACUTE BACTERIAL MENINGITIS AND VIRAL ENCEPHALITIS.

Qunsi Wang; Lidan Cui Yibing Cheng
Zhengzhou Children's Hospital, Pediatrics Department

Abstract:
Objective To explore the effect of serum PCT on the differential diagnosis of children with acute bacterial meningitis or viral encephalitis. Methods The serum PCT levels , the serum c-reactive protein(CRP),the counts of white cells in blood (WBC), the counts of white cells and protein concentrations of cerebrospinal fluid (CSF) were measured in 65 children. Results The results showed that in children with bacterial meningitisthe and viral encephalitis , the counts of white cells of CSF were1.069±1.26(×109/L) and 0.115±0.127(×109/L) respectively ;the protein concentrations of CSF 2.31±1.57(g/L) and 0.93±0.59(g/L) ; the serum CRP 105.1±98.2(mg/L)and 19.29±16.52(mg/L) ; the counts of WBC in blood 15.64±11.21(×109/L) and 8.34±5.75 (×109/L) ; the serum PCT 19.41±14.62(μg/L) and 0.53±0.61(μg/L) .All the value above in 29 children with acute bacterial meningitis were higher than those in 36 children with viral encephalitis ($p<0.05$). while the counts of WBC in blood, the counts of the white cells,protein concentration of CSF and the serum CRP showed a zone of overlapping values between two groups. Conclusion The measurement of the serum PCT is valuable on the the differential diagnosis of acute bacterial meningitis and viral encephalitis.

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550 | ORAL | Prematurity

FOLLOW UP OF 4944 PRETERM INFANTS FROM SPANISH SEN1500 NETWORK: NEURODEVELOPMENT.

Laura San Feliciano; Pilar García González (1), Francisca Benito Zaballos (1), Daniel Ciprián (2), Rubén García Sanchez (1), Ana Remesal Escalero (1), Cristina Fernandez (3)

1: Hospital Universitario de Salamanca 2: Centro de investigación CAIBER 3: Hospital Ramon y Cajal Madrid

Abstract:

Follow up of very low birth weight preterm infants is necessary to detect neurodevelopmental and cognitive impairments. The increasing survival of premature infants has raised issues about the increasing rate of adverse developmental outcomes. The aim of this study is to define follow up outcomes at two years of corrected age of 4944 premature infants with birth weight = 1500 g discharged from Spanish hospitals of SEN1500 network, between the years 2002-2007. Methods: Retrospective review of prospectively collected data in the spanish SEN1500 database. We compared data at two years of corrected age according to birth weight and sex. Motor impairment, incidence of cerebral palsy, visual and hearing disabilities and abnormal neurodevelopment for gestational age were analyzed among groups. We studied the associations of cerebral palsy with perinatal factors. Results: 6.96% of the children had some type of motor impairment and 4.56% of them were diagnosed of cerebral palsy. The incidence was higher among male genre with birth weight = 1000g. There was an incidence of 5.21% of visual disability, being blind in one or both eyes the 0.5% of children. Cerebral palsy was associated with retinopathy of prematurity (ROP) severe intraventricular hemorrhage (IVH) and periventricular leukomalacia (PVL), especially cystic PVL Comments: Our findings are in consonance with previous studies from other countries in Europe, and reflect the situation of our premature infants in a partial manner because limitations of follow up lost patients. However, these data can provide a basis for future studies to optimize and compare. This implies the need to improve data collection and to elaborate strategies to minimize lost in follow up.

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556 | ORAL | Prematurity

ON THE INFLUENCE OF THE PELVIC FLOOR MUSCLE ACTIVATION IN THE BIOMECHANICAL BEHAVIOR OF THE FETUS HEAD DURING DELIVERY

Marco Parente; Renato M. Natal Jorge (1), Teresa Mascarenhas (2,3), António A. Fernandes (1),
(1) IDMEC - Faculty of Engineering, University of Porto, Porto, Portugal. (2) Gynecology Department, S. João Hospital, Porto, Portugal. (3) Faculty of Medicine, University of Porto, Porto, Portugal.

Abstract:
During delivery the human fetus successfully negotiates the birth canal because of crucial fetal adaptations. These modifications include the spheroidicity of the presenting part of the fetal head, which allows it to "roll" in the pelvis; mobility of the head and chest in all directions; and a capacity for cranial molding, which adapts fetal head dimensions to pelvic dimensions. The fetal head can perform multiple rotational movements in order to always present the smallest fetal diameters to the greatest pelvic diameters. Although common sense dictates that the PF muscles should be relaxed during delivery, the interactions between the PF muscles and the descending fetal head during birth cannot be measured in vivo. Therefore, the aim of this work was to estimate the influence of the PF muscle activation during vaginal delivery on the biomechanical behavior of the fetus head. The interactions between the fetus head and the birth canal can be considered a biomechanical system. The finite element method offers is a numerical technique that has been proposed as an effective tool to investigate the effect of vaginal delivery on the PF. A computational finite element model of the pelvic skeletal structure, pelvic floor (PF) and fetus was developed. The movements of the fetus during birth, in the vertex position were simulated, namely the engagement, descent, flexion, internal rotation and extension of the fetal head. The opposite forces against the fetal descent and the stress on the PF muscles were obtained in passive, 5%, 10% and 15% PF muscle simulated activations. The increase in PF muscle activation was associated to higher values of forces against the fetal descent and fetus head. The descending fetus progressively encountered increasing resistance in higher stations with the increase in PF muscle activation. The maximum values of stress on the fetus head were obtained in station +4. The increase in PF muscle activation was also followed by higher values of stress on the fetus head. The computer modeling approach presented has the capability to advance our understanding of the mechanisms of labor. The application of novel approaches and methods are required to improve translational research in parturition.

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573 | ORAL | Labor

THE USEFULNESS OF INFLATABLE OBSTETRIC BELTS IN NULLIPAROUS PREGNANT DURING THE SECOND STAGE OF LABOR

Jongwoon Kim; Y.H. Kim (1), H.Y. Cho (1), H.Y. Shin (2), J.C. Shin (3), S.K. Choi (3), K.Y. Lee (4), J.E Song (4), P.R. Lee(5)

1 Department of Obstetrics and Gynecology, Chonnam National University Medical School, Gwangju, Korea
2 Clinical Trial Center, Chonnam National University Hospital, Gwangju, Korea.
3 Department of Obstetrics and Gynecology, College of Medicine, Catholic University of Korea, Seoul, Korea
4 Division of Maternal-Fetal Medicine, Department of Obstetrics and Gynecology, Hallym University College of Medicine, Seoul, Korea.
5 Department of Obstetrics and Gynecology, University of Ulsan College of Medicine, Asan Medical Center, Seoul, Korea

Abstract:

Objective: The aim of this study was to evaluate the effect of inflatable obstetric belts on uterine fundal pressure in the management of the second stage of labor. Methods: Between July 2009 and December 2010, one hundred eighty-eight nulliparous women with a singleton pregnancy at term were enrolled and only one dropped. The participants were randomized to receive either standard care (control group, n=91) or uterine fundal pressure by the Labor Assisterâ„¢ (Baidy M-520/Curexo, Inc., Seoul, Korea) (active group, n=97) during the second stage of labor in addition to standard care. The Labor Assisterâ„¢ is an inflatable obstetric belt that is synchronized to apply constant fundal pressure during a uterine contraction. The primary endpoint was duration of the second stage of labor in women who delivered vaginally (control, n=80 vs. active, n=93). It was not analyzed in women who delivered by cesarean section (n=14) and delivered precipitously (n=1). The secondary outcomes are perinatal outcomes and perineal laceration. Participants received patient-controlled epidural analgesia. Results: The ninety-three women in the active group spent less time in the second stage of labor when compared to the eighty women in the control group (46.51±28.01 min vs. 75.02±37.48 min, p<0.001). There was no significant difference in perinatal outcomes and perineal laceration between the two groups. Conclusion: The uterine fundal pressure exerted by the inflatable obstetric belt reduces the duration of the second stage of labor without complications in nulliparous women who receive patient-controlled epidural analgesia.

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584 | ORAL | Proven Strategies to Improve Outcome

DIAGNOSIS OF TOXOPLASMOSIS IN PREGNANCY : PERFORMANCE OF A NEW LIAISON® XL TOXO IGG AVIDITY ASSAY

Valeria Meroni; Lanzarini P. (2), Gobbi M. (1), Genco F. (1)

(1) S.C. Microbiologia e Virologia Fondazione IRCCS Policlinico San Matteo Pavia (2) S.C. Malattie Infettive Fondazione IRCCS Policlinico San Matteo Pavia (3) Dipartimento di Medicina Interna e Terapia Medica Università di Pavia

Abstract:

Background For pregnant women still exists the need of a precise and quick diagnosis of infectious diseases by serological test in order to identify all the pregnancies at risk of congenital infection to address to prenatal diagnosis or different therapy. On the other hand it is important to exclude acute infection in women with persistent IgM or aspecific IgM antibodies. A new LIAISON® XL Toxo IgG avidity assay, run on the fully automated, high throughput, random access LIAISON® systems, was developed in order to improve, in conjunction with the LIAISON® Toxo IgG and IgM assays, the ability to discriminate between samples from subjects not previously infected by Toxoplasma, those that have had previous contacts with Toxoplasma and patients that experienced Toxoplasma primary infection. Patients and methods One hundred and fifty five residual samples from 115 pregnant women, previously tested by VIDAS® Toxo IgG, IgM, IgG Avidity ELFA (Biomerieux Marcy l'Etoile, France) and LIAISON® Toxo IgG, IgM and Toxo IgG avidity CLIA (DiaSorin, Saluggia) were assessed with the new LIAISON® XL Toxo IgG avidity. Eighty negative sera were also included. For every patients clinical data were collected. Results LIAISON® XL Toxo IgG Avidity assay scored low avidity index on all the 21 samples from 19 untreated patients; on the 79 samples from 42 treated patients, it was observed a switch to intermediate avidity in 2 samples after three month under therapy; two samples out of 57 from 54 patients with past infection still showed a low avidity. Discussion The performance of the LIAISON® XL Toxo IgG avidity assay are comparable to those of the reference method used in the lab and the clinical data available. The ease handling of the LIAISON® XL analyser together with the high quality of its results, gives accurate test results allowing improvements in patient management. The laboratory workflow will also benefit from it.

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594 | ORAL | Proven Strategies to Improve Outcome

INFLUENCE OF VITAMIN D SUPPLEMENTATION IN LACTATING MOTHERS ON THEIR AND OFFSPRING'S VITAMIN D STATUS AND BONE MASS- DOUBLE BLINDED RANDOMIZED CONTROL TRIAL- MAVID STUDY

Justyna Czech-Kowalska; Julita Latka-Grot (1), Dorota Bulsiewicz (1), Maciej Jaworski (2), Grazyna Wygledowska (3), Bogdan Chazan (4), Beata Pawlus (4), Anna Zochowska (5), Maria K. Kornacka (6), Pawel Pludowski (2), Elzbieta Karczmarewicz (2) , Edyta Kryskiewicz (2), Agata Ples

1 Department of Neonatology and Neonatal Intensive Care, The Children's Memorial Health Institute, Warsaw

2 Department of, Biochemistry, Radioimmunology and Experimental Medicine, The Children's Memorial Health Institute, Warsaw

3 Department of Neonatology, Miedzyleski Specialistic Hospital, Warsaw

4 Department of Neonatology, Hospital of Holy Family, Warsaw

5 Department of Neonatology, Public Hospital, Otwock 6 Department of Neonatology, Warsaw Medical University

Abstract:

Introduction: Optimal vitamin D intake for lactating women remains controversial. We hypothesized that 1200IU/d (vs 400IU/d) of vitamin D during breastfeeding will enhance maternal vitamin D status and bone mass. Methods: Healthy mothers after term, singleton delivery were randomized to receive vitamin D3: 1200IU/d (800 IU/d + 400IU/d from multivitamins) or 400IU/d (placebo + 400 IU/d from multivitamins) during lactation. Serum 25-hydroxyvitamin D (S-25-OHD), PTH and densitometry (DXA, Lunar Prodigy) were performed in mothers and infants after delivery (V0) and 3 months later (V1). Serum and urinary calcium were assessed at V1. Results: 174 mother-infant pairs were recruited. There were 63 summer and 114 winter delivery. Maternal S-25-OHD was higher after summer than winter delivery (20,13±7ng/ml vs. 15.04±8.7ng/ml, p<0.05). Vitamin D deficiency (S-25-OHD <20ng/ml) and sufficiency (S-25-OHD >30ng/ml) were found in 66.7% and 6.9% of mothers after delivery, respectively. Prenatal multivitamins were used by 70.7% of mothers with mean vitamin D intake 516±322IU/day. Cord blood S-25-OHD were positively correlated with maternal S-25-OHD. Intention to treat analysis was performed for 137 pairs completed the study (1200IU/d group (n=70) , 400IU/d group (n=67)). Baseline maternal and neonatal (cord blood) S-25-OHD, PTH and anthropometric measurements were similar among groups. Maternal S-25-OHD increased from 13.65ng/ml to 25.7ng/ml (p<0,0001) and from 16.1ng/ml to 24.5ng/ml (p<0,0001) in study groups, respectively. Maternal S-25-OHD (at V1) was significantly higher in 1200 than 400IU/d group (25.7ng/ml vs. 24.5ng/ml; p = 0.049) but comparable among infants (33.9ng/ml vs.32.9ng/ml; p=0.165). Maternal vitamin D sufficiency was similar in both study groups at V1 (22,85% vs. 22,39%) but vitamin D deficiency was less likely in 1200IU/d group at V1 (8.57% vs. 23.9%, p=0.009). S-25-OHD increased from 15.15ng/ml to 33.5ng/ml after 3 months of vitamin D supplementation in study infants. Whereas vitamin D deficiency decreased from 64.4% to 2.2% of infants. Maternal PTH decrease from 28.6pg/ml to 22.1pg/ml (p<0,0001) and from 30.4pg/ml to 23.3pg/ml (p<0,0001) in the 1200 and 400IU/d

groups, respectively. There were no differences between groups in maternal and neonatal PTH, bone mass, serum and urinary calcium at V1. Decrease in maternal Total Body BMC and L2-L4 BMC was similar in both groups -42g vs. -25g, p=0.29 and -1,17g vs. -1,34, p=0.79, respectively. Conclusions: Vitamin D deficiency is a problem of majority of pregnant women even supplemented with vitamin D during pregnancy. Vitamin D supplementation at a dose 1200IU/d is sufficient to maintain S-25-OHD>20ng/ml among majority of lactating women. Vitamin D intake at a dose 1200IU/d is not effective in achieving maternal S-25-OHD>30ng/ml and reducing bone mass loss during lactation. Breastfeed infants receiving 400IU/d of vitamin D have adequate S-25-OHD irrespective of maternal supplementation up to 1200ID/d. Clinical Trials: NCT01506557; Financial support: Nutricia Foundation

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595 | ORAL | Proven Strategies to Improve Outcome

EFFECTS OF DIFFERENT REGIMENS OF IRON SUPPLEMENTATION ON IRON STATUS AND PREGNANCY OUTCOMES IN A COHORT OF HEALTHY PREGNANT WOMEN: A RANDOMIZED CONTROL TRIAL.

Francesca Parisi; F. Fusè, M. Brunetti, M. Mazzocco, C. Berti, I. Cetin
University of Milan, Unit of Obstetrics and Gynecology

Abstract:
Background Iron supplementation is known to improve iron stores and prevent anaemia among pregnant women. Associated maternal side effects and potential toxicity of iron overload at currently used doses suggest the need to update recommendations on doses and regimens for routine iron supplementation. Aim To assess the effect of different doses and regimens of iron supplementation on maternal haematological status and pregnancy outcomes. Material & Methods 80 healthy non-anemic (Hb >10.5 g/dL) pregnant women were consecutively recruited at 12-14 wks of gestation and randomized into 4 groups: controls (C; n=20), and groups supplemented with ferrous iron 30 mg (FI; n=20), liposomial iron 14 mg (Sideral® Pharmanutra) (LI 14; n=20) and liposomial iron 28 mg/daily (LI 28; n=20) up to 6 wks postpartum. Data were collected at enrollment, 20 wks, 28 wks and 6 wks post-partum via demographic questionnaires, anthropometric measurements and maternal blood samples for iron markers. Data on birth outcomes were collected at delivery. Results Groups were homogeneous for maternal age (mean value 30.2±1.2 years) and BMI (mean value 22.8±1.6 kg/m2). The group LI 28 showed significantly higher Hb levels compared to controls ($p<0.01$) and FI group ($p<0.05$) at 28 wks and in post-partum period. There were no significant differences between other groups. Ferritin levels were significantly higher in LI28 group at 20 wks ($p=0.05$), 28 wks and 6 wks postpartum ($p< 0.01$) compared to controls. Drop-out for anaemia were: C n=6, FI n=5, LI14 n=5, LI28 n=2. Placental weight, blood losses and gestational age at delivery were similar in all groups, while birth weight was significantly higher in LI28 group compared to controls (3479±587 vs 3092±469 g, $p< 0.05$). Discussion Our data show the effect of 28 mg of liposomial iron on improvement of birth weight and prevention of maternal anaemia, as previously obtained with ferrous iron 40 mg. Moreover, 14 mg of liposomial formulation show the same effect of ferrous iron 30 mg on haematological parameters thus allowing to reduce doses and side effects.

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596 | ORAL | Developmental Origins of Adult Diseases

A CLINICAL SCORING SYSTEM TO PREDICT THE DEVELOPMENT OF BRONCHOPULMONARY DYSPLASIA IN VERY LOW BIRTH WEIGHT INFANTS

Tugba Gursoy; Hatice Derin (2), Mutlu Hayran (3), Fahri Ovali (1)
(1) Zeynep Kamil Maternity and Children's Training and Research Hospital, Neonatal intensive Care Unit; (2) Zeynep Kamil Maternity and Children's Training and Research Hospital, Pediatrics Department; (3) Hacettepe University Faculty of Medicine, Preventive Medicine;

Abstract:
Background: As more premature neonates survive, bronchopulmonary dysplasia (BPD) incidence increases. Therefore, predicting the evolution of BPD early becomes an important issue. Objective: The purpose of this study is to develop a clinical scoring system to predict the development of BPD in very low birth weight infants. Methods: Medical records of 652 infants who were <32 weeks and <1500 grams and survived beyond 28th postnatal day were reviewed retrospectively. Logistic regression methods were used to determine the clinical and demographic risk factors associated with BPD within the first 72 hours of life, as well as the weights of these factors on developing BPD. Results: Birth weight, delivery route, gender, patent ductus arteriosus, respiratory distress syndrome, hypotension were the most important risk factors for BPD. Therefore, a scoring system (BPD-TM score) ranging from 0 to 10 and grouped in 3 tiers (0-2: low, 3-6: medium, and 7-10: high BPD risk) was developed based on these factors. If the BPD-TM score was less than 3, only 3.7% of infants (16/432) developed BPD. When the BPD-TM score was between 3 and 6, the percentage of infants developing BPD was 51.2% (84/172). Above the score of 6, 95.2% (46 out of 48) of the infants developed BPD. Also, none of the infants (0%) out of 125 with a BPD-TM score of zero developed BPD. Conclusion: With this easy to use and reliable scoring system, one can predict the neonate at risk for BPD in the first 72 hours of life and direct aggressive treatment towards these infants early in the course of the disease.

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615 | ORAL | Prematurity

HUMIDIFIED HIGH FLOW NASAL CANNULA FOR THE TREATMENT OF RESPIRATORY DISTRESS IN PREMATURE NEWBORNS > 34 WEEKS GESTATION

Pavel Mazmanyan; Marie Darakchyan
Yerevan State Medical University after Mkhitar Heratsi, Department of Neonatology

Abstract:
Background: Respiratory distress in near term babies is one of the commonest reasons for admission to a neonatal intensive care unit, especially after caesarean section if carried out before the onset of labor. The application of nasal CPAP can be difficult and not well tolerated in this group of newborns and so other non invasive modes of ventilation continue to be tried. Recently, humidified high flow nasal cannula (HHFNC) systems have been introduced into neonatal respiratory care. HHFNC uses gas flow rates higher than the patient's normal inspiratory flow rate, and can generate increased pharyngeal pressure, similar to CPAP. This flushes carbon dioxide from the nasopharyngeal dead space, and delivers oxygen at higher concentrations than is possible by using headboxes or low flow cannula. Objectives: To determine the feasibility of usage HHFNC in near term infants with respiratory distress in a large neonatal unit and to compare outcomes to a historical control group of who received head box oxygen or low flow nasal cannula (LFNC). Methods: 22 premature infants > 34 weeks gestation, with respiratory distress, who were born in the Research Centre of Maternal and Child Health Protection (RCMCHP), Yerevan, Armenia, from October 2012 to February 2013 were included in study. AIRVO 2 - high flow system (Fisher & Paykel Healthcare, Auckland, New Zealand), was used as first line respiratory treatment. It consists of a humidifier with an integrated flow generator that delivers warmed (t 34oC) and humidified respiratory gas via specialised nasal cannulae. Criteria for treatment failure and indications for escalation of respiratory support was SaO2 < 88% and FiO2 > 0.6 or frequent apnoea. Results: 22 infants on HHFNC were compared to 25 infants who received oxygen by head box or LFNC. The median birth weight and gestational age were similar in both groups. Duration of need of oxygen was significantly lower in HHFNC group (P<0.01). Treatment failure rate was lower in the HHFNC group (P=0.03). The was no significant difference in deaths, pneumothorax rate and facial/nasal trauma between the groups. Conclusions: HHFNC used for primary respiratory treatment of the near term premature newborn with respiratory distress may decrease duration and adverse respiratory outcomes. It was well tolerated by the infants in our trial and enhanced nursing care. Further prospective randomized controlled trials are needed to study the efficacy and safety of HHFNC compared to the other methods of non invasive respiratory support. KEY WORDS: near term newborns, respiratory distress, continuous positive airway pressure, humidified high-flow nasal cannula.

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634 | ORAL | Prematurity

DELAYS IN OBSTETRICAL CARE ARE ASSOCIATED WITH MATERNAL NEAR MISS AND MATERNAL DEATH

Rodolfo Pacagnella; Angelini C.R., Cecatti, J.G, Silveira C, Andreucci C.B., Ferreira E.C., Santos J.P., Zanardi D.M., Parpinelli M.A., Costa M.L., Cecchino G.N., Camargo R.S.
Unicamp - University Of Campinas

Abstract:
Introduction: Although the majority of causes of maternal deaths are preventable usually they cannot be predicted, however, maternal mortality indicators are extremely sensitive to adequate obstetric care and time in getting appropriate care maybe is the most important factor related to maternal deaths. Considering this, the 'three delays model', which evaluates the delays in obstetric care, has been widely used as a theoretical framework for research on maternal mortality. Its use has been intensified since the use of the concept as maternal near-miss, a proxy of maternal mortality. Our objective was to evaluate the association between delays in obtaining obstetric care and different maternal outcomes according to the "three delays model". Methods: In the National Surveillance of Severe Maternal Morbidity implemented in Brazil in 2009 we performed a multicenter cross-sectional study of cases with maternal near-miss (MNM) and potentially life threatening conditions (PLTC) according to previously criteria defined by WHO. Data on delay were collected from medical records and from the medical staff. Data provided by the cross-sectional study allowed comparison between different maternal outcomes Results: There were 82,144 births during 12 months observation with 9,555 cases identified (8,545 with Potential Life Threatening Condition, 770 Maternal Near Miss and 140 maternal deaths). In general, there was an overall frequency of 54% delays and there was a growing association between the identification of some delay in obstetric care and extreme maternal adverse outcomes (near-miss and maternal death) with 52% of delays in women only with potentially life-threatening conditions, 68.4% in the maternal near-miss group and 84.1% in the group with maternal death. Conclusion: The frequency of delays in obstetric care is directly related to worse maternal outcomes.

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654 | ORAL | Prematurity

PHOSPHODIESTERASE TYPE 5 INHIBITOR SILDENAFIL IN PATIENTS WITH SEVERE PRE-ECLAMPSIA WITH PLACENTAL INSUFFICIENCY: EFFECT ON UTERINE, UMBILICAL AND FETAL MIDDLE CEREBRAL ARTERY RESISTANCE INDICES

Alberto Trapani; T. Trapani (2), S. Silveira (1), O. Feuershuette (1)(2), M. Franco (1), R. Galuzzo (1), K. Da Correggio, M.M.S. Pires (2)

(1) UFSC (Universidade Federal de Santa Catarina), PGCM; (2) UNISUL (Universidade do Sul de Santa Catarina)

Abstract:

1. Objectives: To evaluate the effect of sildenafil citrate on Doppler velocity waveforms of the uterine, umbilical and fetal middle cerebral arteries in patients with severe pre-eclampsia. 2. Patients, methods: This was a prospective study of 8 singleton pregnancies (gestational age range: 26-31 weeks) with severe pre-eclampsia and abnormal uterine and umbilical artery Doppler waveforms. We compared maternal blood pressure as well as the resistance index (RI) and the pulsatility index (PI) of the uterine, umbilical and fetal middle cerebral arteries before and 4 hours after administration of 50 mg of sildenafil citrate. ANOVA for paired samples was used to compare changes in mean RI and PI as well as the change in MAP before and after sildenafil administration. Tukey's test was used for post-hoc analysis, with a signi?cance level of $P < 0.05$. 3. Results: A signi?cant decrease in the PI and RI of the uterine (20.2 ± 5.7% and 20.1 ± 5.2%, respectively, $P < 0.001$) and umbilical (21.2 ± 6.2% and 18.9 ± 6.3%, respectively, $P < 0.05$) arteries was noted when comparing before and after administration of sildenafil. No signi?cant change in the PI and RI of the middle cerebral artery was observed. The mean arterial blood pressure decreased from 120.1 ± 5.4 mmHg to 109.7 ± 5.1 mmHg ($P < 0.05$). 4. Conclusion: The use of phosphodiesterase type 5 inhibitor sildenafil in patients with severe pre-eclampsia is associated with a signi?cant reduction in the RI and PI of the uterine and umbilical arteries, as well as of maternal blood pressure. Sildenafil citrate does not affect the RI and PI of the fetal middle cerebral artery. Keywords Pre-eclampsia, pregnancy, sildena?l,phosphodiesterase type 5 inhibitors

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714 | ORAL | Prematurity

PROGESTERONE INDUCED BLOCKING FACTOR (PIBF) IN WOMEN WITH THREATENED PRETERM LABOUR

Igor Hudic; (1)Babill Stray-Pedersen, (2)Zlatan Fatusic

(1)Division of Women and Children, Oslo University Hospital, Rikshospitalet and Faculty of Medicine, University of Oslo; (2)University Clinical Centre Tuzla, Clinic for gynaecology and obstetrics, Tuzla, Bosnia and Herzegovina

Abstract:

Problem The objective of this study was to compare serum concentrations of progesterone-induced blocking factor (PIBF), anti-inflammatory (IL-10), and pro-inflammatory (IL-6, TNFa, and IFNc) cytokines of women with threatened pre-term delivery, with those of women with normal pregnancy and to evaluate the impact of PIBF on the outcome of pregnancy. Method of study A prospective study was conducted on a sample of 30 women with threatened pre-term delivery (study group) and 20 healthy pregnant women (control group) between the 24th and 37th gestational weeks. Serum PIBF, anti-inflammatory (IL-10), and pro-inflammatory (IL-6, TNFa, and IFNc) cytokine concentrations were measured by enzymelinked immunosorbent assay (ELISA). Results Thirteen of 30 patients (43.3%) with symptoms of threatened pre-term delivery, and one of 20 patients (5%) in the control group delivered before the 37th week of gestation. Mean PIBF concentrations in serum samples of patients with threatened pre-term delivery were significantly lower than in those of healthy pregnant women (171.12 ± 162.06 ng /mL versus 272.85 ± 114.87 ng / mL; $P < 0.05$). Women with symptoms of threatened pre-term delivery had significantly lower serum levels of IL-10, and higher levels of IL-6 as well as IFNc compared with healthy controls. Conclusion Our results indicate that measuring PIBF and cytokine concentrations in serum during pregnancy is feasible and may be important for understanding immunological causes of pre-term delivery..

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745 | ORAL | Prematurity

NEURODEVELOPMENT AND NEUROLOGICAL SEQUELAE IN PREMATURE INFANTS WHO SUFFERED FROM INFECTION DURING NEONATAL PERIOD

Petru Stratulat; Ala Curteanu, Ala Jitarciuc, Liliana Chifac, Ludmila Pinzari
Mother and Child Institute

Abstract:
The aim of the study was to analyze the results of neurodevelopment and neurological sequelae in preterm infants with birth weight (BW) less than 1500g, compared to children with a BW greater than 1500 g, who suffered or not suffered from infections at 2 years corrected age (c.a.). Patients and methods. We have analyzed health status in 155 preterm babies enrolled in Follow-up Program who reached c.a. of 2 years. Children were divided into 2 groups: group I - 128 children with BW <1500g and group II - 27 babies with BW = 1500g. Each group was divided into two subgroups depending on the infection during neonatal period (subgroup IA - 91 (71,9%) children and subgroup II 21 (77,77%) children)) or on the lack of infection occurring (subgroup IB - 37 (28,9%) children and IIB - 6 (22,22%) children). The following investigations were performed: neurodevelopmental risk assessment by BINS, neurodevelopment assessing by BSID-III, examination by a neuropediatrician, ophthalmoscopic examination, audiometry, ultrasound examination of the brain. Results. Insignificant differences are distinguished between infectious manifestations in children with infections from subgroups IA and IIA: pneumonia 91,2% and 95,2%, sepsis 23,1% and 19,04%, NEC 13,2% and 9,5% and meningitis 3,3% and 4,7% respectively. RDS was met in 53,84% (subgroup IA) and 54,04% (subgroup IB) of cases, more frequently than in group II (23,8%). IVH significantly prevailed in newborns from subgroup IA (40,65%) compared with other subgroups. Infection confirmed by blood culture, was diagnosed in 18 (19,8%) and 4 (19,1%) cases in subgroups IA and IIA. CONS prevailed in 66,6% of cases (61.1% in subgroup IA and 75% in subgroup IIA), Klebsiella pneumoniae and Ent. Faicum. In other 73 (80,21%) cases in subgroup IA and 18 (80,95%) cases in subgroup IIA the diagnosis of infection was established clinically. High risk of neurodevelopmental disorders was determined in 15,4% cases in subgroup IA and 5,9% cases in IIA, being statistically higher than in subgroup IB (3,44%) and no one case in IIB. Neuropediatric examination at 1, 1,5 and 2 years c.a. has established that the number of cerebral palsy was higher in newborns from IA subgroup: 6,81%, 7,14% and 12,82%, compared with children from subgroup IIA: 5%, 6,26% and 5,88%, the children from subgroup IB: 2,9% of cases at 1 year and 3,12% at 1,5 years and no one case in subgroup IIB. The language was the most compromise domain of the neurodevelopment: correlation of normal development and neurodevelopmental retardation made up for the children from subgroup IA: 75%:25%, subgroup IB: 93,32%:6,66%, subgroup IIA: 94,11%:5,88% to 100% normal in subgroup IIB. The infection borne in neonatal period by babies weighing less than 1500g (subgroup IA), compared with their peers without infection (subgroup IB), has caused severe motor retardation development at 2 years c.a.: 15,38% versus 3,44% cases, $p < 0.05$. Conclusions. In VLBW newborns that had infections during neonatal period, the neurodevelopment outcomes are more compromised than in their peers without infections, with predominant damage of language.

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755 | ORAL | Emergencies at Birth

THE DIAGNOSTIC AND THERAPEUTIC MANAGEMENT OF PLACENTA PERCRETA: A MULTICENTRIC RETROSPECTIVE STUDY.

Valeria Spitilli; Elodie Dardenne (2), Ambrogio P Londero (1), Lorenza Driul (1), Diego Marchesoni (1), Corinne Hubinont (2), Pierre Bernard (1)

1- Clinic of Obstetrics and Gynecology, AOU 'S M della Misericordia', 33100 Udine; 2- Service d'Obstétrique, Cliniques Universitaires St-Luc,UCL, Bruxelles.

Abstract:

Background and aims. Placenta percreta is a rare pregnancy complication but may be associated with dreadful complications during delivery. The aim of our study is to evaluate the diagnostic and therapeutic management of placenta percreta in a multicentric setting. Methods. We collected data about all pregnancies affected by placenta percreta in two Obstetrics Clinics (one in Italy and one in Belgium). Data was analyzed by R (version 2.15.2), considering significant $p<0.05$. Results. Mean patients age at delivery resulted 33.57 years (±5.71) and 92.9% of women were pluripara. 85.7% of patients (12/14) had spontaneous pregnancies and 85.7% (12/14) had a history of previous cesarean section. All women affected by placenta percreta underwent cesarean section, which was urgently performed in the 28.6% of cases. Bladder resulted involved in 35.7% of cases (5/14) and in two patients required also partial cistectomy. In two cases (14.3%) placenta percreta was diagnosed during delivery, whereas in the others it was diagnosed by routine obstetric ultrasound, and in 78.6% (11/14) confirmed by RMI. In 28.6% of patients (4/14) the treatment consisted in histerectomy, while in 71.4% (10/14) a conservative treatment was chosen, consisting in metotrexate administration and intravascular arterious embolization. In this last case, complications appeared after a median time interval of 17 days (IQR 1-22). Secondary histerectomy was performed in almost all cases (9/10). Risk factors for placenta percreta in our population include placenta previa and previous histerotomy which had a prevalence of respectively 78.6% and 85.7%. Maternal and neonatal survival resulted 100%, and one single newborn presented sequelae due to neonatal RDS syndrome. Conclusions. Considering the young age of women affected by placenta percreta in our population, conservative treatment with metotexate and arterious embolization represents an interesting option in the perspective of preserving women fertility or reducing the risks of immediate surgery performed at the time of delivery..

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764 | ORAL | Pregnancy Loss

PROPHYLACTIC CERVICAL CERCLAGE FOR CERVICAL INSUFFICIENCY: ETLIK MATERNITY AND CHILDRENS' HOSPITAL EXPERIENCE

Sertac Esin; Serdar Yalvac Ozgur Kisir Bulent Yirci Deniz Esinler Omer Kandemir
Etlik Zubeyde Hanim Women's Health Teaching and Research Hospital

Abstract:
Normally cervix dilates and softens at the end of the pregnancy in order to accommodate for fetal birth. However, infrequently these changes occur earlier in the absence of uterine contractions resulting in mid-trimester fetal loss and this is called cervical insufficiency.We retrospectively reviewed prophylactic cervical cerclage procedures between January 2007 and November 2012. In this period, among 74685 deliveries, 196 patients underwent prophylactic cervical cerclage procedure (0.26%). 78 patients whose medical and delivery records were complete were included in the study.A total of 78 patients were available for the final analysis. Mean patient age was 30.6±6.0. Median and interquartile range values for gravidity, parity and abortus were 5.0 (4-6), 1.0 (0-2) and 3 (2-4), respectively. Mean body mass index was 27.5±3.9. Mean gestational age at the cerclage operation and mean gestational age of delivery were 13.9±1.7 and 34.7±6.8 weeks, respectively. Median gestational age at when previous pregnancy loss happened was 17.5 (16.0-19.0). Among 78 patients who underwent cerclage procedure, 6 patients (7.9%) had accompanying uterine anomalies. 25 (32.4%) patients had cervical cerclage history in their previous pregnancies. Deliveries were grouped according to the gestational week and deliveries happening before 24 gestational weeks, between 24-37 gestational weeks and after 37 gestational weeks were 9 (11.5%), 19 (24.4%) and 50 (64.1%), respectively. 4 patients (5.1%) had preterm premature rupture of membranes (PPROM) during the first week after procedure and 4 (5.1%) patients had late PPROM (mean gestational week was 31.1±0.1). Mean birth weight was 2919±803 grams. 40 patients (51.3%) delivered by spontaneous vaginal birth and 38 (48.7%) patients delivered by cesarean birth. 43 (55.1%) of the newborns were male. There were 4 (5.1%) early neonatal deaths and these were all before 24 gestational weeks. We used history-indicated cervical cerclage, our mean gestational week for cerclage was 13.9±1.7 and this is consistent with the literature. Evaluation of the fetus with first trimester combined screening before procedure is crucial. We found out that mean latency period after the cerclage was 20.7±6.7 and 35.9% of the patients delivered prior to 37 weeks. This was in accordance with the literature and was reassuring however, the physician should pay attention to the high preterm birth rate after the procedure and should be highly alerted for preterm birth signs in order to use suitable tocolytics. We have found that 10.2% of the patients developed PPROM after the procedure and 5.1% of those were early PPROM. These early PPROM cases resulted in very early preterm births (<24 weeks). According to our study, PPROM during the first week after the cerclage was an ominous sign. In our study group, we have not witnessed chorioamnionitis or infection. We may speculate that absence of these complications may be the retrospective chart analysis design of the study we would have caused overlook for these symptoms. This was the main shortcoming of the study. As a conclusion, history-indicated cervical cerclage may be valuable for patients who have had a spontaneous second trimester lose.

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888 | ORAL | Prematurity

BRAZILIAN PRETERM BIRTH MULTICENTER STUDY: PRETERM PREMATURE RUPTURE OF MEMBRANES

Tábata Dias; G. Pinto(1), P. Rehder(1), M. Nomura(1), R. Tedesco(1), S. Marba(2), R. Júnior(1), J. Cecatti(1)

(1)Department of Obstetrics and Gynecology, School of Medical Sciences, University of Campinas, Brazil
(2)Neonatology Unit, Department of Pediatrics, School of Medical Sciences, University of Campinas, Brazil

Abstract:

Introduction: The incidence of preterm birth remains a complex health problem and is considered the leading cause of neonatal morbidity and mortality around the world. Many survivors face a lifetime of disability. Preterm birth is the main cause of infant mortality in Brazil. One of its determinants is preterm premature rupture of membranes. Patients, Methods: A multicenter study was implemented in 19 reference obstetrical units from several Brazilian regions. For a period of twelve months, researchers performed a prospective surveillance and data collection to identify preterm birth cases and their main causes, including information on preterm births related to preterm premature rupture of membranes. We identified 4,102 preterm births and compared with 1,145 term births. Maternal and neonatal outcomes were evaluated. Data analysis was performed by subgroups according to the time of occurrence of rupture of membranes, estimating their rates, ratios and relative risks for possible predictors. Results: Preliminary analysis of the study showed that 1,172 preterm deliveries were due to preterm premature rupture of membranes. Twenty per cent had a history of preterm delivery. Most births occurred between 34 and 36.6 weeks of gestation (57.1%). Smoking was related for 15.5% of the mothers and the use of alcohol for 18.3%. Bacterial vaginosis occurred in 14.3% and urinary tract infection in 25% of mothers. Less than half of women received corticosteroids for induction of fetal lung maturity, but more than three quarters used antibiotics. Clinical chorioamnionitis occurred in 8.7% of women and there were 4 cases (0.3%) of maternal sepsis. Induction of labor occurred in 25% of women. The cesarean rate was of 38.5%. There were 21 cases of fetal death (1.8%). Low birth weight was observed in 70% of cases. Seventy eight cases of 5 minutes Apgar score below seven (6.8%) occurred. There were 65 neonatal deaths among births before 34 weeks of gestational age (5,5%) e 16 (1,3%) between 34 and 36.6 weeks. Conclusion: Preterm premature rupture of membranes was responsible for almost 30% of preterm births in these institutions, with low rates of maternal complications, but perinatal outcomes troubling. Many risk factors identified in this study are amenable to interventions to prevent preterm birth.

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913 | ORAL | Developmental Origins of Adult Diseases

COMBINING SOLUBLE TUMOR NECROSIS FACTOR RECEPTOR1 (STNFR1) AND PREGNANCY ASSOCIATED PLA-CENTAL PROTEIN A (PAPP-A) WITH MATERNAL CHARACTERISTICS ARE USEFUL FOR FIRST TRIMESTER PREDICTION OF EARLY-ONSET PRE-ECLAMPSIA.

Markku Ryynanen; Anna Yliniemi BM1, Teemu Korpimaki, PhD2, Heikki Kouru, PhD2, Jaana Marttala, MD , PhD1,

1Department of Obstetrics and Gynecology, Oulu University Hospital, Finland 2PerkinElmer, Turku Finland

Abstract:

Objectives Early detection, in the first trimester, of high risk for early onset pre-eclampsia (EOPE) may enable the onset of treatment at an early stage, when the placenta is subject to re-differentiation and while maternal arteries could be remodeled. Early treatment with low dose aspirin and low molecular weight heparin has shown some potential for prophylaxis if applied from the first trimester of pregnancy. Retinol binding protein 4 belongs to the lipocalin family and is the specific carrier for retinol (vitamin A alcohol) in the blood and is secreted by the liver and adipose tissue. Serum RBP4 levels have been shown to be increased in insulin resistant states and high levels have been correlated with components of metabolic syndrome, including high BMI, hip-to-waist ratio, high triglyceride and blood pressure levels. RBP4 could also be a marker for cardiovascular disease. We wished to study whether RBP4, measured in the first trimester, could be useful as a marker for early detection of early onset pre-eclampsia. Method Serum samples of 711 controls with a normal pregnancy outcome and 60 patients with EOPE outcome were collected during GA 9-14 weeks in Oulu University Hospital (2002 - 2010). Analysis for RBP4 was performed using a prototype AutoDELFIA RBP4 kit (PerkinElmer). The RBP4 concentrations were converted to multiples of median (MoMs) by taking into account GA, maternal weight and smoking status related to each sample. A Wilcoxon rank-sum test was used to test for statistical difference in the results of cases vs. controls. A logistic regression model was fitted to the results to study the EOPE detection performance of the marker. Result The RBP4 MoMs of patients with EOPE outcome were significantly higher compared with the controls (median MoM 1.14 vs 1.01, Wilcoxon p=0.0002). The logistic regression model based on measured RBP4 concentration alone achieved ROC area under the curve (ROC-AUC) of 0.65 (CI95%: 0.57 - 0.72). Adding maternal characteristics (weight, age and smoking status) to the model improved the ROC-AUC to 0.71 (CI95%: 0.65 - 0.78). The modeled detection rates of EOPE were 17% (5% FPR), 25% (10% FPR) and 38% (15% FPR) for RBP4 alone. Adding maternal characteristics to the model did not significantly improve the detection rates. Conclusion According to the results, RBP4 level was significantly increased in the samples with the EOPE outcome. However, the logistic regression modeling revealed, that the normalized RBP4 concentration alone or together with maternal characteristics did not provide a detection rate that would be useful in screening. That said, RBP4 concentration might still be a valuable marker to be added to a screening algorithm that combines multiple biomarkers..

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1143 | ORAL | Prematurity

INFLUENCE OF ATOSIBAN® ON ELECTRICAL ACTIVITY IN THE UTERUS

Alberto Puertas-Prieto; M.P. Carrillo-Badillo, S. Ruiz-Durán, F. Montoya-Ventoso, J. Malde-Conde
Virgen de las Nieves University Hospital, Department of Gynecology and Obstetrics

Abstract:
Introduction: Consensus is emerging that future research should focus on improving our ability to predict preterm delivery by increasing our understanding of the pathophysiological mechanisms involved. Uterine electromyography is a promising method because it offers a noninvasive way to detect bioelectrical signals from the uterine muscle via electrodes located on the maternal abdomen. The aims of this study were to determine the influence of tocolytic treatment with Atosiban® on electrical activity in the uterus (EAU) in pregnant women with threatened preterm labor (TPL), and to search for patterns that distinguish between responders and women who will progress to preterm labor and delivery. Material and Methods: In 94 pregnant women with TPL we used a noninvasive method (MONICA® AN24) to measure uterine dynamics as EAU in mV. Measurements were started 30 min before tocolytic treatment was begun and continued for up to 12 h after treatment began. The women were divided into two groups: those in whom gestation lasted for 259 days or longer and those in whom delivery took place before 259 days. Results: Of the 94 women who were given tocoytic treatment, delivery was preterm in 37 (39.4%) and occurred after day 259 of gestation in 57 (60.6 %). In the group of women in whom tocolytic treatment failed, EAU 30 min before treatment was greater than in the group in which delivery took place after 259 days or more of gestation (143.7±28.5 vs. 117.0±17.9 mV) ($p<0.001$). Comparisons of the decrease in EAU after treatment for 30 min and 1, 2, 6 and 12 h showed that although electrical activity decreased in both groups, the decrease was significantly greater in women in whom delivery occurred before day 259 of gestation (138.6 vs. 107.1 mV, 139.2 vs. 104.8 mV, 132.7 vs. 100.6 mV, 116.6 vs. 91.8 mV and 88.8 vs. 85.9 mV; $p<0.001$). Conclusions: Electrical activity in the uterus before treatment was a predictor of treatment success. However, although the response of EAU to treatment was significant in both groups, an apparently paradoxical observation was that EAU decreased more in the group in whom delivery occurred before 259 days of gestation. A likely explanation is that the greatest decreases in EAU occurred in women with the greatest EAU, such that with time the values in both groups of women tended to become similar.

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1176 | ORAL | Developmental Origins of Adult Diseases

DOES PHYSICAL ACTIVITY AND DIET CONTROL REDUCE THE RISK OF DEVELOPING GESTATIONAL DIABETES MELLITUS IN EGYPT? A RANDOMIZED CONTROLLED TRIAL.

Nermeen El Beltagy; Sameh Saad El Deen, Rasha Mohamed
Alexandria University
Department of Obstetrics and Gynecology, Egypt

Abstract:
Does Physical Activity and Diet Control Reduce the Risk of Developing Gestational Diabetes Mellitus in Egypt? A Randomized Controlled Trial. Aim: To determine whether mild exercise and diet control reduce the risk of Gestational Diabetes Mellitus (GDM) among women at high risk of this disorder in Egypt. Method: A Randomized Controlled Trial enrolled 100 obese women at risk of GDM at the first antenatal visit. Participants were randomly assigned to participate in twelve weeks mild physical activity program and diet control. All women underwent routine GDM screening (24-28 weeks gestation) with fourteen weeks follow-up until birth. Result: obese women enrolled in mild physical activity program and diet plan (48 women) had a lower incidence to develop GDM than those participated in neither intervention (48 women) (OR 0.91, 95% CI 0.06-1.02). It was found that weight gain per week was significantly lower in the diet and exercise group than the other group ($p<0.001$). Also, there was no adverse neonatal outcome among all the study participants. Conclusion: Modifiable behaviours such as diet control and mild exercise in women with high risk for GDM can result in reducing the incidence of GDM with less macrosomic neonates and no adverse neonatal outcomes.

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1244 | ORAL | Prematurity

A NOVEL DIAGNOSTIC MARKER FOR NECROTIZING ENTEROCOLITIS: ISCHEMIA MODIFIED ALBUMIN

Gökhan Büyükkale; Merih Cetinkaya (1), Mehmet Cansev (2), Caner Aydin (1), Ferhat Cekmez (3), Gokhan Aydemir (3), Fatih Alparslan Genc (3), Tugba Erener Ercan (1)

1 Kanuni Sultan Suleyman Training and Research Hospital, Department of Neonatology 2 Uludag University Faculty of Medicine, Department of Pharmacology 3 Gulhane Military Medical Faculty, Department of Pediatrics, Department of Neonatology

Abstract:

Aim: Necrotizing enterocolitis (NEC) is the most common and serious gastrointestinal disorder of the preterm infants. Prematurity, hypoxic-ischemic insult, inflammation and feeding pattern constitute the major risk factors in the pathogenesis of NEC. Ischemia modified albumin (IMA), a sensitive biomarker of ischemia, has been frequently used for the early diagnosis of acute mesenteric ischemia and acute myocardial infarction in adults. The aim of this study was to investigate the efficacy of the measurement of blood IMA levels in the diagnosis of NEC. Method: Preterm infants (=37 gestational age) with confirmed NEC (stage II and stage III NEC) according to Bell's criteria were included in the study group. Preterm infants (=37 gestational age) with similar demographic features and who did not develop NEC constituted the control group. Study and control groups were matched for gestational age and birthweights. To eliminate the effects of maternal diseases; infants born to mothers with a history of chorioamnionitis, prolonged rupture of membranes, diabetes, or the use of any medication during pregnancy were not included in the study. The other exclusion criteria were refusal of parental consent, major congenital malformation and chromosomal anomalies. IMA levels were obtained at the diagnosis of NEC and after the cessation of NEC treatment in the study group. Result: A total of 60 preterm infants (40 with NEC and 20 without NEC) were included in the study. There were no significant differences between two groups with respect to demographic features. The mean IMA values (79.6±16 IU/mL) of infants in the NEC group at the time of diagnosis were significantly higher than the control group (33.7±4.7 IU/mL). At the end of NEC treatment, the mean IMA values (49±15.2 IU/mL) were significantly decreased. Conclusion: To our best of knowledge for the first time in the literature, we have shown that IMA may be offered as a sensitive, reliable and novel biomarker in addition to clinical and radiological findings in the diagnosis and follow-up of NEC.

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1259 | ORAL | Proven Strategies to Improve Outcome

THE ROLE OF 4-D ULTRASONOGRAPHY FOR THE IN UTERO ASSESSMENT OF FETAL NEUROBEHAVIOUR IN PREGNANCIES COMPLICATED BY GESTATIONAL DIABETES MELLITUS.

Pamagiotis Antsaklis; Theodora M. (1), Syndos M. (1), Daskalakis G. (1), Mesogitis S. (1), Papantoniou N. (1), Anastasiou E. (2), Antsaklis A. (1)

(1)First Department of Obstetrics & Gynaecology, 'Alexandra' Maternity Hospital, University of Athens, Greece (2)Department of Endocrinology, 'Alexandra' Maternity Hospital, Athens, Greece

Abstract:

OBJECTIVE: To assess with 4-D ultrasound the differences in fetal behavior in pregnancies complicated by gestational diabetes (GDM), and to examine how glycemic control affects fetal neurobehaviour. METHODS: A 16 month prospective study, where Kurjak antenatal neurodevelopmental test (KANET) has been applied to assess fetal neurobehavior in pregnancies complicated by GDM, using 4-dimentional ultrasound. Patients had regular ultrasound examinations after 28 weeks, when gestational diabetes was diagnosed, which were scheduled according to either the level of glycemic control or the ultrasound findings (e.g. polyhydramnios, macrosomia and KANET score). Based on the KANET scores, the fetuses were considered as normal (= 14 points), borderline (6-13), or abnormal (0-5). RESULTS: We studied 119 pregnancies complicated by GDM and 110 low-risk pregnancies, which represented the control group. Comparison of KANET scores in diabetic (119 patients) and non-diabetic pregnancies (110 pregnancies) showed differences in the fetal neurobehavior. The largest incidence of fetuses with abnormal and border line KANET scores was found in the group of fetuses with poor glycemic control, or ultrasound findings indicative of poor glycemic control (e.g. polyhydramnios, macrosomia etc.). KANET test scores appeared to improve, with improvement of glycemic control. CONCLUSION: Evaluation of the fetal behavior in fetuses of diabetic pregnancies using KANET test has the potential to detect fetuses with abnormal behavior and this appears to relate with the level of the glycemic control, and the improvement of KANET score was related with the improvement of glycemic control.

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1271 | ORAL | Proven Strategies to Improve Outcome

THROMBOPHILIA AND COMPLICATIONS OF MULTIPLE PREGNANCY AFTER IVF

Nataliya Makatsariya; Olga Panfilova (1),Marina Kiriya (1) ,Tatiana Rudneva (1)
(1) First Moscow State Medical University, Department of obstetrics and gynecology

Abstract:
We performed comparative clinical and haemostasiological examination of coagulation parameters in 50 women (I group) with a physiological uncomplicated multiple pregnancy and in 50 women (II group) with complicated pregnancy after IVF. Criteria of genetic thrombophilia were: mutation of the factor V Leiden, mutations of prothrombin G20210A, antithrombin III deficiency, protein C deficiency, 3 homozygous thrombophilic polymorphisms, or 5 heterozygotic polymorphisms, moderate or heavy hyperhomocycteinemia and antiphospholipid syndrome. In the I (control) group thrombophilia (5 heterozygotic polymorphisms) was revealed in 7 patients. Other forms of thrombophilia were not detected. In II group in 96% (n=48) thrombophilia was detected : mutation of factor V Leiden - in 16%(n=8), mutation of prothrombin G20210A - in 6 12 % (n=6), hyperhomocycteinemia - in 34%(n=17), antiphospholipid syndrome in 11 %(n=22), homozygous polymorphisms - in 11 %, heterozygotic polymorphisms - in 64 %(n=32), inherited thrombophilia assotiated with antiphospholipid syndrome- in 15 % of cases. All multiple pregnancies after IVF (48 of 50 in II group) were complicated with threatened abortions in I, II trimesters (in 17,5 %, n=35). Gestosis was developed in 17 %(n=34). Abruptio placentae with antenatal death of both foetuses in 5 from 50 women. Abruptio placentae complicated with antenatal death of one foetus in 10 patients. Premature delivery on 29-32 weeks took place at 15 women. Thromboses (thrombosis of vena jugularis, ileofemoral thrombosis) - in 2 cases (4 %) in I trimester of pregnancy. In the postnatal period in 2 patients with homozygous form of factor V Leiden mutation the ileofemoral thrombosis were diagnosed. In I (control) group 100 alive newborns were born. In 38 patients caesarean section was performed. In II group 70 alive children were born. Foetus losses have been associated with antenatal fetal death in 12 cases (14 children), early miscarriages in 4 cases (8 children), early neonatal death -in 4 cases (8 children). Results: we suggest that thrombophilia is of high importance in pathogenesis of complications of multiple pregnancy after IVF. Anticoagulant and antoxidant treatement and vitamins support is recommended in preparation to IVF, during gestation after IVF and in postnatal period.

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1307 | ORAL | Asphyxia

IMPACT OF FETAL PULSE OXIMETRY AND ST ANALYSIS SURVEILLANCE WITHDRAWAL ON RATES OF OBSTETRIC SURGERY AND FREQUENCY OF LOW BIRTH UMBILICAL ARTERY PH: A CAUSE OF RISING CAESAREAN RATES?

Karol Dokus; Jozef Visnovsky (1), Pavol Zubor (1), Katarina Matasova (2), Mirko Zibolen (2), Jan Danko (1)

(1) Dept. of Obstetrics and Gynaecology, Jessenius Faculty of Medicine, Comenius University, Martin, Slovakia (2) Dept. of Neonatology, Jessenius Faculty of Medicine, Comenius University, Martin, Slovakia

Abstract:

INTRODUCTION: The varying effect of intrapartum fetal pulse oximetry on frequency of operative deliveries resulted in its gradual clinical withdrawal, and the use of ST analysis became limited because of safety concerns. Lacking these additional tools for prediction of fetal intrapartum hypoxia obstetricians have to principally rely on CTG only monitoring. The purpose of this study was to analyze the impact of a withdrawal of CTG additional methods on a number of operative deliveries and frequency of a low birth umbilical pH in the settings of a regional perinatal center. METHODS: A retrospective observational study on a sample of 13.413 deliveries set at the regional perinatology center of Jessenius Faculty of Medicine, Comenius University, Martin, Slovakia. RESULTS: Following the withdrawal of CTG additional methods obstetricians are more likely to indicate caesarean sections for fetal hypoxia (OR 2.23, 95%CI 1.94-2.55, P< 0.0001) and labour dystocia (OR 1.45, 95%CI 1.18-1.77, P=0.0003), which increases the overall caesarean rate (OR 1.49, 95%CI 1.38-1.61, P< 0.0001), although decreases the incidence of birth umbilical arterial pH<7.15 (OR 0.43, 95% CI 0.22-0.85, P=0.015). This also leads to the significant decline in overall frequency of instrumental vaginal deliveries (OR 0.58, 95%CI 0.48-0.71). CONCLUSION: Withdrawal of fetal pulse oximetry and ST analysis is associated with increasing rates of caesarean sections. In order to decrease the caesarean rate obstetricians need to be supported by more accurate and possibly automated diagnostic tools for detection of intrapartum fetal hypoxia. ACKNOWLEDGEMENT: This work was supported by the grants of Science and Technology Assistance Agency under the No. APVT-20-033104 and the project CEPV II (ITMS code 26220120036) co-financed from EU sources.

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1339 | ORAL | Proven Strategies to Improve Outcome

INITIAL EXPERIENCE USING SIVELESTAT TO MANAGE PRETERM LABOR WITH A BULGING FETAL MEMBRANE IN PREGNANT WOMEN; CASE REPORTS

Yoshiyuki Nakajima; N. Masaoka

Department of Obstetrics and Gynecology, Tokyo Women's Medical University Yachiyo Medical Center

Abstract:

Intrauterine infection and inflammation are recognized as major contributors to the onset of preterm labor. We describe two cases of severe preterm labor with bulging membrane that were treated by intravenous injection of Sivelestat, a neutrophil elastase inhibitor. Ritodrine hydrochloride and magnesium sulfate were intravenously administered for tocolysis, and ampicillin was provided as an antibiotic. Urinary trypsin inhibitor (UTI) was administered transvaginally. Sivelestat was infused intravenously at 4.8?mg?kg-1?day-1 through the maternal vein. No side effects were observed. Levels of interleukin (IL)-6 and IL-8 in amniotic fluid decreased, and gestations were prolonged without complications for >1 week. Two healthy infants were delivered. Our experience suggests that multidrug therapy with Sivelestat offers a new therapeutic strategy for preterm labor, but further investigations of the indications, administration period and dosage are required.

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1354 | ORAL | Asphyxia

THE NEUROPROTECTIVE EFFECTS OF VALPROIC ACID, A HISTONE DEACETYLASE INHIBITOR,IN A NEONATAL HYPOXIC-ISCHEMIC RAT MODEL

Merih Çetinkaya; Tulin Alkan (2), Mehmet Cansev (3), Zehra Minbay (4), Bulent Goren (2), Sema Serter (4), Esra Orenlili (3), Nilgun Koksal (1)

(1) Uludag University, Faculty of Medicine, Department of Neonatology (2) Uludag University, Faculty of Medicine, Department of Physiology (3) Uludag University, Faculty of Medicine, Department of Pharmacology (4) Uludag University, Faculty of Medicine, Department of Histology

Abstract:

Introduction: Hypoxic-ischemic (HI) brain damage is a major cause of neurological morbidity and mortality in neonates. Several studies showed that neurodegenerative diseases were associated with a global decrease in histone acetylase transferase (HAT) activity, resulting in relative over-deacetylation. Therefore, histone deacetylase (HDAC) inhibitors were suggested as potentially therapeutic agents for treating acute injuries of the central nervous system. The aim of this study was to evaluate the neuroprotective effects of valproic acid (VPA), a histone deacetylase inhibitor, in neonatal hypoxic ischemic rat model and also investigate the possible neuroprotective effects associated with histone deacetylase inhibition. Methods: After being anesthetized, 7-day-old pups underwent ischemia followed by exposure to hypoxia. The pups were divided into 3 groups: sham group, vehicle group (saline group) and VPA group. VPA was administered intraperitoneally for three times; the first just after hypoxia-ischemia, the second and the third doses 24 and 48 hours after the first dose, respectively. After sacrification; brain infarct volume, apoptosis, HDAC activity, acetylated H4 protein and caspase 3 expression, and proinflammatory cytokine concentrations (IL-1ß, IL-6 and TNF-a) were evaluated in brain tissue of rat pups. Results: Percent infarcted brain volume was significantly reduced in rats which received VPA compared with the vehicle group. The number of TUNEL positive cells per unit area in hippocampus and cortex CA1 region were also markedly reduced in VPA treated group compared with control group. HDAC activity was found to be significantly reduced in VPA group compared with the control group, whereas acetylated H4 protein expression was significantly increased with VPA treatment. The caspase-3 activity in VPA group was significantly lower than the control group. The proinflammatory cytokine levels were decreased significantly with VPA treatment. Conclusion: To our best of knowledge this is the first study that showed the neuroprotective effects of VPA treatment as an HDAC inhibitor by reducing percent infarcted brain volume, histone deacetylase activity, inflammation and apoptosis while increasing acetylated H4 protein levels in a neonatal hypoxic-ischemic rat model.

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1463 | ORAL | Proven Strategies to Improve Outcome

USE OF CYTOMEGALOVIRUS HYPERIMMUNOGLOBULIN DURING PREGNANCY FOR PREVENTION OF CONGENITAL CYTOMEGALOVIRUS DISEASE

Maria De La Calle; Beatriz Herrero (1), Fernando Baquero (2), Amelia Fernandez (3), Felix Omeñaca (2), Jose Luis Bartha (1)

1 Obstetrics Department 2Neonatology department 3 Radiology Department

Abstract:

BACKGROUND: Congenital cytomegalovirus (CMV) infection is the most common cause of congenital disabilities and can cause auditory, cognitive and neurological impairment in infants. OBJECTIVES: Administration of CMV hyperinmmunoglobulin (CMV-HIG) to pregnant women who have a primary CMV infection has been reported to project their unborn children against symtomatic CMV infections. MATERIALS AND METHODS: We studied 30 cases of maternal CMV infection and reviewed fetal and neonatal outcome with or without treatment with CMV-HIG. Diagnosis was established by the presence of maternal IgG and IgM positive. The mean gestational age at diagnosis was 18.43 ± 5.2 weeks. The avidity was low in 23 cases (76%) and intermediate in 6 cases (24%). Amniocentesis was performed in 93,3% of cases (all but two), with polymerase chain reaction (PCR) positive amniotic fluid in 17 of them (60,7%). They decided abortion in 5 cases (17,9%). CMV-HIG was applied in 8 cases (33.33%) with PCR positive amniotc fluid and was not performed in the remaining 15 (65.2%). MRI was performed at 28 weeks gestation. RESULTS: Ultrasound anomalies were observed in 8 cases (32%). The percentage of fetuses with ultrasound abnormalities was identical in both groups (33.3% in each group: 5/15 vs. 25% 2/8). MRI was performed in 8 cases (32%) with abnormal results in only 3 of them agreed with the findings in prenatal ultrasound. There was no difference in gestational age at birth or birth weight, ultrasound postnatal brain, or the result of the lumbar puncture of infants CMV-HIG treated compared to untreated prenatally. There was only one early neonatal death in the untreated group. Comparing the cases with positive PCR in amniotic fluid, the total deafness and neurological poor prognosis were 100% (5/5) in the untreated group and 25% (2/8) in the CMV-HIG treatment group (p = 0.07). No side effect ocurred in CMV-HIG treated group. CONCLUSIONS. The percentage of fetal infection by PCR amniotic defined in cases of maternal infection is 60%. The fetal MR study did not improve prenatal diagnosis of neurological injuries. CMV-HIG was well tolerated. This preliminary study suggests an important role of CMV-HIG therapy for improving maternal fetal prognosis but include more patients are needed to draw firm conclusions.

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1731 | ORAL | Prematurity

EVALUATION OF A NOVEL PAMG-1 TEST (PARTOSUREÂ„¢ TTD TEST) TO PREDICT TIME TO DELIVERY IN PATIENTS WITH PRETERM LABOR

Tanja Nikolova; Oleg Bayev (1), Natasha Nikolova (2), Gian Carlo Di Renzo (3)

(1) Research Center of Obstetrics, Gynecology and Perinatology of the Ministry of Healthcare and Social Development of the Russian Federation, Moscow, Russian Federation (2) University Clinic of Obstetrics ad Gynecology, Skopje, Macedonia (3) Center of Perinatal and Reproductive Medicine Department of Obstetrics and Gynaecology University of Perugia, Perugia, Italy

Abstract:

Objective: The PartoSureâ„¢ TTD Test [based on the detection of placental alpha microglobulin-1 (PAMG-1)] is a newly available bedside test for prediction of time to delivery. The objective of this study was to determine the efficacy of the test in predicting imminent delivery in 7 or 14 days from the time of testing. Methods: The study population consisted of 101 consecutively recruited women with singleton pregnancies between 200/7 and 366/7 weeks of gestation with symptoms of preterm labor (PTL), clinically intact amniotic membranes, and minimal cervical dilatation (=3cm). The PartoSureâ„¢ TTD Test was performed on these patients and the test-to-delivery interval was calculated. Results: The PartoSureâ„¢ TTD Test predicted delivery within 7 days with 90.0% sensitivity, 93.8% specificity, 97.4% NPV, and 78.3% PPV. The test predicted delivery within 14 days with 80% sensitivity, 96.1% specificity, 93.6% NPV, and 87.0% PPV. Conclusion: A positive PartoSureâ„¢ TTD Test in patients presenting with symptoms of preterm labor, intact membranes, and minimal cervical dilatation (=3cm) indicates delivery will occur within 7 days with a high degree of accuracy. A negative result, furthermore, indicates that delivery within 14 days is highly unlikely..

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1739 | ORAL | Rotavirus, Newborns, Korea, NICU

THE DISTRIBUTION AND CLINICAL CHARACTERISTICS OF ROTAVIRUS INFECTIONS IN KOREAN NEWBORNS

Heng-mi Kim Kim; Hyehyun Moon, Sookhyun Park
Kyungpook National Uuniversity Hospital

Abstract:
Objective; Rotavirus is the most important etiological pathogen of severe gastroenteritis in infants. The incidence of outbreaks has been decreased apparently since rotavirus vaccine was introduced. Rotaviruses are segmented, double-stranded RNA viruses with at least seven distinct antigenic groups (A through G). Serotyping is based on the two surface proteins, VP7 glycoprotein (G) and VP4 protease-cleaved hemagglutinin (P). We investigated the common rotavirus strains of newborns admitted to NICU and clinical characteristics to figure out the epidemiology of symptomatic and asymptomatic infections. Methods; The fecal specimens of 408 newborns admitted into NICU of Kyungpook national university hospital between June 2010 and July 2011 were collected. All samples were tested with rotavirus enzyme-linked fluorescent assay (VIDAS rotavirus). In case the test proved positive, stool specimens were kept in a freezer (at or below zero) and then were transported monthly to Korea centers for disease control and prevention for performing RNA extraction and reverse transcription-polymerase chain reaction (RT-PCR). Results ; The total of 408 stool samples were examined by VIDAS rotavirus, 129 specimens (32%) were proven positive. 113 fecal specimens were eligible for RT-PCR, rotavirus was detected in 42 samples (37%). The mean gestational age, birth weight, and age at admission of 42 newborns corroborated RT-PCR positive for rotavirus are 39+2± 1+4 weeks, 3170 ± 531 g, and 9.4 ± 7.6 days , respectively. Twenty-two (52%) of the 42 newborns had one or more of gastroenteritis symptoms such as fever, diarrhea, and vomiting. The most common strain was G4P[6] (n=40, 96%), followed by G4P[8] (n=1, 2%), and G3P[3] (n=1, 2%). Twenty of 40 newborns with G4P[6] and all newborns with G4P[8] and G3P[3] had clinical symptoms. Conclusions; The G4P[6] strain is the most prevalent in Korea newborns, the half of infected newborns do not have typical clinical symptoms. Although newborns with asymptomatic rotavirus infection continued to excrete viruses, it is difficult to control and prevent the risk of transmission. Further studies is needed to comprehend the potential risks of asymptomatic infections.

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1740 | ORAL | Prematurity

THE SIGNIFICANCE OF SERUM IGF-1 LEVEL AS A PREDICTOR OF RETINOPATHY OF PREMATURITY IN LOW BIRTH WEIGHT INFANTS

Sang-sik Chun Sang-sik Chun; Sookhyun Park, Hengmi Kim
Kyungpook National University Hospital

Abstract:
Objective; The insulin-like growth factor (IGF-1) is a peptide, related to postnatal growth as well as retinal vascularization. Low levels of serum IGF-1 in preterm infants appear to predict an increased risk of retinopathy of prematurity (ROP), and other severe perinatal morbidities. Both poor early weight gain and low serum level of IGF-1 have been found to be correlated with severity of ROP. This study aimed to ascetain whether the level of serum IGF-1 is associated with the development and severity of ROP in Korean preterms. Methods; A prospective study was carried out on 73 premature infants, of less than 1750g, admitted to NICU of Kyungpook national university hospital from August 2008 to June 2011. We measured the level of serum IGF-1 and IGFBP-3 at birth. The ocular examination was performed once or twice a week, depending on the severity, by the later of 31 weeks' PMA or 4 weeks after birth. Results ; The level of serum IGF-1 at birth is correlated with birth weight (correlation coefficient R=0.398, P-value <0.001). The mean serum IGF-1 values at birth is statistically different between appropriate-for-gestation infants and small-for-gestation infants (25.23±22.81 vs. 10.88±8.02 ng/ml, P-value = 0.029), also between infants with and without morbidities such as ROP, bronchopulmonary dysplasia, and necrotizing enterocolitis (26.79±16.43 vs. 16.43±19.30 ng/ml, P-value 0.044). Infants with ROP (n=25) is significantly different in gestational age, birth weight, the incidence of BPD and the level of IGF-BP3, from infants without ROP (n=48). The level of serum IGF-1 at birth is not statistically different between infants with ROP and infants without ROP (17.81±20.32 vs. 25.21±22.05 ng/ml, P-value 0.058), but the level of serum IGF-1 at 21 days after birth is significantly lower in infants with ROP (22.39±8.70 vs. 31.92±9.93 ng/ml, P-value 0.017). The level of serum IGF-1 at birth is related to the time to the recovering birth weight and the body weight gain, and severity of ROP. Conclusions;. The serum IGF-1 level at birth is not significant as a predictor of retinopathy of prematurity. The low serum level of IGF-1 at 21 days after birth appears to provide a reliable prognostic value of ROP.

d likelihood for chromosomal abnormalities indicated by nuchal translucency scan, PAPPA test and A-test. Results: The rate of pregnancies where prenatal invasive procedures performed reduced from 18.67% in the first half of 2008 to 11.94% at the end of 2012. The age of the mother remained the main indication for karyotyping presenting a constant trend between 54.9% in 2008 and 60, 3% in 2012 for amniocentesis and a similar constant tension between 39.13% in 2008 and 33% in 2012 for CVS. Regarding the other indications observed a fold increase in karyotyping rate after NT and PAPPA scanning from 5.46% in 2008 to 10.34% in 2012. As regards the type of interventional methods there was a significant increase in the rate of CVS testing particularly following pathological NT-PAPPA test (4,34% in 2008 vs 26,08% in 2012). Remarkable was, that despite any economic situation women's age remained the main indication for invasive testing in relation to the most reliable method of screening, showing a statistically significant difference (54,89% vs 5,46% in 2008 and 60,34% vs 10,34% in 2012, p <0,001). Conclusions: The total number of invasive diagnostic procedures appears reduced in recent years. The age of pregnant woman