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VALUE OF POSTNATAL HOSPITAL OBSERVATION OF CHILDREN BORN THROUGH MECONIUM STAINED AMNIOTIC FLUID

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BACKGROUND Meconium stained amniotic fluid (MSAF) occurs in around 14 % of all pregnancies, but only a minority of these children will develop meconium aspiration syndrome (MAS). In the Netherlands, infants born through MSAF, are often admitted for a 24-hour observation period. We questioned the usefulness of postnatal hospital observation in vigorously born infants.

OBJECTIVE The aim of this study was to evaluate the usefulness of a 24-hour hospital observation period of newborn infants born through MSAF.

DESIGN/METHOD Newborn infants, born through MSAF, from two local hospitals (total 3200 deliveries) were included for whom a pediatrician was consulted. Infants were divided based on Apgar score, i.e. a 5-minute Apgar score of 9 or 10 (vigorous infants) (group 1) or below 9 (group 2). Gestational age, maternal fever, antenatal fetal monitoring (CTG), duration of rupture of membranes, mode of delivery, arterial umbilical pH, 1 and 5-minute Apgar scores, and postnatal course were recorded. Chest X-rays were not routinely performed.

RESULTS 171 patients were enrolled: 113 in group 1 and 58 in group 2. None of the group 1 infants developed MAS or had a chest X-ray performed. Four patients from group 2 developed MAS (5-minute Apgar scores respectively 6,7,7 and 8). These infants, all first born and full term, had an arterial umbilical pH<7,20. In 3 mothers CTG abnormalities were observed; 1 mother had fever. From the 54 infants (group 2) without MAS, 1 child died of asphyxia.

CONCLUSION This study shows that a 24-hour hospital observation period of newborn infants born through MSAF with a 5-minute Apgar score of 9 or 10 has no added value. Even in the group with 5-minute Apgar scores below 9 only 4 (6,9%) children developed MAS. Using the 5-minute Apgar score vigorous infants can safely be discharged.

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PREDICTIVE VALUE OF GENERAL MOVEMENTS (GMS) FOR NEUROLOGICAL OUTCOME. PRELIMINARY DATA.

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The aim of our study has been to evaluate predictive value of general movements (GMs) for neurological outcome in two groups of newborns: high-risk preterm and asphyxiated fullterm. We have evaluated 23 high-risk preterm (gestational age <32 weeks) and 7 fullterm infants affected by hypoxic-ischemic encephalopathy or neonatal stroke, admitted to the NICU of the Department of Biomedicine of Evolutive Age of Bari University from January 2004 to February 2005. Infants were videotaped for 1 hour at 35 (preterm), 40 and 45 (fullterm) weeks corrected age (CA) and then again for 15 minutes at 50 and 55 weeks CA, while another operator, blind to videotape data, evaluated Prechtl method. A complete neurological examination was performed in all infants. GMs individual developmental trajectory was compared with neurological examination at the age of one year. 8 preterms and 6 fullterm infants have been evaluated at 7 months and 12 months CA. At 7 months CA, 3 infants had cerebral palsy (CP) and 4 developmental retardation (DR). At one year CA, 5 out of 7 of these infants completed the evaluation: 3 cerebral palsy have been confirmed and 2 out of 4 with DR evolved in CP. 7 infants (5 preterm and 2 fullterm) with normal (6) or abnormal (1) fidgety show normal neurological outcome; 7 infants with absent fidgety movements (3 preterm and 4 fullterm) were affected by CP (1 preterm and 4 fullterm) or DR (2); of this group 6 infants (2 preterm and 4 fullterm) showed also cramped synchronized GMs. Cramped syncronized GMs and absent fidgety movements do predict poor neurological outcome so improving early detection and diagnosis of cerebral palsy. This technique is simple, non-intrusive, reliable and quick.

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DOES FIRST WEEK BLOOD PRESSURE IN EXTREMELY LOW BIRTH WEIGHT INFANTS INFLUENCE 2 YEAR OUTCOME

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Methods: Infants: all appropriately grown extremely low birthweight (ELBW) infants, who had had intra-arterial blood pressure measurements for at least half of the first week of life born between Sept 1997 and Oct 2002.The Z score of the blood pressure, for 8 hour periods in the first week were assessed. using the median and standard deviation of the gestation age groups. These Z scores could be used in different ways. The number of time periods the infant has had a Z score lower than 2SDs was counted, and whether the Z score was lower than 0 for more than half of the periods measured. Surviving infants were assessed two years after the expected date of delivery. At that motor skills, understanding and communicational skills, hearing, vision, fits, overall development, respiratory problems, diet and growth, and other problems were assessed by a senior neonatologist.

Results:A total OF 117 ELBW infants were born in the study period. 32 small for gestational age infants, three with no intra-arterial blood pressure measurements in the first week and 20 who had arterial measurements for less than half of the first week were excluded. The remaining 62 infants were included in the study (37 male (59.7%), and 25 female (40.3%). The gestation was 25.2 weeks (SD 1.28 weeks) and birthweight 756 g (SD 139.5 g). 36 infants (58.1%) received inotropes, 18 (29.0%) died, and 4 were lost to follow-up (6.4%). 40 infants were fully assessed at 2 years

No relationship could be found between mean arterial blood pressure during the first week of life and abnormal neurodevelopment.

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A LOW MEAN BLOOD PRESSURE IN EXTREMELY LOW BIRTH WEIGHT INFANTS IN THE FIRST WEEK IS NOT A RISK FACTOR FOR NEURODEVELOPMENTAL PROBLEMS AT AGE 2 YEARS

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Background: Hypotension may cause poor perfusion and ischaemia. It is not known what BP is too low to maintain adequate tissue perfusion. We have previously measured the distribution of BP in a database of 1230 infants (238 <1000g) over the first week of life. We examined whether a low mean blood pressure (mBP) in extremely low birth weight (ELBW), (<1000g) was associated with later abnormal neurodevelopment.

Methods: From 9/1997 to 10/2002, all ELBW infants were included who had continuous intravascular BP measurements. For each infant, each 6 hr period over the first 7 days of life was given a z score related to the total population. Small for gestational age (SGA) infants (n=32) and infants with >50% missing data (n=23) were excluded. The neurodevelopment (motor and communication skills, hearing, vision and overall development) of surviving infants was scored at two years corrected age - normal 1, mild problems 2, moderate 3, severe 4, dead 5. Severity of disability was plotted against the mBP Z-score and the Kruskal-Wallis test was used to compare groups.

Results: Data were available for 62 infants - gestation 25.2 weeks (SD 1.30) birthweight 756g (SD 140), 37 were male, 36 received inotropes. 18 died, and 4 were lost to follow up. At 2 year follow up, 15 (38%) had developmental delay, 9 (23%) motor and 17 (43%)communication difficulties, 11 (28%) visual and 2 (5%) hearing problems. There was no significant relationship between the mBP in the first week and the presence or degree of any neurodevelopmental parameter at the age of 2 years.

Conclusion: In this series we could define no relationship between mBP in the first week of life and neurodevelopmental outcome at 2 years of age.

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INTRAHEPATIC CHOLESTASIS OF PREGNANCY AND NEONATAL RDS: FIRST EVIDENCE OF A CORRELATION

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BACKGROUND Intrahepatic Cholestasis of Pregnancy (ICP) impairs the placental clearance of bile acids (BA) and has been associated with perinatal morbidity but no adverse outcomes have been reported in the newborn. We have recently supposed a causative role of ICP in 3 cases of respiratory distress syndrome (RDS) in near term neonates in which the most common etiologies were excluded. For this reason we conducted a retrospective cohort study to verify the association between ICP and RDS and to clarify the role of BA in the RDS occurrence.

METHODS We took data from our Division database about all newborns born during the years 2000 - 2004. Infants with Apgar's score < 7 at 5 minutes, any evidence of liver disease, major malformations or chromosomal aberrations were excluded from the study. Study neonates were 77 infants born from pregnancies complicated by the only ICP whereas control neonates were 427 infants born from pregnancy without any signs of ICP. In the ICP group we also studied maternal BA levels just before the delivery and neonatal BA levels during the first 24 hour of life.

RESULTS Univariate analysis showed a double incidence of RDS among newborns from ICP pregnancies(28.6% vs. 14%; $p < 0.001$). In the multivariate analysis, after adjustment for gestational age, sex and rate of antenatal steroids, ICP still was a factor significantly associated to the occurrence of neonatal RDS.

CONCLUSIONS This study demonstrates that ICP can play a significant role in the genesis of RDS in near term and mild preterm infants in which other causes are uncommon. BA can produce surfactant inactivation in the alveoli reverting the reaction of phospholipase A2. in the lungs. Prospective studies are needed to answer several open questions.

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A RARE ASSOCIATION OF TRANSIENT NEONATAL DIABETES AND TRISOMY X

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Background: Neonatal diabetes mellitus (NDM) has an incidence of 1/400,000–500,000 live births and is characterized by hyperglycemia with onset in the first 6 weeks after delivery. It may be transient, resolving spontaneously in the first four months or may persist for more than a year (30% of cases).

Case report: Preterm newborn, born SGA at 33 weeks of gestational age by emergency caesarian section for acute fetal distress. Family history: paternal grandmother and uncles of mother with diabetes type II, mother with gestational diabetes. Genetic prenatal diagnosis: trisomy X. Apgar at 1 min= 1, intubated and admitted to NICU, assisted ventilation for RDS.

Clinical features: patent ductus arteriosus, craniofacial dysmorphism (small ears, retrognathia, cleft palate), left valgus foot. Hyperglycemia at 2 h of life treated with continuous insulin infusion until 3 months of age, than replaced with subcutaneous therapy. At present, insulin therapy has been suspended and glycemic control is good. Clinical and laboratory investigations: High levels of LH, FSH, PRL, E2, PG, testosterone, DEA-S, 17-OHPG, ACTH and glucagons; low levels of basal cortisol; normal levels of GH, FT3, FT4, TSH were detected. Persistent low levels of C-Peptide, absence of anti-insulin, anti-islet and anti-GAD antibodies were also found. Abdominal ultrasonography was normal. The DNA analysis for polymorphism of chromosome 6 showed paternal uniparental isodisomy.

Discussion: Transient NDM is associated with uniparental isodisomy of chromosome 6 of paternal origin. Persistent NDM seems to be associated with an inactivating mutation of IPF1, which is necessary for the development of the pancreas as well as for glucose responsive stimulation of insulin gene transcription. The discrimination between transient and persistent NDM is important for both prognosis and therapy. In our opinion the association we found between trisomy X and transient NDM is likely casual. This report is the second one in the literature concerning a patient with transient NDM, uniparental isodisomy of chromosome 6 of paternal origin and trisomy X.