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**BREASTFEEDING PROMOTION IN 17 HOSPITALS IN A REGION OF CENTRAL ITALY**

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**Introduction:** Health services and healthcare workers in hospitals that care for mothers and newborns, play an important role in the promotion and support of breastfeeding (BF). Despite all the knowledge regarding the advantages of breastfeeding, there are still numerous obstacles to its diffusion and promotion during the hospital stay for childbirth.

**Methods:** In the year 2003 the Agency for Public Health of Lazio Region implemented a program to promote a regional network of hospitals to be accredited as Baby Friendly Hospitals (BFH) according to the 10 UNICEF/WHO steps. Seventeen hospitals out of 57 participated voluntarily; in these units about 23,000 births take place each year (45% of total births in the region). From September to November 2003, 61 healthcare workers (about four per unit) were trained with a 40-hour course. Throughout 2004, the 61 trainees trained 1,300 healthcare workers (midwives, physicians and nurses) at their units. To monitor the project two types of surveys were carried out, the first using the UNICEF Self Appraisal Tool, and the second, using a questionnaire on how the baby was fed during the hospital stay; both surveys were done in June 2003 and 2004.

**Results:** In total, implementation of the 10 steps went from 38% in 2003 to 58% in 2004. At the baseline the most critical points were for the first step (11% of positive answers), the seventh (24%) and the tenth (21%). After one year, step 1 rose to 41%, step 7 to 41% and step ten to 52%. The percentage of exclusive BF during the hospital stay rose from 35% (2003) to 46% (2004).

**Conclusions:** To our knowledge, this is the first BFH Italian initiative in which a such a large number of maternity units are involved on regional scale. Positive results were reached in BF rates but not as positive as results in the implementation of 10 steps. This demonstrates that the process of implementation of the 10 steps has to be carefully evaluated together with BF rates during hospital stay, at discharge and after.

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**FUNCTIONAL MOTOR OUTCOME AT THE CORRECTED AGE OF 2 YEARS IN PRETERM BORN CHILDREN WITH A GA OF 30 TO 31 WEEKS**

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**Introduction:** Methods measuring qualitative functioning are mostly time consuming and to detailed. A practical method to assess functional motor outcome is proposed and tested in this study.

**Patients and methods:** The examination, which tested different functions, is described in 185 preterm infants (30–31 weeks) at the corrected age of 24 months. Overall outcome and those on the functions were expressed as percentages of the total optimal age adequate performed items, which were related to each other and to possible neonatal confounders. Whereas outcome as at 24 months was compared to earlier outcome and to the results of the Bayley test of infant development.

**Results:** Mean BW of the 185 children was 1403 g (SD ± 338 g). There were 100 boys and 85 girls. The different functions were related to each other at the age of 24 months and also to the functions at 12 months (P < 0.01). Outcome was also related to the motor scale of the Bayley test of infant development (P < 0.01). At 12 months 73% of the children scored > 95% whereas only 44% scored the same at 24 months. Worst outcome was found for motility and gross motor function. Eleven children (6%) scored < 51%. In 130 children less optimal outcome was found at 24 months compared to 12 months, whereas 34 children improved. (P < 0.01). Outcome at 24 months was related to the neonatal brain ultrasound findings, neonatal risk score and total days of supported ventilation. Outcome at 24 months could be predicted (multiple regression analysis) by the performance of postural control at 12 months (P < 0.01).

**Conclusion:** The method to assess functional outcome in preterm infants as described in this study has been proved to be reliable, very useful and practical. Postural control during the first year is very important for later outcome.

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**9 YEARS FOLLOW UP OF PRETERM INFANTS < OR = 28 WEEKS AT BIRTH**

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**Background:** School performances are a concern in very small infants as they are at excess risk for mental retardation and borderline intelligence.

**Objective:** Social and academic assessment at 9 years of age of preterm infants < or = 28 weeks gestation.

**Methods:** All the 96 infants < or = 28 weeks gestation admitted in the NICU between January 1, 1992 and December 31, 1994 were included at birth in a prospective follow up. At 9 years of age 80 (83.3%) are alive. One with a cerebral tumor was excluded from the study. 3 could not be located from the age of 4. We sent the 76 families a questionnaire concerning academic results, school and extra-school supports.

**Results:** 59/76 families answered (77.6%). 14/17 families who did not answer the questionnaire had a child considered as normal at the age of 4. 40/59 (67.8%) are attending school at an age appropriate level. 25/59 (42.4%) follow speech therapy; 24/59 (40.7%) have a psychological or psychiatric support; 14/59 (23.7%) have psychomotricity; 10/59 (16.9%) follow a school support; 5/59 (8.5%) have a physical therapy; 9/57 (15.7%) are in special schools. For nearly half of the children (27/59) shyness or lower self-confidence is mentioned. Only 3/11 (27.3%) children who repeat a school year, follow easily the school curriculum afterwards.

**Conclusions:** Only 33.9% (20/59) have no school or extra-school support. The rate of children attending school at an age-appropriate level is less important for the children who had a neurodevelopmental delay at 4 (14.3%) in comparison with those who were considered as normal at 4 (88.9%) or with those who had behavioural disturbance at 4 (90.9%). The data confirm that we must have a long term follow up for the very preterm infants and that the capacities of our support have to be improved.

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**PROSPECTIVE, RANDOMIZED TRIAL OF IMMEDIATE VS DELAYED CORD CLAMPING IN PRETERM INFANTS: EFFECTS ON INTRAVASCULAR RBC VOLUME/MASS AND RBC TRANSFUSIONS**

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**Purpose:** Preterm infants, many with respiratory disease, need RBC transfusions early in life. Although studies in preterm infants of immediate versus delayed cord clamping suggested improved hemodynamics and fewer transfusions after delayed clamping, results are inconsistent. Previously, we reported (Transfusion 2003;43:1168) increased intravascular RBC volume/mass (measured with biotin-labeled RBCs) following delayed cord clamping. Now, we report whether this increased RBC volume/mass alters RBC transfusions.

**Methods:** A prospective, randomized trial tested the hypothesis that delayed cord clamping would expand neonatal RBC volume/mass sufficiently to reduce transfusions. Following consent, preterm infants (<36 weeks gestation) were randomized to immediate (<5 seconds) or delayed (60 seconds) cord clamping. Infants too unstable for delayed clamping experienced immediate clamping followed by transfusion of autologous/placental RBCs to simulate delayed clamping. Later transfusions (15 mL/kg) for all infants were prescribed using uniform guidelines.

**Results:** Results are reported as mean values for immediate versus delayed clamping. Biotin RBC volume/mass within 24 hours of birth = 36.8 vs 42.1 mL/kg (p = 0.04). Concurrent hematocrit = 53.6 vs 54.0% (p = 0.86). 71% (59 of 83 infants) with immediate clamping versus 83% (44 of 53 infants) with delayed clamping needed no transfusions (p = 0.20). Thus, 24 infants with immediate clamping received 107 transfusions (4.5/infant) versus 9 infants with delayed clamping given 36 transfusions (4.0/infant) (p = 0.37).

**Conclusions:** Intravascular RBC volume/mass significantly increases with delayed cord clamping; not reflected by different hematocrits. This increased RBC volume/mass was not sufficient to significantly reduce RBC transfusions. However, a trend was evident, suggesting additional studies are warranted.

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**COMPARISON OF NEONATAL OUTCOME BETWEEN SPONTANEOUS TWIN PREGNACIES AND TWINS AFTER IN VITRO FERTILIZATION: IS IT REALLY A PROBLEM BEING BORN AFTER IVF?**

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**Background:** The increased risks of prematurity, twin pregnancies, and low birth weight associated with the use of assisted reproductive technology have been well published. However, there are a few reports about Korean infants. The purpose of this study was to investigate and compare neonatal outcome and perinatal outcome in twin in vitro fertilization (IVF) pregnancies to those of spontaneously conceived twin pregnancies.

**Methods:** A retrospective review of all twin infants born at Kangnam Sacred Heart Hospital, Hallym University from 1 January 2000 to 31 December 2004 was done. 204 neonates from spontaneous twin pregnancies and 54 from IVF twin pregnancies were taken into consideration with regard to: premature birth, low birth weight, Apgar score, major neonatal diseases, maternal characteristics, paternal age, obstetric complications, neonatal outcome, and mortality.

**Results:** The incidence of prematurity and low birth weight was significantly higher in twins after IVF than in twins from spontaneous pregnancies. Mean birth weight, mean gestational week were significantly lower, and the duration of hospitalization was significantly longer in the IVF twin. Mean maternal age, proportion of nulliparous women, the incidence of premature rupture of membranes, cesarean section, and the incidence of incompetent internal os of cervix were significantly higher in the IVF twin. Furthermore, the incidence of sepsis and twin opposite sex was significantly higher in twins from IVF.

**Conclusion:** When compared with spontaneous twins, IVF twins have higher incidence of preterm birth, low birth weight, and have lower gestational weight, longer hospital stay.

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**TREATMENT OF FETAL LUNG HYPOPLASIA WITH ANTENATAL STEROIDS: EFFECTS ON PULMONARY CIRCULATION AND RESPIRATION IN THE NEWBORN**

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**Aims:** We have previously shown that fetal lung hypoplasia (LH) has more influence on the pulmonary circulation than on ventilation in newborn lambs (Suzuki K et al; *Pediatr Res* 57: 530–6, 2005). The objective of this study was to determine the effects of antenatal maternal steroid treatment on the pulmonary circulation and respiration in a sheep model of LH.

**Subjects and methods:** LH was induced in 12 ovine fetuses by tracheo-amniotic shunt and amniotic fluid drainage beginning at ~105 days of gestation (term ~147 days). In 6 of these fetuses (LH+S group), one dose of betamethasone (11.4 mg im) was given to the mother 24 hours before elective delivery. At ~140 days, after vascular catheterizations and ultrasonic flow probe implantation, lambs were delivered and ventilated for 2 hours under sedation, during which we recorded systemic and pulmonary artery pressures, left pulmonary artery blood flow, airway pressure and ventilatory air-flow.

**Results:**

	Control (n=6)	LH (n=6)	LH+S (n=6)
Lung weight (g/kg BW)	29.8±2.7	*21.7±1.3	**19.6±2.1
Lung DNA (mg/kg BW)	186±13	*145±7	**132±11
FI/O <sub>2</sub> at 2h	0.38±0.03	0.35±0.02	0.33±0.01
Cr <sub>s</sub> at 2h (mL/cmH <sub>2</sub> O/kg BW)	0.57±0.04	*0.40±0.03	**0.41±0.03
PVR at 2h (mmHg/mL/min*kg BW)	0.32±0.04	*0.76±0.06	**0.44±0.04

Cr<sub>s</sub>: total respiratory system compliance  
 PVR: pulmonary vascular resistance  
 difference between control and LH(+S) (\*p<0.05, \*\*p<0.01)  
 difference between LH and LH+S (#p<0.05, ##p<0.01)

**Conclusions:** In our model of mild fetal LH, the reductions in lung size (~30%) and Cr<sub>s</sub> (~30%) at 2 hours after birth were not significantly affected by antenatal steroid treatment. In contrast, the increase in PVR observed in LH lambs, which was more than proportional to the change in lung size (~140%), was significantly reduced with antenatal steroid treatment. Thus, even a single dose of maternal betamethasone 24 hours prior to birth has significant favorable effects on the postnatal adaptation of the pulmonary circulation in LH lambs.