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OUTCOME AFTER NEONATAL HYPERBILIRUBINEMIA : A SYSTEMATIC REVIEW

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Background/aim: Kernicterus is the most feared and the best described complication of untreated neonatal hyperbilirubinemia (NH). More common complications and their impact on neurodevelopmental outcome/ impairment (NDO/I) remain unclear. We performed a systematic review of the literature since 2001 on kernicterus, hearing and visual outcome, NDO/I and secondarily on nevi development, phototherapy induced DNA-changes and other controversial outcomes.

Method: A standardized, systematic search was performed (Medline, Embase and Cochrane database). After screening titles and abstracts, full articles were assessed and eligible ones were included and graded according their level of evidence.

Results: From 557 hits, 39 studies were included. The following outcomes were included (the number corresponds to the number of articles addressing each outcome): 5 kernicterus, 6 hearing impairment, 6 visual outcome, 2 retinopathy of prematurity (ROP), 18 NDO/I, 2 nevi, 4 autism and 1 each for asthma, cerebral MRI changes and attention deficit syndromes (ADS). Besides the development of kernicterus we found a clear correlation between NH and NDO/I as well as a significantly lowered IQ in the presence of a positive coombs test. No correlation between NH and visual impairment or ROP was seen, whereas hearing impairment, nevi development, phototherapy induced DNA changes or later apparent ADS and asthma remain controversial.

Conclusion: NDO/I and kernicterus are the most commonly reported complications of NH. The impact of NH on more frequent and less severely disabling outcomes like hearing or visual impairment remains unclear. New controversies on the possible association between NH and asthma, ADS or autism arise.

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THE PERINATAL MORTALITY IN LETO' MATERNITY HOSPITAL NICU DURING 2007-2009, AND SURVIVAL OF NEWBORN INFANTS WITH BW ≤ 1500 GRAMS

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Background and aims: Recording the survival of newborns in any Maternity Hospital is of utmost importance, as it contributes to the understanding of the level of perinatal care in Greece.

The aim is to present evidence about perinatal mortality and survival rate of very low birth weight (VLBW) neonates (birth weight (BW) ≤ 1,500 grams) at the NICU at Leto Maternity Hospital.

Methods: Neonates transferred to other hospitals, admissions in Leto's NICU, perinatal mortality and neonatal survival (BW ≤ 1,500 grams), were recorded and documented during 2007 to 2009.

Results: In 2007, 744 neonates admitted in the NICU, 37 with BW ≤ 1,500 grams (11 with BW=500-1,000 grams and 26 with BW=1,001-1,500 grams). Five were transferred to other hospitals (three for financial reasons and two needed surgical operation treatment). In 2008, 908 neonates admitted in the NICU, 40 with BW ≤ 1,500 grams (17 with BW=500-1,000 grams and 23 with BW=1,001-1,500 grams). Six were transferred to other hospitals (three needed intestinal surgery treatment, and three with posthemorrhagic hydrocephalus). In 2009, 911 newborns admitted in the NICU, 45 with BW ≤ 1,500 grams (15 with BW=500-1,000 grams and 30 with BW=1,001-1,500 grams). Four were transferred to other hospitals (two for financial reasons and two with posthemorrhagic hydrocephalus). 11 early fetal deaths were recorded (3, 3, and 5 for each year respectively) but no late neonatal fatalities (Table 1).

	Perinatal Mortality %	Survival %		
		501-1500 grams	500-1000 grams	1001-1500 grams
2007	4,53	90,63	75	95,9
2008	3,39	88,60	77	95,5
2009	4,43	88,00	73	93,4

Table 1, Perinatal mortality (%) and neonatal survival (%) with BW ≤ 1500grams.

[Table 1]

Conclusions: The survival of VLBW neonates is considered to be equal to other European Union countries.

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PREECLAMPSIA PROTECTS VERY LOW BIRTH WEIGHT INFANTS FROM RETINOPATHY OF PREMATURITY

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Objective: To study the influence of maternal preeclampsia on the occurrence of ROP.

Design/methods: A prospective cohort study was conducted from 2002 to 2009 including all preterm neonates with birth weight (BW) ≤ 1,500 g and gestational age (GA) ≤ 32 weeks. Main outcomes were the occurrences of any stage and severe ROP. Maternal variables were: age, number of prenatal attendances, hours of membrane rupture, use of antenatal steroids, occurrence of preeclampsia and essential hypertension, mode of delivery and prior preterm birth. Postnatal variables were: BW, GA, gender, multiple gestation, 5 minute Apgar score, use of oxygen by nasal CPAP or mechanical ventilation, use of erythropoietin, indomethacin and surfactant, need of blood transfusions, occurrence of sepsis, meningitis, persistent ductus arteriosus,

any grade intraventricular hemorrhage, and being small for GA (< 10th percentile) .

Results: 324 neonates and 293 mothers were included. Mean birth weight was 1128 240 grams, and mean gestational age 29.7 1.9 weeks. 103 (29.9%) achieved any stage ROP, and 24 (7.4%) severe ROP. After adjustments by logistic regression, BW (OR 0.997; 95%CI: 0.996-0.998; p< 0.001), occurrence of preeclampsia (OR 0.263; 95%CI: 0.133-0.519; p< 0.001) and use of antenatal steroids (OR 0.573; 95%CI: 0.332-0.991; p=0.046) were independently risk factors for any stage ROP. Only maternal preeclampsia (OR 0.182; 95%CI: 0.040-0.882; p=0.027) and BW (OR 0.997; 95%CI: 0.995-0.999; p=0.001) showed significance for severe ROP.

Conclusions: We suggest that maternal preeclampsia is a protector factor for ROP.

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ASSESSMENT OF THE CONTRIBUTION OF CYTOKINE PLASMATIC LEVELS TO DETECT RETINOPATHY OF PREMATURITY

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Objective: To evaluate the association of plasmatic levels of IL-6, IL-8, IL-10, IL-1 β, and TNF- α with the presence of any stage of ROP or with ROP stages 3 or more in very low birth weight preterm infants with clinical early-onset sepsis.

Design/methods: From July 2005 to October 2007, inborn preterm infants with birth weight ≤ 1500 grams and gestational age ≤ 32 weeks with clinical early-onset sepsis were included in a prospective cohort study. We excluded patients that died before 6 weeks of life, had major malformations or congenital infections. Plasma was assayed for IL-6, IL-8, IL-10, IL-1 β, and TNF- α in the same sample collected for sepsis work up. ROP was diagnosed in screening assessments in NICU. The highest stage of ROP was considered.

Results: We enrolled 74 patients (mean gestational age: 29.5 ± 0.2 weeks; mean birth weight: 1110 ± 230 grams) that were followed from birth to hospital discharge; 49 (66.2%) had no ROP and 25 (33.8%) had any stage ROP (17 had stages 1 or 2, and 8 had stage 3 or more). All median cytokine plasmatic