oligosaccharides did not influence the immune response on vaccinations against DTaP-Hib in preterm infants.

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PRETERM INFANTS DO NOT UPREGULATE GSH SYNTHESIS DURING SEPSIS

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Background and aims: Preterm infants with sepsis have poorer long term outcome than preterm controls. Free radical production is increased during sepsis and the severity of oxidative stress is related to outcome. Preterm infants have reduced antioxidant defenses in the direct postnatal phase. We hypothesized that preterm infants are unable to up regulate the synthesis rate of the major intracellular antioxidant, glutathione (GSH), during sepsis, which could provide a mechanism through which sepsis might have a detrimental effect. The aim of this study was to quantify GSH synthesis rates in erythrocytes of preterm infants with sepsis and control subjects.

Methods: Preterm infants (birth weight < 1500 g) who were diagnosed with nosocomial sepsis (according to CDC criteria) and matched controls were included. [¹³C]glycine, a precursor for GSH synthesis, was administered within 24 hours after onset of symptoms to determine fractional synthesis rate (FSR). Glycine enrichment in GSH was determined using liquid chromatography coupled to isotope ratio mass spectrometry (LC-IRMS). Absolute synthesis rate was calculated from the FSR and GSH concentration. In plasma, oxidative stress markers were determined.

Results: Gestational age ($27^{1/7} \pm 2^{1/7}$ weeks), birth weight (872 ± 220 g), age at study (9 ± 5 days) and weight at study (909 ± 246 g) were not significantly different between groups (n=7 each). GSH synthesis rates and concentration were not statistically different (figure).

[GSH kinetics (presented as median and min-max)]

Conclusion: Preterm infants did not upregulate the GSH synthesis in response to sepsis, but GSH concentrations were not lowered by sepsis either.

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A-LACTALBUMIN AND CASEIN-GLYCOMACROPEPTIDE HAVE NO EFFECT ON IRON ABSORPTION FROM LOW-IRON FORMULA IN HEALTHY TERM INFANTS

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Background and aims: Iron absorption from infant formula is low. α -Lactalbumin and casein-glycomacropeptide are thought to enhance mineral absorption. We evaluated the effects of α -lactalbumin and casein-glycomacropeptide on iron absorption from low-iron infant formula in healthy term non-iron-deficient infants.

Methods: In a double-blind randomized controlled trial, 32 infants were assigned to receive one of three low-iron (4mg iron/L) formulas from 6 weeks to

6 months of age. The formulas contained the same protein amount (13.1g/L) but different concentrations of α -lactalbumin and casein-glycomacropeptide: (1) standard formula (11% α -lactalbumin/14% casein-glycomacropeptide; n=10), (2) α -lactalbumin-enriched formula (25% α -lactalbumin/15% casein-glycomacropeptide; n=11), and (3) α -lactalbumin-enriched/casein-glycomacropeptide-reduced formula (25% α -lactalbumin/10% casein-glycomacropeptide; n=11). Ten exclusively breastfed infants were recruited as a reference. At 5.5 months of age, infants were given ^{58}Fe with one of their feeds. Blood samples were collected 14 days later for fractional iron absorption and serum ferritin determination.

Results: Mean ($\pm$ SD) iron absorption was $10.3\pm 7.0\%$ from standard formula, $8.6\pm 3.8\%$ from α -lactalbumin-enriched formula, and $9.2\pm 6.5\%$ from α -lactalbumin-enriched/casein-glycomacropeptide-reduced formula, with no difference among the three formula groups ($P=0.92$). Iron absorption from all three formulas was $9.4\pm 5.8\%$ compared to $12.9\pm 6.5\%$ from breastmilk ($P=0.73$). In the formula-fed infants, but not the breastfed infants ($P=0.51$), iron absorption was negatively correlated with serum ferritin ($P=0.01$), and was higher ($P=0.01$) in infants with serum ferritin $< 12\mu\text{g/L}$ ($16.4\pm 12.4\%$) compared to those with serum ferritin $\geq 12\mu\text{g/L}$ ($8.6\pm 4.4\%$).

Conclusions: α -Lactalbumin and casein-glycomacropeptide do not affect iron absorption from low-iron formula in healthy term infants. Low serum ferritin concentrations enhance iron absorption from infant formula.

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HYPOTHERMIA-TREATED INFANTS WITH HIE: MRI FINDINGS IN RELATION TO SHORT-TERM OUTCOME.

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Background and aims: Induced moderate hypothermia (HT) reduces neurodevelopmental disabilities in full-term infants with moderate/severe HIE. Pathological findings on MRI correlate to outcome.

We investigated whether pathological findings on MRI after HT treatment predicted short-term neuromotor outcome in HIE infants.

Methods: Between May 2006 and December 2009, 69 infants were treated with HT (33.5° C for 72 hours). MRI was performed on day 5-15 (median 8) in surviving infants. Patterns of injury were defined as: watershed (WS), basal ganglia/thalamus (BGT), or global(G) predominant pattern on MRI by two blinded readers. Motor functions were assessed at 4,12 and 24 months of age. All included infants had reached the age of 4-months.

Results: Out of 69 HT-treated infants 61 had a MRI examination; 3 parents did not consent and 5 infants died. Two infants were lost for the 4-months follow up. WS-pattern was seen in 5 (9%), BGT pattern in 11 (19%), and global lesions in 2 (3 %). Pathological 4-months outcome was found in 10/11 infants with BGT-pattern. None of the infants with WS or normal MRI had abnormal score on the Alberta Infant Motor Scale (AIMS) at 4 months of age. In the infants with global lesions, care was discontinued after the MRI examination.

Conclusion: Among asphyxiated infants treated with HT, only those with abnormalities in basal ganglia/thalamus on MRI showed pathologic short-term neuro-motor outcome.

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SURFACTANT DIPALMITOYL PHOSPHATIDYLCHOLINE KINETIC IS MARKEDLY IMPAIRED IN TERM NEWBORNS WITH PNEUMONIA

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Background and aims: The efficacy of exogenous surfactant treatment in term newborns with pneumonia is still undetermined. Aim of the study is to assess surfactant dipalmitoyl phosphatidylcholine (DPPC) kinetics in newborns with pneumonia using U^{13}C -DPPC as tracer.

Methods: Nineteen full-term newborns requiring mechanical ventilation were enrolled: 9 had severe