Low splanchnic oxygenation (srSO2 < 30%) and low variability of srSO2 during the first week of life seems to be associated with an increased risk of developing NEC in extremely preterm newborns. The presence of artefacts due to movements, intraluminal air in the intestine or meconium can interfere with the interpretation of NIRS and should be carefully taken into account.
ID: 262

TITLE: RISK OF NECROTIZING ENTEROCOLITIS ASSOCIATED WITH THE SINGLE NUCLEOTIDE POLYMORPHISMS VEGF C-2578A, IL-18 C-607A, AND IL-4 RECEPTOR A-CHAIN A-1902G: A VALIDATION STUDY IN A PROSPECTIVE MULTICENTER COHORT

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CONTENT:

The etiology of necrotizing enterocolitis (NEC) is multifactorial and an underlying genetic predisposition to NEC is increasingly being recognized. A growing number of studies identified single nucleotide polymorphisms (SNPs) of selected genes with potential biological relevance in the development of NEC. However, few of these genetic studies have been replicated in validation cohorts.

We aimed to confirm in a cohort of 358 preterm newborns (gestational age < 30 weeks, 26 cases of NEC≥ Bell stage 2) the association with NEC of three candidate SNPs: the vascular endothelium growth factor (VEGF) C-2578A polymorphism (rs699947), the interleukin (IL)-18 C-607A polymorphism (rs1946518), and the IL-4 receptor α-chain (IL-4Rα) A-1902G polymorphism (rs1801275).

We observed that allele and genotype frequencies of the three SNPs did not significantly differ between the infants with and without NEC. In contrast, the minor G-allele of the IL-4Rα A-1902G polymorphism (rs1801275) was significantly less frequent in the group of 51 infants with the combined outcome NEC or death before 34 weeks postmenstrual age than in the infants without the outcome (0.206 vs. 0.331, P=0.01). In addition, a significant negative association of the G-allele with the combined outcome NEC or death was found using the dominant (adjusted odds ratio, aOR: 0.44, 95% CI 0.21 – 0.92), recessive (aOR 0.15, 95% CI 0.03 – 0.74) and additive (aOR 0.46, 95% CI 0.26 – 0.80) genetic models.

In conclusion our study provides further evidence that a genetic variant of the IL-4Rα gene may contribute to NEC.

COI: None declared
ID: 421

TITLE: PREDICTING INTESTINAL RECOVERY AND SURVIVAL AFTER NECROTIZING ENTEROCOLITIS IN PRETERM INFANTS

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CONTENT:

Preterm infants who develop necrotizing enterocolitis (NEC) are managed with a nil per mouth (NPO) regimen. The duration of NPO is currently determined by consensus based guidelines. As enteral feeding is essential for gut function and growth, it is desirable to minimize the duration of NPO. Re-feeding before full intestinal recovery, however, has been associated with the development of recurrent NEC. So far, little is known about the individual intestinal recovery in preterm infants suffering from NEC. We evaluated if several biomarkers are able to predict intestinal recovery and survival in preterm infants with NEC.

We included preterm infants (gestational age <37 weeks) who developed NEC Bell’s stage ≥2 between January 2015 and May 2017. After NEC onset, we continuously measured intestinal tissue oxygen saturation (rintSO2) for two hours daily and calculated mean and range. We collected urinary intestinal fatty binding protein (I-FABPu) levels once daily. To predict survival, we used data collected 24 and 48 hours after NEC and performed logistic regression analysis. As a measure for intestinal recovery, we determined the group’s median time to reach full enteral feeding (FEFt) and designed two groups; < or ≥ median FEFt. We repeated the logistic regression analyses and added data collected around the first re-feed. We determined cut-off points with ROC-curves and designed one prediction model.

We included 40 preterm infants with NEC with a median gestational age of 27.1 [IQR 25.9-29.3] weeks and a birth weight of 1033 [IQR 796-1306] grams. Thirteen infants (33%) died. Median FEFt was 14 [IQR 12-23] days. A higher rintSO2 and a larger rintSO2range after the first re-feed significantly predicted FEFt < 14 days (Fig 1). For every 10% increase in rintSO2 and rintSO2range, the OR to reach FEFt < 14 days was 1.8 (95% CI 1.1-3.0) and 3.0 (95% CI 1.1-8.1) in the entire group and 2.7 (95% CI 1.1-6.6) and 13.5 (95% CI 1.2-157.8) in conservatively treated infants. A rintSO2 cut-off of 53% combined with a rintSO2range cut-off of 50% predicted FEFt < 14 days with an OR of 16.7 (95% CI 2.3-122.2). I-FABPu did not predict FEFt. In addition, we found that the rintSO2 and I-FABPu at 24 hours, and the rintSO2 and rintSO2range 48 hours after NEC onset, significantly predicted survival (Fig 1).

A higher rintSO2 and a larger rintSO2range measured after the first enteral feed after NEC may help to predict a rapid intestinal recovery. In addition, a higher rintSO2, a larger rintSO2range, and a lower I-FABPu concentration measured during the first 48 hours after NEC onset predict survival in preterm infants with NEC.

IMAGES:

https://www.eiseverywhere.com/eselectv3/v3/events/351149/submission/files/download?fileID=0f06aa806bf38d8e80d5b483c245eaeb-MjAxOS0wNSM1Y2UyNjY2YzU5MThi

Figure 1. Biomarkers predicting time to reach full enteral feeding and survival in preterm infants with NEC

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