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PREDICTIVE VALUE OF URINARY INTESTINAL FATTY ACID BINDING PROTEIN IN NECROTISING ENTEROCOLITIS

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Aims of study: The diagnosis of NEC can be challenging with resultant high morbidity and mortality. A potential biomarker, intestinal fatty acid binding protein (IFABP), specific for bowel damage and measurable in the urine is increased once NEC is established. Normal value of urinary IFABP and predictive value of IFABP in pre-clinical NEC is unknown and the subject of this study.

Methods: Prospective observational cohort study of neonates born less than 34 weeks in a tertiary UK neonatal unit. Urine samples collected three times a week until 36 weeks gestation. Urine measured for paired IFABP and creatinine and clinical data recorded. Data analysed with non-parametric tests, median (range) and Receiver Operating Characteristic (ROC) for predictive value.

Results: 146 neonates recruited from March 2015-May 2016. Ten neonates developed Bell stage II/III NEC, with two excluded as no urine samples collected within 7 days of NEC. NEC group had 8 neonates (6 male), median birth-weight of 780g (600-1530) and gestational-age of 27+4weeks (26-29+4). A matched control group with no NEC concerns was identified, 8 (5 male) neonates, median birth-weight of 950g (750-1230) and median gestation of 27+4weeks (26+1-29+1). Mann-Whitney U test showed no difference in gestational-age (p=0.56) and birth-weight (p=0.19).

22 urine IFABP/Cr data within 7 days of the diagnosis of NEC were compared with all control group data urine IFABP/Cr (75 samples). The median urine IFABP/Cr was 1.8pg/nmol (0.46-5.8) for the NEC group and 1.4pg/nmol (0.11-5.7) for the control group (p=0.15, Mann-Whitney U test). ROC gave an area under the curve of 0.61 (p=0.14).

Conclusions: Although IFABP is specific for enterocyte damage it does not increase significantly in the week before the diagnosis of NEC. Based on this data routine use of urine IFABP/Cr cannot be recommended to predict the preclinical onset of NEC in neonates at risk of NEC.