

Methods: Urinary protein levels of NT pro-BNP, NGAL, and H-FABP were measured and correlated with the necessity of therapeutic interventions for PDA. In a group of 38 preterm infants with a birth weight of less than 1500g, the protein concentrations in urine were tested on day 0-1, 2-4, and 6-8 by ELISA methodology. 12 of 38 infants required therapeutic interventions according to current treatment standards.

Results: Infants receiving an intervention for PDA (either ibuprofen treatment or ligation) showed significantly higher levels of NT pro-BNP, NGAL, and H-FABP at all time points except for NT pro-BNP on day 0. Infants requiring a second or third course of ibuprofen had significantly higher levels of H-FABP and NGAL. In all samples the concentration of the three proteins NT pro-BNP, NGAL, and H-FABP correlated positively with each other.

Conclusions: The present study shows that measurement of urinary proteins is a powerful and non-invasive method to quantify the effect of the PDA on the organism in preterm infants. Furthermore our data show that NGAL and H-FABP can be used to predict the necessity of pharmaceutical or surgical treatment of PDA.

207

HIGH-DOSE FENOLDOPAM REDUCES POST OPERATIVE NGAL AND CYSTATIN C LEVELS DURING PEDIATRIC CARDIAC SURGERY

I. Favia¹, C. Garisto¹, Z. Ricci¹, R. Luciano², M. Muraca², V. Vitale¹, C. Giorni¹, S. Morelli¹, S. Picardo¹

¹Pediatric Cardiac Surgery, ²Clinical Laboratory, Bambino Gesù Children's Hospital, Rome, Italy

A total of 60 patients less than 1 year old were enrolled in this study: 30 received fenoldopam (group F) during CPB at the dose of 1 mcg/kg/min and 30 received placebo (group P). Differences in urine output, creatinine levels, baseline biomarkers levels, fluid balance and hemodynamic parameters were not present. Serum and urinary levels of neutrophil gelatinase associated lipocalin (sNGAL and uNGAL) and and cystatin-C (sCYS-C and uCYS-C) levels at the end of surgery (t1) and 12 hours after (t2) in group F vs group P were: sNGAL t1 88±37 ng/ml vs 107±42 ng/ml, sNGAL t2 88±44 ng/ml vs 107±42 ng/ml, uNGAL t1 22±29 ng/ml vs 60±71 ng/ml, uNGAL t2 15±13 ng/ml vs 34±59 ng/ml, sCYS-C t1 0.92±0.3 mg/l vs 1.06±0.2 mg/l, sCYS-C

t2 1.126±0.3 mg/l vs 1.38±0.35 mg/l, uCYS-C t1 0.01±0.1 mg/l vs 0.196±0.34 mg/l, uCYS-C t2 0.05±0.005 mg/l vs 0.075±0.05 mg/l (always, p<0.05). Systemic vascular resistances were 309±102 dyne*sec/cm⁻⁵ in group F vs 421±164 dyne*sec/cm⁻⁵ in group P (p=0.02). Oxygen delivery (DO₂) in group F was 2474±878 ml O₂/min vs 1818±797 ml O₂/min in group P (p=0.02). Finally, a significant reduction in furosemide boluses (1 mg/kg) was observed in group F (OR 0.3, CI 95% 0.1-0.9, p: 0.03).

Conclusions: The treatment with high-dose fenoldopam during CPB in pediatric patients undergoing cardiac surgery for CHD significantly decreased serum and urinary levels of NGAL and CYS-C, optimized diuretics administration and improved perfusion during CPB.

208

ACCURACY IN PDA DIAGNOSIS: THE HEMODYNAMIC SIGNIFICANCE AND EARLY TREATMENT IN PRETERM INFANTS LESS THAN 32 WEEKS GESTATION

D. Beltrami, D. Doni, G. Lucchini, G.L. Paterlini, P. Tagliabue

Neonatal Intensive Care Unit, MBBM Foundation S. Gerardo Hospital, Monza, Italy

Background: Despite the high rate of spontaneous closure among premature infants, early treatment should be considered, in particular if respiratory support is demanded. An early and accurate echocardiographic diagnosis of significant ductal shunt is performed. A ductal diameter assessed by color Doppler greater than 1.5 mm generally indicates a significant shunt.

Aims: To compare the differences between the infants with spontaneous closure of PDA and the infants who received treatment.

Methods: From 2005 to 2009 all ≤32GA infants had a daily echocardiographic study done. We used pediatric ibuprofen intravenous formulation, according to recommended dosage. In case of failure of closure or re-opening, a second course of 3 doses may be given, after which surgery is indicated.

Results: 325 neonates were eligible. Non significant PDA occurred in 250(77%) neonates(G1), while 75(23%) needed treatment(G2) following our NICU standard protocol