EARLY FLUID ADMINISTRATION IN EXTREMELY PRETERM NEWBORNS (WITH BIRTH BODY MASS ≤ 1200 G) AND ITS RELATIONSHIP WITH THE LEVEL OF NT-PROBNP AND PDA

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Background: Patent arterial duct [PDA] is a common problem in extremely preterm babies. Its hemodynamic significance is considered to be partly dependent on fluid management, especially in extremely low birth weight preterms [ELBW]. Some authors propose N-terminal pro Brain Natriuretic Peptide [NT-proBNP] as an indicator of significance of PDA.

The aim of our study is to check the relationship between early intravenous fluid intake, the level of NT-proBNP and PDA diameter.

Methods: Between 2009 and 2011, twenty ELBW preterms were included for the study. The main inclusion criteria were: birth mass ≤ 1200 g, birth age ≤ 28 weeks. Blood sample for NT-proBNP measurement just after delivery and in the second day of life were collected. An echocardiography was performed simultaneously with the second sample for NT-proBNP. The diameter of arterial duct and, the LA/Ao ratio were measured. Total fluid administration [TFA] until the moment of the second NT-proBNP collection was calculated and expressed as ml/kg/h. The results were compared and analyzed. Five newborns were excluded from the analysis.

Results: Median diameter of PDA, La/Ao ratio, TFA, NT-proBNP level in three groups of patients are presented below:

	NO PDA n=4 median/range	PDA NOT SIGNIFICANT n=5 median/range	PDA SIGNIFICANT n=6 median/range
PDA[mm]	0	1,18 (0,8-1,5)	2,03 (1,7-2,2)
TFA[ml/kg/h]	4,49 (4,2-5,2)	4,8 (3,6-6,3)	3,87 (3,4-4,76)
NT-proBNP[pg/ml]	10690 (5244-22783)	4823 (4190-7582)	19500 (12265-35000)

[Table 1]

Conclusions: NT-proBNP is a useful tool for indication of hemodynamic significance of PDA. Intravenous fluid administrated according to patient requirements, influences neither the diameter of PDA nor NT-proBNP level.