

**Association of vasoactive peptides with the presence and severity of congenital heart disease in children.**

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**Introduction:** The course and outcome of congenital heart disease is highly dependent on early diagnosis and accurate assessment of severity. Vasoactive peptides may be useful in the initial evaluation of congenital heart disease, in the follow-up assessment and in the evaluation of the effectiveness of treatment.

**Purpose:** To compare brain natriuretic peptide (BNP), adrenomedullin (ADM) and urotensin II (Ull) plasma levels in patients presenting with non-cyanotic heart disease, and to examine their potential relationship with the presence, the severity and the type of the disease.

**Material-Methods:** 78 consecutive subjects fulfilling the inclusion criteria [median age 11.56 (1.58-83.75) months], 39 with congenital heart disease - atrial septal defect (ASD), ventricular septal defect (VSD), patent ductus arteriosus (PDA)- and 39 age- and gender matched controls, were prospectively studied. Demographic clinical and echocardiographic data, as well as family, prenatal and medical history, were collected. Disease severity was assessed based on the size of the defect, the significance of shunt, the presence of concomitant anomalies, biventricular size and function as well as the presence of pulmonary hypertension. Plasma BNP, ADM and Ull levels were measured using ELISA method.

**Results:** BNP levels (median (IQR) were significantly elevated in patients as compared to controls (0.68 (0.31-1.15) vs 0.41(0.14-0.76),  $p=0.006$ ). ADM and Ull levels were higher in the patient group, however these differences were not statistically significant. Increased BNP levels were associated with the presence of congenital heart disease (OR: 1.826, CI95% 1.159-5.064,  $p=0.042$ ). On the contrary, history of breast lactation was negatively associated with the presence of congenital heart disease (OR 0.854, CI95% 0.735-0.933,  $p=0.040$ ). Ull levels were shown to be significantly associated with the complexity of congenital lesions (OR 2.456, CI95% 1.047-5.758,  $p=0.042$ ). Moreover, higher incidence of failure to thrive ((28,2% vs 2,6%,  $p=0,002$ ) and underweight (23,7%vs 0,0%,  $p=0,001$ ) were observed in patients compared to healthy controls.

**Conclusion:** The vasoactive peptides' plasma levels are differentially associated with the presence and the severity of non-cyanotic heart disease. BNP and, to a lesser extent, Ull levels may be useful as diagnostic markers in the presence of congenital heart disease.