Serum Irisin Level as a Predictive marker for Hemodinamically Significant Patent Ductus Arteriosus in Premature Infants with Gestational Age of 32 Weeek or Less

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Background: Diagnosis and treatment of patent ductus arteriosus(PDA) in premature infants is still an important problem for clinicians. Echocardiography is the gold standart for determination of PDA based on clinical and hemodynamic significance. Clinical decision making may be aided by measuring circulating biomarkers such as brain natriuretic propeptid and a newly myokine Irisin.

Objective: We aimed to invastigate the significance of serum Irisin and B-type natriuretic peptide (BNP) in the diagnosis and follow-up of hemodinamically significant PDA (hsPDA) in very low birth weight infants with gestational age 32 weeks or less.

Method: In this study 43 premature infants with gestational age less than 32 weeks were included . 21 premature infants with hsPDA were determined as study group and 22 premature infants without PDA were assigned as the control group. Blood samples were collected and analyzed for serum Irisin and pro-BNP levels.

Table 1. Demographic and clinical characteristics of the groups

Variables	Control group (n=21) Median (IQR), mean ±SD	hsPDA group (n=22) median (IQR), mean±SD	*p value
Gestational age(wk)	29.4(3)	27.9(3)	0.006
Birth weight	1240±240	1095±325	0.04
APGAR 1st minute	6.0 (1)	5.0 (1)	0.0001
APGAR 5th minute	8.0 (1)	7.0 (2)	0.0001
Mechanical ventilation(d)	1 (1)	5(6)	0.0001
Duration of nCPAP (d)	3 (4)	6 10	0.0001
Duration of oxygen (d)	4.5 (4)	7 (8)	0.033
Pro-BNP (pg/ml)	2739±2253	25750±10872	0.0001
İrisin (ng/ml)	0.69±0.30	1.41±0.48	0.0001

*p < 0.05 Statistically significant

Results: Serum levels of pro-BNP and Irisin in the study group at the time of diagnosis of PDA were found to be significantly higher than the control group, and the levels decreased significantly after medication. Multivariate regression analysis showed that birth weight and the presence of PDA were significantly correalted with serum Irisin levels.

Conclusion: Irisin and pro-BNP assays have clinical importance in the diagnosis, initiation of therapy and follow , response to therapy in very low birth weight infants with PDA.

Table 2. Median (IQR) of pro-BNP and endocan before and after medication of PDA

	Before PDA medication median (IQR)	After PDA medication median (IQR)	p value
Pro BNP (pg/ml)	25750 (10872)	4782 (3256)	0.0001
Irisin(ng/ml)	1.41±0.48	1.02±0.36	0.0001

Abbreviations: BNP, B-type natriuretic peptide; IQR, interquartile range;PDA, patent ductus arteriosus.