254

CAN EARLY B-TYPE NATRIURETIC PEPTIDE ASSAYS PREDICT SYMPTOMATIC PATENT DUCTUS ARTERIOSUS IN EXTREMELY LOW BIRTH WEIGHT INFANTS?

J.H. Lee[1], J.H. Shin[2], K.H. Park[2], E.H. Lee[3], B.M. Choi[2]

[1]Department of Pediatrics, Ajou University School of Medicine, Suwon, [2]Department of Pediatrics, Korea University Ansan Hospital, Ansan, [3]Department of Pediatrics, Korea University Anam Hospital, Seoul, Republic of Korea

Objective: To investigate the predictable usefulness of plasma B-type natriuretic peptide (BNP) levels at 12 and 24 hours of age as a guide for early targeted treatment of hemodynamically significant patent ductus arteriosus (hsPDA) in extremely low birth weight (ELBW) infants.

Patients and methods: Fifty eight ELBW infants that underwent echocardiographic evaluation and plasma BNP measurement during the first few days after birth were enrolled. Twenty five infants developed hsPDA (HsPDA group) and 33 infants did not develop hsPDA (Control group).

Results: Although no significant difference in the BNP levels was observed between Control group and HsPDA group at 12 hours of age, the BNP levels of HsPDA group were significantly higher than Control group at 24 hours of age (1,080[390-2,640] vs. 169[96-533]). Area under the receiver operator characteristic (ROC) curve, for the prediction of hsPDA at 24 hours of age, was 0.832 (95% confidence interval: 0.724-0.939). ROC curve analysis confirmed > 864 pg/ml at 24 hours of age as the best cut off BNP value for the prediction of ELBW infants with hsPDA (sensitivity: 60.0%, specificity 97.0%).

Conclusion: BNP measurements were useful for the prediction of subsequent hsPDA in ELBW infants at 24 hours but not 12 hours of age. At 24 hours of age, a BNP level above 864 pg/mL can be used as a guide for early targeted treatment of hsPDA and avoid the unnecessary use of cyclooxygenase inhibitors in some ELBW infants. Moreover, serial BNP measurements may potentiate the diagnostic accuracy of hsPDA by heightening sensitivity.