

The value of pulmonary artery acceleration time in evaluating pulmonary vascular disease in preterm infants with bronchopulmonary dysplasia Category: Original Research

Liling Wang¹, Zhijie Liu¹, Fengjuan Zhang¹, Haiyan Xu¹, Haiyan Wang¹, and Xueqiang Zhao¹

¹Shandong Provincial Qianfoshan Hospital

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Abstract

Objectives— Early screening and dynamic monitoring of pulmonary vascular disease (PVD) in bronchopulmonary dysplasia (BPD) high-risk infants is of great clinical significance. Pulmonary artery acceleration time (PAAT) is a reliable and non-invasive method for assessing PVD in children over 1 year, but to date, few studies have used PAAT to assess pulmonary hemodynamics of preterm infants, especially those with BPD. Through dynamic monitoring the main hemodynamic indicators reflected PVD after birth, this study aimed to assess the value of PAAT in evaluating early PVD in BPD infants. **Methods**— 81 preterm infants at risk of BPD were divided into BPD and non-BPD groups according to whether BPD occurred. Clinical characteristics, PAAT, right ventricular ejection time (RVET) and other main hemodynamic indicators at 4 different time points after birth were studied and compared. **Results**— PAAT and PAAT/RVET increased gradually within 72 hours after birth in the BPD group ($P < 0.05$), but the curve tended to be flat over time after 72 hours($P > 0.05$). At PMA32 and 36 weeks, the PAAT (49.7 ± 4.8 vs. 54.8 ± 5.7 , $P=0.001$; 50.0 ± 5.3 vs. 57.0 ± 5.3 , $P=0.001$) and PAAT/RVET (0.33 ± 0.04 vs. 0.35 ± 0.03 , $P=0.001$; 0.34 ± 0.03 vs. 0.37 ± 0.04 , $P = 0.001$) in BPD group were significantly lower than those in the non-BPD group. **Conclusions**— PAAT and PAAT/RVET in the BPD group infants showed different change patterns compared to non-BPD group infants. PAAT can be used as a noninvasive and reliable screening method for screening and dynamic monitoring of PVD in BPD high-risk infants.

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