Assessment of serum level of Troponin T in preterm infants with and without ductus arteriosus hospitalised in the neonatal care unit of Fatemieh Hospital

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Abstract

Objective: One of the problems of preterm infant is patent ductus arteriosus (PDA). PDA in preterm infants can lead to a left-to-right shunt and pulmonary congestion, left ventricular volume overload that can exacerbate respiratory symptoms and ventilator dependence, and morbidity and mortality. Advanced echocardiography plays a major role in the diagnosis of neonatal heart disease and myocardial function study, but early diagnostic tools are needed due to unavailability of advanced echocardiography.

Material and Methods: In this prospective cross sectional study, 33 neonates with PDA and 30 neonates without PDA at the age of 3-5 days were selected by simple sampling method from hospitalized neonates in NICU of Fatemieh Hospital in Hamadan. They were examined in terms of PDA and were classified into two groups: with PDA and without PDA. Then they were examined regarding the serum level of troponin T and myocardial function studies by conventional and tissue Doppler echocardiography. Data was analyzed by SPSS software version 21 at 95% confidence level.

Results: The mean and standard deviation of serum levels of troponin T in neonates with and without of PDA were 351.88 ± 413.43 and 302.00 ± 240.90 nanogram/liter (ng/l), respectively (P = 0.120) that was not statistically significant but on the fourth day of birth it was 624.67 ± 741 and 316.00 ± 286.90 ng/l, respectively (P = 0.036) that is statistically significant. The correlation coefficient between serum levels of troponin with RMPI and LMPI was positive at 0.518 and 0.562 (P < 0.001) and with TAPSE index minus 0.015 (P = 0.906).

Conclusion: In preterm infants, there is a correlation between right and left myocardial performance with serum troponin T level. Therefore, measuring serum levels of troponin T on the fourth day after birth can be helpful in detecting patent ductus arteriosus.

Keywords: Troponin T, Preterm neonates, patent ductus arteriosus

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