Plethysmography variability index (PVI) changes in preterm neonates with shock-an observational study.

Pawale D, Murki S, Kulkarni D, Vardhelli V, Sharma D, Oleti T, Kiran S, Kallem V, Bashir T.

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Abstract

Shock is an acute state of circulatory dysfunction. The diagnosis of shock is complex in neonates. The relative sensitivity of current clinical or laboratory findings for detecting shock is largely unknown, especially for preterm neonates. For preload assessment, inferior vena cava (IVC) collapsibility can be a useful bedside echocardiography parameter. plethysmography variability index (PVI) is a marker of fluid responsive shock in adults and children, but not well defined in neonates. In this prospective observational study, we evaluated the changes in PVI in preterm neonates with shock. Among the 37 infants enrolled in the study, the mean blood pressure (MAP) was 45 (± 4 mm of Hg) and none of infants had hypotension. The mean pulse pressure was 28 mm of Hg, the mean PVI was 28% (±5), the mean arterial blood gas pH was 7.20 (±0.07), and the mean base deficit was 9.9 (±2.53) at the onset of shock. Thirty (96.77%) of the 31 infants with resolution of shock showed decrease in PVI with an average decrease of 11% (±5). Conclusion: Significant proportion of neonates show an increase in PVI at the onset of shock.

What is Known: • Plethysmography Variability Index (PVI) is commonly used as a marker of volume status in paediatric population. • Changes in PVI may guide in giving volume boluses in patients with shock.

What is New: • This study provides information of changes in PVI in preterm neonates with shock. • PVI may become a valuable tool to be used at bedside in preterm infants with shock.