

**PP1 THE PERFORMANCE OF  
PLETHYSMOGRAPHIC INDICES AS  
A PREDICTOR OF FLUID  
RESPONSIVENESS IN  
SPONTANEOUSLY BREATHING  
PATIENTS IN EMERGENCY  
DEPARTMENT: A PROSPECTIVE  
OBSERVATIONAL STUDY**

MN AZMI<sup>1</sup>, TL TAN<sup>1</sup>

<sup>1</sup> *DEPARTMENT OF EMERGENCY  
MEDICINE, FACULTY OF MEDICINE,  
UNIVERSITI KEBANGSAAN MALAYSIA,  
KUALA LUMPUR, MALAYSIA*

Hypovolemia is a common problem encountered in Emergency Department (ED). Fluid responsiveness is an important tool for initial fluid assessment for critically ill patients. An excessive volume expansion with positive fluid balance increases morbidity and mortality. Dynamic hemodynamic monitoring is preferred over static measurement as it is more accurate to predict fluid responsiveness. However, most of them are invasive and not readily available in ED. This study aimed to determine the performance of respiratory variation in pulse oximetry plethysmographic waveform amplitude ( $\Delta$ POP), pleth variability index (PVI) and collapsibility of inferior vena cava (cIVC) as non-invasive methods to predict fluid responsiveness in hypovolemic spontaneously breathing patients presented to ED Hospital Canselor Tuanku Muhriz. This prospective observational study recruited 35 medical patients with class II and III hypovolemic shock who presented to ED. Initial assessment was done by the attending physician in which 250 milliliter of normal saline bolus was given to the patient over 10 minutes. Vital signs, cIVC,  $\Delta$ POP and PVI were measured before and after the intravenous fluid bolus was administered. The result shows that there was significant mean difference for cIVC (p value <0.01) and  $\Delta$ POP (p value <0.01) at baseline and after the fluid bolus but not to PVI. It also demonstrates that the mean  $\Delta$ POP difference after the intravenous fluid bolus was 13%. Based on the

study, we may make an assumption that increment of 13% of  $\Delta$ POP may indicate patient is having hypovolemia. As conclusion,  $\Delta$ POP may predict fluid responsiveness in hypovolemic spontaneously breathing patients presented to ED. Its non-invasive, reproducible and readily available advantages may be a good parsimonious tool to be utilized in ED as part of dynamic hemodynamic monitoring in critically ill patients.