A103 - Relationship between high central venous oxygen saturation and mortality in patients with sepsis

T Sricharoenchai ; A Kanitsap ; N Saiphoklang ; P Rujiwit ; P Pirompanich
Thammasat University, Division of Pulmonary and Critical Care Medicine, Department of Medicine, Pathum Thani, Thailand

Introduction:
The imbalance between oxygen (O₂) delivery and O₂ requirement in patients with sepsis can be assessed by central venous oxygen saturation (ScvO₂). The low or high ScvO₂ may indicate cellular hypoxia or inability to utilize the O₂. This study aims to determine the relationship between high ScvO₂ and mortality in patients with sepsis.

Methods:
A retrospective observational cohort study was done by collecting data (i.e., baseline characteristics, severity of infection and vasopressors) from medical records of ≥15-year-old patients with sepsis and 1st ScvO₂ measurement within 24 hours of sepsis, who were admitted in a university hospital between 2013 and 2014. The patients were stratified by 1st ScvO₂ level (<70%, 70-80%, >80%) and APACHE-II score (≤25, >25). The primary outcome was in-hospital mortality.

Results:
Among 376 patients, those with high ScvO₂ (17.3%) and low ScvO₂ (53.7%) were associated with adjusted hazard ratios for death of 0.79 (0.54-1.15, p=0.218) and 1.16 (0.86-1.56, p=0.325), respectively, while those with normal ScvO₂ (29.0%) as control. When the patients were stratified by ScvO₂ level and APACHE-II score, using patients with normal ScvO₂ and low APACHE-II score as control, those with high ScvO₂ and low APACHE-II score, and those with low ScvO₂ and low APACHE-II score had adjusted hazard ratios of 0.54 (0.31-0.97, p=0.038) and 1.18 (0.79-1.76, p=0.432). For those with normal, high and low ScvO₂, and high APACHE-II score had adjusted hazard ratios of 1.62 (1.02-2.57, p=0.041), 1.77 (1.05-2.96, p=0.031), and 1.88 (1.23-2.87, p=0.004), respectively.

Conclusion:
The ScvO₂ >80% with APACHE-II score >25, but not only ScvO₂ >80%, is independently related to increased mortality in patients with sepsis.