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The evaluation of perfusion index as a predictor of vasopressor requirement in patient with sever sepsis and septic shock

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Despite various campaigns and the presence of strong evidence for management, septic shock remains the leading cause of death worldwide [1]. A strong association has been found between early initiations of vasopressor therapy and reduced mortality in these patients [2]. These findings raise an important question: Is there any tool that can predict the requirement of vasopressor therapy in patients with severe sepsis.

Objectives

A prospective observational study was conducted to examine whether perfusion index (PI) could predict vasopressor use during early resuscitation of patients with severe sepsis.

Methods

All consecutive patients who were clinically suspected of having severe sepsis defined by the criteria of the American College of Chest Physicians/ Society of Critical Care Medicine Consensus Conference; were included. Upon admission to intensive care unit (ICU), hemodynamic, central and peripheral perfusion variables were simultaneously recorded at baseline. Perfusion variables included; PI, blood lactate level, central venous oxygen saturation (ScVO2), and the difference between central venous carbon dioxide (PcvCO2) and arterial carbon dioxide (PaCO2) pressures (Pv-a CO2). Arterial blood lactate will be measured at T0. The requirement of vasopressor was evaluated as yes/no.

Results

A total of 36 patients fulfilling inclusion criteria were enrolled in our study, of whom 15 died and 21 survived.

Twenty-one of the 36 patients required vasopressor and 15 did not. The cutoff of the PI value was ≤0.3 for predicting vasopressor requirement, resulting in a sensitivity of 100% and a specificity of 93%; AUC was 0.96 (95% CI 0.8-0.99), $p < 0.0001$. The cutoff of the PI value was ≤ 0.21 for predicting ICU mortality, with sensitivity of 86% and a specificity of 90%, AUC was 0.94 (95% CI 0.8-0.99), $p < 0.0001$.

Conclusions

PI less than or equal to 0.3 is predictive of vasopressor requirement during early resuscitation of patients with severe sepsis and septic shock.

References
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