

ORAL PRESENTATION

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Abnormal central venous oxygen saturation in cardiac surgery patients: a prospective, observational study

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Background

Central (ScVO₂) and mixed venous oxygen saturation (SvO₂) and blood lactate are useful measurement tools for evaluating the degree of hypoperfusion in patients with different disease processes. The aim was to study incidence of both low as well as high ScvO₂ and assessed their relationship to markers of tissue hypoxia, course and outcome in patients undergoing elective cardiac surgery.

Materials and methods

Prospective, observational study. Settings: A 22-bed heart surgery intensive care unit (ICU) in a tertiary university hospital. Postoperative blood samples for the measurement of ScvO₂ and lactate were obtained on arrival, 8 and 24 hours after ICU admission. 54 patients were divided into 3 groups based on ScvO₂ values upon admission to the ICU: low, normal and high (“supranormal”) ScvO₂ group. Data analysis was performed using the SPSS software package, version 20.0.

Results and discussion

Total number of patients included in the study was 54 (41 males, 13 females), average age of 61.7 ± 9.7 years old. Abnormal ScvO₂ were recorded in 34/54 (62.9%) patients. A low ScvO₂ (< 60.5) was recorded in 21 (38.8%) and high ScvO₂ (> 72.1) was recorded in 13 (24.1%) patients. While heart rates and central venous pressure were comparable between groups at all time points, mean arterial pressure was lower in the high ScvO₂ group in comparison with the low and normal

ScvO₂ group. In the supranormal ScvO₂ group there were higher lactate values, blood glucose levels, white blood cell count and the use of inotropes, so as prolonged ICU and hospital stay, compared to normal ScvO₂ group.

Conclusions

Supranormal values of ScvO₂, which are traditionally considered to be of limited clinical value, turned out to be under-recognized warning signs of impaired tissue oxygenation in cardiac surgery patients. Further studies are necessary to assess the utility of ScvO₂ and lactate to guide hemodynamic optimization and the impact it has on morbidity and mortality.

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