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ABSOLUTE CEREBRAL VERSUS STANDARD PERIPHERAL OXYGEN SATURATION IN THORACIC SURGERY: DOES IT REALLY DIFFER?

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Objectives: Thoracic operations evoke circulatory and pulmonary disturbances leading to cerebral oxygen deprivation. Absolute cerebral oxygen saturation (ACOS) with standard peripheral oxygen saturation (SPOS) in thoracic operated patients were compared.

Methods: Data were collected from 100 consecutive patients (37 women, median age 62, range 20-81). Ninety-six patients had single lung ventilation. ACOS (FORE-SIGHT®, CASMED, USA) and SPOS were registered every 15 min from the intubation to the wound dressing and the observation lasted from 45 to 195 min. Mean and minimal ACOS and SPOS values during operation were calculated. Patients' age, operation time, side and hospitalisation time were also analysed. Wilcoxon signed-rank test was used to compare values measured at different time points and Mann-Whitney U test was used for comparisons between groups. Spearman's rank correlation coefficient (Rs) was calculated to measure strength of correlation between parameters.

Results: ACOS and SPOS were significantly positively correlated in all measurements between 15 and 90 min (Rs between +0.20 and +0.36). SPOS during operation were significantly lower than baseline in all measurements between 15 and 90 min and at 135 min, while all ACOS between 15 and 165 min were significantly lower than baseline. Age was positively correlated with ACOS only at baseline (Rs = -0.20, P = 0.044) while no correlation with SPOS was observed. Mean ACOS (but not SPOS) correlated negatively with hospital stay time (Rs = -0.21, P = 0.036). Right side operated patients had significantly lower minimal SPOS (92.4 ± 4.7 vs 94.0 ± 5.0%, P = 0.017) and longer hospital stay time (9.1 ± 6.5 vs 7.2 ± 4.8 days, P = 0.043) than left-operated ones but no difference was observed for ACOS.

Conclusions: ACOS and SPOS show similar decrease during the first 30 min of operation. Although later SPOS gradually returns to the baseline value, ACOS remains reduced till the end of operation. Lower mean ACOS (but not SPOS) predicts longer hospital stay of operated patients.

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