474373 - CEREBRAL DESATURATION DURING SINGLE LUNG VENTILATION CORRELATES WITH POSTOPERATIVE MORBIDITY

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Introduction: The aim of this project was to determine regional cerebral oxygen saturation (SctO₂) during single-lung ventilation (SLV) and thoracic surgery, assess its correlation with standard monitoring parameters and outcome parameters.

Methods: Local REB approval was obtained for this study. We used the FORE-SIGHTTM (CASMED, USA), a new cerebral oximeter measuring absolute cerebral tissue oxygen saturation in 50 patients undergoing lobectomy, requiring SLV. Left, right and average SctO₂, BIS, peripheral oxygen saturation, mean blood pressure (BP) and heart rate (HR) were recorded every 5 min from induction to extubation. In addition, blood gas analysis were performed every 15 min during SLV. Data were analyzed using SAS software and non-parametric tests (median [interquartiles]).

Results: Preliminary results from 31 patients are presented. Patients (16 f; 15 m; 64 (57-70) years) had 90 (46 - 134) min of SLV during 130 (80 - 155) min of surgery. The cerebral saturation decreased to a minimum of 62 (56 - 64) % during SLV. No patient presented severe peripheral desaturation; arterial PaO₂ was 163 (105 - 262) mmHg. There was no significant correlation between peripheral oxygen saturation, arterial blood gases changes, or any hemodynamic changes and cerebral oxygen desaturation. There was a positive correlation between the postoperative non-pulmonary organ failures ($P < 0.02$), the postoperative complications (Clavien; $P < 0.05$) and the decrease of SctO₂ during SLV.

Discussion: Thoracic surgery with SLV is associated with significant decrease of SctO₂ in the majority of patients despite normal peripheral arterial oxygenation. Perioperative cerebral desaturation is correlated with postoperative complications and non-respiratory organ dysfunction. Further studies are required to assess possible underlying mechanisms.

References: none