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The importance of Dexamethasone preoperatively for the prevention of cognitive dysfunction

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Background: Postoperative cognitive dysfunction (POCD) is a multifactorial adverse event most frequently in elderly patients or people aged over 60 years, with neurological and psychiatric diseases. This study evaluated the effect of dexamethasone on POCD incidence after non-cardiac surgery and general anesthesia.

Methods: 140 patients (ASA I–II; age 60–87 years) took part in a prospective randomized study involving the administration or not of 8 mg of IV dexamethasone before deep or superficial anesthesia according to bispectral index. Neuropsychological tests were applied preoperatively and at 3rd, 7th, 21st, 90th and 180th days after surgery and compared with normative data. S100β was evaluated before and 12 hours after induction of anesthesia. Linear regression with inference based on the generalized estimating equations (GEE) method was applied, followed by the *post-hoc* Bonferroni test considering $P<0.05$ as significant.

Results: On the 3rd postoperative day, POCD was diagnosed in 25.2% of patients receiving dexamethasone plus deep anesthesia, 15.3% of the dexamethasone plus superficial anesthesia group, 68.2% of the deep anesthesia group and 27.2% of the superficial anesthesia group ($p<0.0001$). Neuropsychological tests showed that dexamethasone plus superficial anesthesia decreased the incidence of POCD, especially memory, attention and executive function. The administration of dexamethasone prevented the postoperative increase in S100β serum levels ($p<0.002$).

Conclusion: Dexamethasone can minimize the incidence of POCD in elderly patients undergoing non-cardiac surgery, especially when associated with superficial anesthesia. The effect of dexamethasone on S100β levels might be related with some degree of neuroprotection.

Biography

Livia Stocco Sanches Valentin has completed her PhD from University of São Paulo School of Medicine- FMUSP and Post-doctoral from Harvard Medical School; David Geffen School of Medicine at UCLA; Cleveland Clinic Lerner College of Medicine of Case Western University; University of Copenhagen; Utrecht University; Max Planck Institute and Karolinska Institute as a multicenter study. She is the Principal Investigator of the RCT Evaluation of POCD through the MentalPlus® digital game. She has published papers in *Anesthesia* and *Neuropsychology* journals and has been serving as an Editorial Board Member of an indexed journal and reviewer of journal about anesthesiology and neuroscience.

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