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**Digital game: A scale to evaluate the perioperative cognitive function (MentalPlus®)**

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**Introduction:** Postoperative Cognitive Dysfunction (POCD) is a common multifactorial adverse event frequently in elderly patients. POCD diagnosis usually demands a long neuropsychological battery and specific professional to evaluate the results data as a neuropsychologist. As a tentative to overcome that issue, MentalPlus® video game was developed as a tool to assess cognitive function and future rehabilitation.

**Aim:** The primary study objective was MentalPlus® reliability evaluation to assess cognition in healthy volunteers.

**Methods:** 163 volunteers were randomized to play MentalPlus® versions A and B with a week interval between both moments. Mini-Mental state examination was applied to assess the volunteers' mental state, and we excluded those with scores below 18 or 23 related to a determined educational level. MentalPlus® applicability and reproducibility were evaluated by kappa index and McNemar test.

**Results:** The patients had mean age of  $36 \pm 16$  years; 46% male; school level mean of  $5 \pm 2$  years, the mean income of  $4.6 \pm 3$  Brazilian minimum wage and the Mini-Mental score of  $28 \pm 3$ , for an expectation of more than  $25 \pm 3$ . The MentalPlus® A and B versions results revealed the subsequent kappa coefficients for reliability tests. For general cognitive function, kappa coefficient was 0.7122 ( $p < 0.005$ ); selective attention and alternating attention presented 0.4004 and 0.3998 ( $p < 0.005$ ); long-term memory and inhibitory control had comparable coefficients: 0.4103 and 0.4406 ( $p < 0.005$ ); executive function disclosed a kappa coefficient of 0.4406, through construct inhibitory control. The expected cognitive function scores in MentalPlus® were expressed as a mean and standard deviation and confidence interval of 95%,  $\alpha = 0.05$ . MentalPlus® versions A and B values were similar when compared with values adopted by researchers.

**Conclusion:** MentalPlus® digital game presented reliable evidence for cognition evaluation. It might be a future accessible tool for POCD evaluation and probable future rehabilitation.

**Biography**

Livia S S Valentin has completed her PhD from University of São Paulo School of Medicine - FMUSP and Post-doctorate 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, Neuropsychology, Psychology and Neuroscience.

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