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Poster Presentation

A Review of Postoperative Cognitive Dysfunction and Neuroinflammation Processes Induced by Anaesthesia

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Abstract

Although anaesthesia is generally effective, safe and also an indispensable preoperative clinical approach, there is a really growing concern about usage, form of usage and dosage of it. Postoperative cognitive dysfunction (POCD) is one of the common postoperative complications that often affects elderly patients and includes a range of domains, may involve oxidative stress and neuroinflammation. The etiology of POCD has not been known till now, but it was shown that the type of surgery and type of anaesthesia (intravenous vs. volatile anesthetics) don't have significant effect on the incidence of POCD, and as a multifactorial disorder it's better to consider factors such as surgery, anaes thesia, in general, also the consequence of them, and patient-related predisposing factors. Also it was shown that the consequent long-term cognitive deficits, as a potentially harmful factor to the human brain, should be avoided. The detailed molecular mechanisms of POSD is also still largely unknown, while the neuroinflammation has been increasingly denoted as one of the core mechanisms for the pathogenesis of POCD. The mast cells-neurovascular unit communication and the inductive effluence of extracellular RNAs on neuroinflammation are some of possible mechanisms. Even though anaesthesia is an essential and generally safe preoperative clinical approach, because the adverse findings on the relation of it with POCD and neuroinflamation, the person that introduces the anaesthetics should be more aware. Because the exact mechanism and the reason of POCD still has not been significantly proved, more research is needed to regulate neuroinflammation and its relationship to cognitive performance.

Keywords: Postoperative Cognitive, Neuroinflammation, Anaesthesia

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