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## Poster Presentation

### Postoperative Cognitive Dysfunction and Neuroinflammation Associated with Cardiac Surgery

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#### **Abstract**

One of the incapacitating postoperative morbidities that was seen in all types of surgery is Postoperative cognitive dysfunction (POCD). The elder patients and also cardiac surgery patients (CSPs) are at particular risk. Additionally it was shown that the severity, extension of impairment and the incidence rate of POCD is more in CSPs. POCD is a dementia-like symptoms disorder is characterized by symptoms such as memory impairment, loss of concentration, an inability to plan, and difficulty to switch between tasks. In the CSPs not only the impairment of spatial memory like other kinds of surgery can occur, but also spatial learning and object recognition impair can be observed. Several mechanisms have been suggested for this disorder. Many of studies show the neuroinflammation process involvement. Some possible mechanisms that lead to neuroinflammation are postoperative increase in systemic and hippocampal pro-inflammatory cytokines and macroglial and mast cells activation. In mast cells neurovascular unit communication, Mast cells, as the first responders in the CNS, can initiate, strengthen and prolong other responses upon activation. Also they can modulate inflammatory processes in multiple CNS pathologies by their secreted mediators. Also the association between cardio-pulmonary bypass (CBP) and microembolism with POCD and relationship between anesthesia and POCD have remained unknown. It was proved that all types of surgery may lead to neuroinflammation and POCD, especially cardiac surgery. Several probable mechanisms and also the relation between CBP and anesthesia with POCD was discussed, but because they are still unknown more study is needed.

**Keywords:** Postoperative Cognitive, Neuroinflammation, Cardiac Surgery

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