

High serum interleukin-6 level is associated with increased risk of postoperative delirium in elderly patients: a prospective cohort study

Abstract

Objective: To investigate the relationship between serum interleukin-6 (IL-6) concentration and the occurrence of postoperative delirium (POD) in elderly patients (≥ 60 years) after orthopedic and open-abdominal surgery.

Methods: A total of 338 patients were enrolled. Patients were evaluated with Mini-Mental State Examination (MMSE) on the preoperative visit. Blood samples were obtained before anesthesia and in the first day after surgery for measurement of serum IL-6 concentrations. Occurrence delirium was assessed using Confusion Assessment Method for the Intensive Care Unit (CAM-ICU), and the intensity of pain was evaluated with visual analogue score (VAS), twice daily during the first three postoperative days. Multivariate logistic regression analysis was performed to identify predictors of POD.

Results: POD occurred in 14.8% (50 of 338) of patients. High serum IL-6 level was significantly associated with the occurrence of POD (OR 1.468, 95% CI 1.127-1.913, $P = 0.004$). Other independent predictors of POD included advanced age (OR 1.103, 95% CI 1.046-1.163, $P < 0.001$) and elevated total VAS pain score (OR 1.100, 95% CI 1.056-1.145, $P < 0.001$). While higher preoperative MMSE score was associated with decreased risk of POD (OR 0.867, 95% CI 0.758-0.992, $P = 0.038$). Patients who developed postoperative delirium had prolonged duration of postoperative hospital stay [14(12-20) vs. 12(8-15) days, $P = 0.001$].

Conclusions: POD was a frequent complication in elderly patients after orthopedic and open-abdominal surgery. High serum IL-6 concentration was significantly associated with increased risk of POD. Patients with delirium had a longer postoperative hospital stay.