

Comparison of Etomidate and Propofol Sedation for Electrical External Cardioversion: a Meta-Analysis

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Background: Electrical cardioversion is a short painful procedure to regain normal sinus rhythm requiring an adequate anesthesia procedure. Ideal anesthetic for a cardioversion should be characterized by a minimal impairment of the hemodynamics as well as by the rapid recovery. Commonly used sedatives are etomidate and propofol.

Objectives: We aimed to compare the efficacy and safety of etomidate versus propofol sedation for electrical cardioversion by conducting a meta-analysis and systematic review.

Methods: We carried out database searches using OVID-MEDLINE, EMBASE, Cochrane Central Register of Controlled Trials, Google Scholar, Koreamed and KMBASE. We considered all randomized controlled trials comparing etomidate versus propofol sedation in adult participants undergoing electrical cardioversion procedures. We evaluated induction time, success rate of cardioversion, number of shock required, and recovery time. We also assessed complications such as hypotension, apnea, myoclonus, and nausea and/or vomiting.

Results: A total of 10 studies including 448 patients were included. Induction and recovery time, success rate, and number of shock were comparable between etomidate and propofol groups. Hypotension and apnea occurred significantly more in propofol group than those in etomidate group (Risk ratio(RR) 0.11, 95% Confidence interval(CI) 0.02 to 0.74, $P_{\text{chi}^2}=0.61$, $I^2=0\%$; RR 0.34, 95% CI 0.34 to 0.79, $P_{\text{chi}^2}=0.07$, $I^2=44\%$, respectively), while myoclonus and nausea and/or vomiting developed significantly more in etomidate group than those in propofol group (RR 10.27, 95% CI 4.70 to 22.43, $P_{\text{chi}^2}=0.40$, $I^2=4\%$; RR 5.13, 95% CI 1.72 to 15.31, $P_{\text{chi}^2}=0.23$, $I^2=31\%$, respectively).

Conclusions: Between etomidate and propofol, no significant difference was revealed regarding induction time, recovery time, success rate, and number of shock. Compared with propofol, etomidate showed reduced apnea and hypotension, but with an increased myoclonus and nausea and/or vomiting.