Abstract

Objective: to compare the efficacy, hemodynamic effects, days on mechanical ventilation, ICU length of stay, ICU mortality , and the ICU cost of two commonly sedatives ,propofol and midazolam in mechanically ventilated ICU patients.

Design: Randomized prospective study.

Setting: Department of critical care medicine, Cairo university.

Patients :A total of 20 critically- ill patients with respiratory failure and expected to require mechanical ventilation for more than 48 hours. Patients were randomly assigned to one of two groups,ten patients will receive intravenous infusion of propofol (group P),and the other group will receive intravenous infusion of midazolam (group M).

Interventions: None.

Measurements and results: A total of 20 critically- ill patients with respiratory failure , expected to require mechanical ventilation for more than 48 hours were enrolled in our study. Base-line demographic data, Acute Physiology and Chronic Health Evaluation (APACHE IV) score, and the reason for admission to the intensive care unit were recorded for all patients. An intravenous infusion of either propofol or midazolam was administered by a physician-implemented protocol to achieve a target Riker's Sedation–Agitation Scale [SAS], with a brief daily "wake-up".

For hemodynamic assessment, a pulmonary artery catheter (PAC) was inserted in all patients.Compared to midazolam, propofol caused a significant reduction in both MAP *(*89.1±5,32 to 54,6±2,72, $P < 0.0001$ vs 69,90± 8,44 to 69,10± 8,06,p:NS), and SVR (1889.76±990.2 to 1109.46±630.09, $P < 0.05$ Vs 1579.58±598.84 to1522.96±567.55,P:NS). There was no significant difference between both groups in duration of mechanical ventilation (7.2±5.25 days in Group P versus 6.3±6.11 days in Group M, P:NS). The overall ICU mortality was comparable in both groups (6 in group P Vs 5 in Group M , P:NS).

Conclusions: To achieve a target level of sedation in critically ill ventilated patients, MAP and SVR were significantly depressed with propofol infusion, but not with midazolam. Compared to midazolam, patients on propofol have significantly longer hospital stay . In both groups, there was insignificant difference in days of mechanical ventilation or ICU mortality. Despite the less time for wake up in propofol group,the ICU cost for propofol sedation is significantly higher than midazolam.

Keywords: ICU sedation, Propofol, Midazolam.