

# Continuous Infusion of Propofol or Dexmedetomidine should not be the First Choice to Prevent Postoperative Delirium after Hip Fracture

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## Dear Editor,

With interest, we read the article by Ekkapat et al. on a randomized controlled trial of the effect of intravenous low-dose dexmedetomidine or propofol in preventing postoperative delirium in patients after hip fracture.<sup>1</sup> The postoperative incidence of delirium was 8.3, 22.2, and 5.6% in patients receiving dexmedetomidine, propofol or placebo, respectively.<sup>1</sup> Bradycardia was more prevalent in the dexmedetomidine group than in the other groups.<sup>1</sup> It was concluded that intravenous low-dose dexmedetomidine or propofol does not prevent postoperative delirium in patients undergoing hip fracture surgery and that postoperative delirium can occur immediately after surgery, so monitoring for delirium should begin immediately after anesthesia is completed.<sup>1</sup> Several points require discussion.

Firstly, propofol infusion syndrome (PRIS) has not been considered a complication of continuous nocturnal propofol infusion.<sup>2</sup> Propofol infusion syndrome occurs after prolonged administration of propofol and is clinically characterized by lactic acidosis, rhabdomyolysis, hyperkalemia, hyperlipidemia, hepatomegaly, acute renal failure, or systolic dysfunction.<sup>2</sup> Occasionally, patients may die from PRIS. Risk factors for the development of PRIS include early age, obesity, hyperlipidemia, steroids, depletion of carbohydrates, critical illness, and elevated catecholamines.<sup>2</sup> In addition, an animal study has shown that propofol can induce post-traumatic stress disorder (PTSD) in mice, whereas dexmedetomidine tends to prevent the development of PTSD.<sup>3</sup> Since postoperative delirium can be prevented by various other measures, it is recommended to avoid continuous infusion of propofol if this can be avoided.

The second point is that dexmedetomidine is also not free of side effects.<sup>4</sup> The most commonly reported side effects include fever, cerebral hypoxia, arterial hypotension/hypertension, nausea, bradycardia or tachycardia, vomiting, and anemia.<sup>4</sup> There are also reports that dexmedetomidine even causes confusion.<sup>5</sup> There is even a case report of a patient with schizophrenia in whom dexmedetomidine caused delirium.<sup>6</sup> The delirium occurred in this patient with a normal dosage of dexmedetomidine and without administration of another intravenous sedative.<sup>6</sup>

The third point is that alternative methods of preventing delirium using tranquilizers and neuroleptics have not been discussed in detail.<sup>1</sup> Delirium, if properly diagnosed, can be most easily prevented by the use of intravenous benzodiazepines alone or in combination with neuroleptics such as haloperidol.

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Overall, the study by Ekkapat et al. has limitations that relativize the results and their interpretation. Eliminating these limitations could strengthen the study's conclusions. Before administering dexmedetomidine or propofol to prevent postoperative delirium in elderly patients after a hip fracture, the tolerability of the approach should be carefully assessed, and established alternative methods should be promoted more strongly.

## DECLARATIONS

### Availability of Data and Material

All data are available from the corresponding author.

## AUTHOR CONTRIBUTION

JF: Design and conception, discussed available data with coauthors, wrote the first draft, and gave final approval. JGM: Contributed to literature search, discussion, correction, and final approval.

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