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A retrospective review comparing post-operative delirium in elderly patients receiving ketamine infusion with younger patients

Priyanka Singla, Lynn Kohan, Siny Tsang, Amir Abdel Malek, Derek Petrosian, Nabil Elkassabany
University of Virginia

Introduction

The opioid epidemic has led to a renewed focus on non-opioid medications for treatment of pain. Ketamine infusions have been widely used for the treatment of acute and chronic pain. Ketamine is generally well tolerated at sub-anesthetic doses (1) however, about 5% patients experience central nervous system (CNS) adverse events including postoperative delirium (2). The relationship between ketamine infusion and adverse neurological adverse effects in relation to the age of the patient has not been extensively explored. We hypothesized that ketamine infusion would be associated with increased rate of adverse neurological events in elderly patients (>65 years of age) as compared to younger patients (<65 years of age).

Materials and Methods

The study has been deemed to be exempt from full review by the IRB at University of Virginia. Patient records from a single tertiary care institution were retrospectively analyzed from 2018 to 2023. Patients aged > 18 years were included if they received ketamine infusion for at least 12 hours for the treatment of acute pain or as part of an enhanced recovery protocol after surgery. They were divided into 2 groups based on age - > 65 years (elderly patients) and <65 years (younger patients). Patients with delirium were identified based on ICU-CAM score in the Intensive Care Units or addition of delirium to the active problem list on the acute care floors. Additional data collected included patient demographics, patient co-morbidities, medications that can cause delirium, and ketamine dose and duration. Statistical analyses were performed using R version 4.4.0.

Results/Case Report

During the study period (2018-2023), a total of 3856 patients met the inclusion criteria. On average, elderly patients are more likely to receive (~34%) less ketamine dose per Ideal Body Weight (IBW) than younger patients. 16 % elderly patients experienced delirium as compared to 12.6% in the younger age group despite receiving a lower cumulative dose of ketamine. After adjusting for demographics and clinical characteristics, elderly patients have a 53.9% higher likelihood (OR = 1.54, 95% CI = 1.21 – 1.95) of having positive delirium as measured by in ICU-CAM score and about twice more likely (OR = 2.28, 95% CI = 1.28 – 3.98) to have positive delirium on acute care floor than young patients

Discussion

Our study showed ~15.6% of patients who received ketamine infusion reported delirium, with a higher likelihood of delirium among elderly than young patients. At our institution, we limit the dose of ketamine to 0.3mg/kg/hr (IBW) for post-surgical patients. Ketamine should be used cautiously in elderly patient population after surgery.

References

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Disclosures

No

Tables / Images