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Title: *Dexmedetomidine as adjunct to standard-of-care in acute alcohol withdrawal-related agitation: a retrospective cohort study*

#### Abstract

Introduction: Alcohol Withdrawal Syndrome (AWS) results in nervous system hyperactivity upon alcohol cessation. Benzodiazepines are the mainstay of treatment, but one possible adjunct is dexmedetomidine, an alpha2-adrenergic agonist. Dexmedetomidine does not treat AWS, but reduces agitation associated with AWS. Possible consequences of underdosing AWS patients on benzodiazepines is the precipitation of nervous system hyperactivity. The purpose of this study is to determine if adding dexmedetomidine reduces the benzodiazepine requirement in AWS without causing adverse events.

Methods: This study is a retrospective cohort study. It was conducted by examining adult patient's charts who were being treated for AWS in the intensive care units (ICU) at St. John's Hospital between 03/20/2018 to 6/15/2019. The data was collected using an Excel spreadsheet. For patients who meet the inclusion criteria the data was collected and descriptive statistics were applied.

Results: A total of 44 patients were included with an average age (years) of  $52 \pm 12.7$ , height (inches) was  $68 \pm 3.7$ , body weight (kilograms)  $76.8 \pm 20.7$ , males had 34 (77.3%), initial blood-alcohol content ranged from 0-0.41, and length on CIWA protocol (hours) ranged from 31 to 387. Adverse outcomes were as follows: 11 (25%) experienced delirium tremens, 13 (29.5%) hallucinations, 5 (11.3%) seizure, 17 (38.6%) required mechanical ventilation, and 2 (4.5%) experienced mortality.

Conclusion: Due to the small sample size and not being able to reach power, this study is at risk of a type II error. Some patients throughout the continuum of dexmedetomidine dosing still experienced seizures, hallucinations, and delirium tremens. Therefore, more studies will have to be conducted to determine whether dexmedetomidine as adjunct to AWS therapy is appropriate to reduce benzodiazepine use, while still minimizing symptoms of AWS.