**Implementation of Minnesota Detoxification Scale protocol for severe alcohol withdrawal syndrome management in an intensive care unit at a community teaching hospital**

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**Objective:** Patients with alcohol use disorder (AUD) are at high risk of developing withdrawal-associated seizures upon abrupt cessation, often requiring admission to intensive care unit (ICU) for frequent monitoring. Currently, American Society of Addiction Medicine (ASAM) guidelines recommend symptom-driven scoring tools such as Minnesota Detoxification Scale (MINDS) over a patient-reliant assessments such as Clinical Institute Withdrawal Assessment (CIWA) in AUD patients with delirium in ICU settings. However, comparative studies of MINDS and CIWA in critically ill patients remain limited. The objective of this review is to evaluate the impact of MINDS protocol implementation on critical care outcomes and total benzodiazepine burden for the management of severe alcohol withdrawal patients admitted to the ICU of Waterbury Hospital.

**Methods:** A single-centered retrospective pre-post analysis was conducted from November 2020 to April 2021 at a community teaching hospital in Waterbury, CT. In this study, patients above age of 18 with documented utilization of an alcohol withdrawal assessment tool for management of severe alcohol withdrawal syndrome in the ICU were included. Patients with no diagnosis of AUD, delayed ICU admission (>72 hours from initial presentation), and acute COVID-19 respiratory infection were excluded. Eligible encounters were divided into two categories according to the timeline of MINDS protocol implementation as pre-MINDS (CIWA) and post-MINDS groups. The primary outcome was overall adherence rate to the MINDS protocol. Secondary outcomes were average ICU and total hospital length of stay, total benzodiazepine burden in lorazepam equivalents, frequency of intravenous (IV) benzodiazepine continuous infusion use, average number of days and utilization of mechanical ventilation. This study is was IRB exempt quality improvement research.

**Results:** Between November 28, 2020 and April 28, 2022, 100 encounters met inclusion. 21 patients from before April 28, 2021 were assigned to the pre-MINDS group while 71 after April 29, 2021 were included in the post-MINDS group. The primary outcome of overall adherence to the MINDS protocol was 25%, however, this rate increased from 22% in 2021 to 78% in 2022. No significant differences between pre- and post-MINDS groups were observed for all secondary outcomes. Average length of ICU (110 vs. 104 hours; IQR 29-106.5; p=0.88) and entire hospital stay (226 vs. 216 hours; IQR 87.5-270; p=0.83) were similar between groups. Mean duration of mechanical ventilation (2 vs. 1.6 days; p=0.74) and total benzodiazepine burden (170 vs. 160 mg; IQR 5.8-119; p=0.91) were also similar. Patients in the post-MINDS group were numerically less likely to require mechanical ventilation (34% vs. 20%) and required IV benzodiazepine continuous infusions less frequently (24% vs. 11%).

**Conclusion:** Adherence to the MINDS protocol in critically ill patients with severe alcohol withdrawal syndrome markedly improved in the year following implementation. Patients in the post-MINDS group had similar lengths of stay, duration of mechanical ventilation, and benzodiazepine burden, but may be less likely to require mechanical ventilation or continuous benzodiazepine infusions.

**References**

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