Transition from Fixed-dosing to Symptom-triggered Management of Alcohol Withdrawal Syndrome in the Intensive Care Unit of a Community Hospital

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Transition from Fixed-dosing to Symptom-triggered Management of Alcohol Withdrawal Syndrome in the Intensive Care Unit of a Community Hospital

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Disclosure

- The authors of this presentation have no relevant financial or non-financial relationships in the products described and reviewed in this presentation.
- Co-investigators
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Abbreviations

- ADR: Adverse drug reaction
- AW: Alcohol withdrawal
- BZD: Benzodiazepine
- CIWA-Ar: Clinical Institute Withdrawal Assessment for Alcohol, revised
- GABA: Gamma-aminobutyric acid
- ICU: Intensive care unit
- IRB: Institutional review board
- IV: Intravenous
- LOS: Length of stay
- MINDS: Minnesota Detoxification Scale
- STT: Symptom-triggered therapy
Objective

- Discuss the outcomes of a fixed-dose protocol for the management of AW in a community hospital
In the United States, 2 to 7% of heavy alcohol users admitted to the hospital for general medical care will develop severe AW.

The most dangerous complications of AW are delirium tremens and seizures.

Benzodiazepines are considered first-line therapy.
- Alcohol is a central nervous system depressant which acts by modulation of GABA and glutamate activity.
- BZDs modulate binding of GABA to its receptor, increasing chloride ion influx and causing an inhibitory effect similar to alcohol.

References:
The Journal of the American Medical Association. 2018; 320(8), 825-833.
Fixed-Dose versus STT

- **Fixed-dose**
  - Historically has been used to manage AW
  - BZDs are given at regular intervals
  - Additional doses are given as needed depending on severity of the symptoms according to AW scale scoring

- **STT**
  - BZDs are only administered when severity of symptoms necessitate, according to AW scale scoring
  - Evidence shows that STT results in:
    - Lower doses of BZDs
    - Shorter BZD duration
    - Decreased rate of severe AW
    - Shorter duration of AW syndrome
    - Decreased complications
The purpose of this study was to evaluate the current BZD fixed-dose protocol and outline the transition to STT in the ICU
Study Design

- Single center, IRB approved, retrospective chart review of patients treated for AW with a fixed-dose BZD protocol
- Study period: November 2017-December 2019

- Inclusion
  - Admitted to an ICU
  - Treatment for AW
  - Use of BZDs

- Exclusion
  - Age < 18 years
  - Pregnancy
  - Allergy to BZD
A total of 90 patients were reviewed

46 patients met inclusion criteria

Excluded patients
- 39 BZD use for anxiety
- 5 BZD use as needed
Outcomes

- Primary outcomes
  - Amount of BZD(s) used
    - Chlordiazepoxide daily mg dose
  - Duration of BZD therapy
    - Days of BZD use
  - Time to symptom control
    - Total days; beginning of symptoms to when symptoms were controlled

- Secondary outcomes
  - BZD-related adverse effects
    - Any BZD-related ADR such as somnolence, drowsiness, hypotension, or unresponsiveness
    - Reported by the nurse or physician
  - LOS in the ICU
    - Days spent in the ICU
Statistical Methods

- Descriptive statistics
  - Mean
    - Duration of therapy
    - Time to symptom control
  - Median
    - Daily BZD use
    - LOS in the ICU
Results: Primary Outcomes

- Daily BZD(s) used:
  - 75 mg daily

- Duration of BZD therapy:
  - 5.4 days

- Time to symptom control:
  - 4.25 days

BZD Use

- Asymptomatic: 65%
- After symptoms were controlled: 26%
- Similar duration of symptoms: 9%
Results: Secondary Outcomes

- BZD-related adverse effects
  - Approximately 42% of the patients who experienced an ADR received BZDs while asymptomatic or after symptoms were controlled

- LOS in the ICU
  - Median: 3 days
  - Majority of patients were transferred to the floors

BZD ADRs

- ADR Occurred: 21 (46%)
- No ADR: 25 (54%)
Additional Findings

- Only 21% of the prescribers used the AW PowerPlan.
- Approximately 30% of patients had a CIWA-Ar score documented:
  - For patients with a documented CIWA-Ar score, most had low scores for which treatment was not indicated.
  - The use of CIWA-Ar did not necessarily correlate with the use of the PowerPlan.
  - In patients with a CIWA-Ar score, reassessment of the score was not conducted.
Conclusions

- The fixed-dose protocol led to patients receiving unnecessary treatment for AW.
- Duration of BZD therapy was longer than time to symptom control, exposing patients to an extra day of unnecessary therapy.
  - A large percentage of these patients experienced an ADR.
- Areas for improvement for appropriate patient monitoring were identified, given the lack of use of the AW PowerPlan and poor documentation of CIWA-Ar scores.
Limitations

- Retrospective chart review
- Small sample size
- Information assessed based on documentation
- Multiple sedative medications utilized
- Challenging to assess ADRs in intubated patients
Transition to STT

- Patients with AW will be treated using STT
- BZD of choice will be lorazepam oral or IV
- BZD will be administered based on a scale score (CIWA-Ar or MINDS)
- Score severity will determine BZD dose and monitoring parameters
  - Monitoring will be conducted by nurses
  - Parameters will be pre-determined to ensure proper escalation and de-escalation of therapy
- Education will be provided to physicians, nurses, and pharmacists
Assessment Question

Which of the following outcomes is associated with fixed-dose benzodiazepine protocols?

A. Increased benzodiazepine use
B. Shorter duration of benzodiazepine use
C. Less sedation
D. Decreased length of stay
Which of the following outcomes is associated with fixed-dose benzodiazepine protocols?

A. Increased benzodiazepine use
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References

