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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

Marianela Robainas
South Miami Hospital, MarianelaR@baptisthealth.net

Heidi Clarke
Baptist Hospital of Miami, heidic@baptisthealth.net

Claudia Chang
South Miami Hospital, claudiac@baptisthealth.net

Frances Ordieres Gonzalez
South Miami Hospital, FrancesO@baptisthealth.net

Lorenzo Porras Jr.
South Miami Hospital, lorenzop@baptisthealth.net

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Baptist Health South Florida

Marianela Robainas, Pharm.D.

PGY-1 Pharmacy Resident

South Miami Hospital

Baptist Health South Florida

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
  - Heidi Clarke, PharmD, BCCCP
  - Claudia Chang, PharmD, BCPS
  - Frances Ordieres Gonzalez, PharmD
  - Lorenzo Porras, PharmD

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

Background

- 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

The Journal of the American Medical Association. 2018; 320(8), 825-833.
The Journal of Human Pharmacology and Drug Therapy. 2016; 36(7), 797-822.

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 Journal of Human Pharmacology and Drug Therapy. 2018; 38(7), 701-713.

Purpose

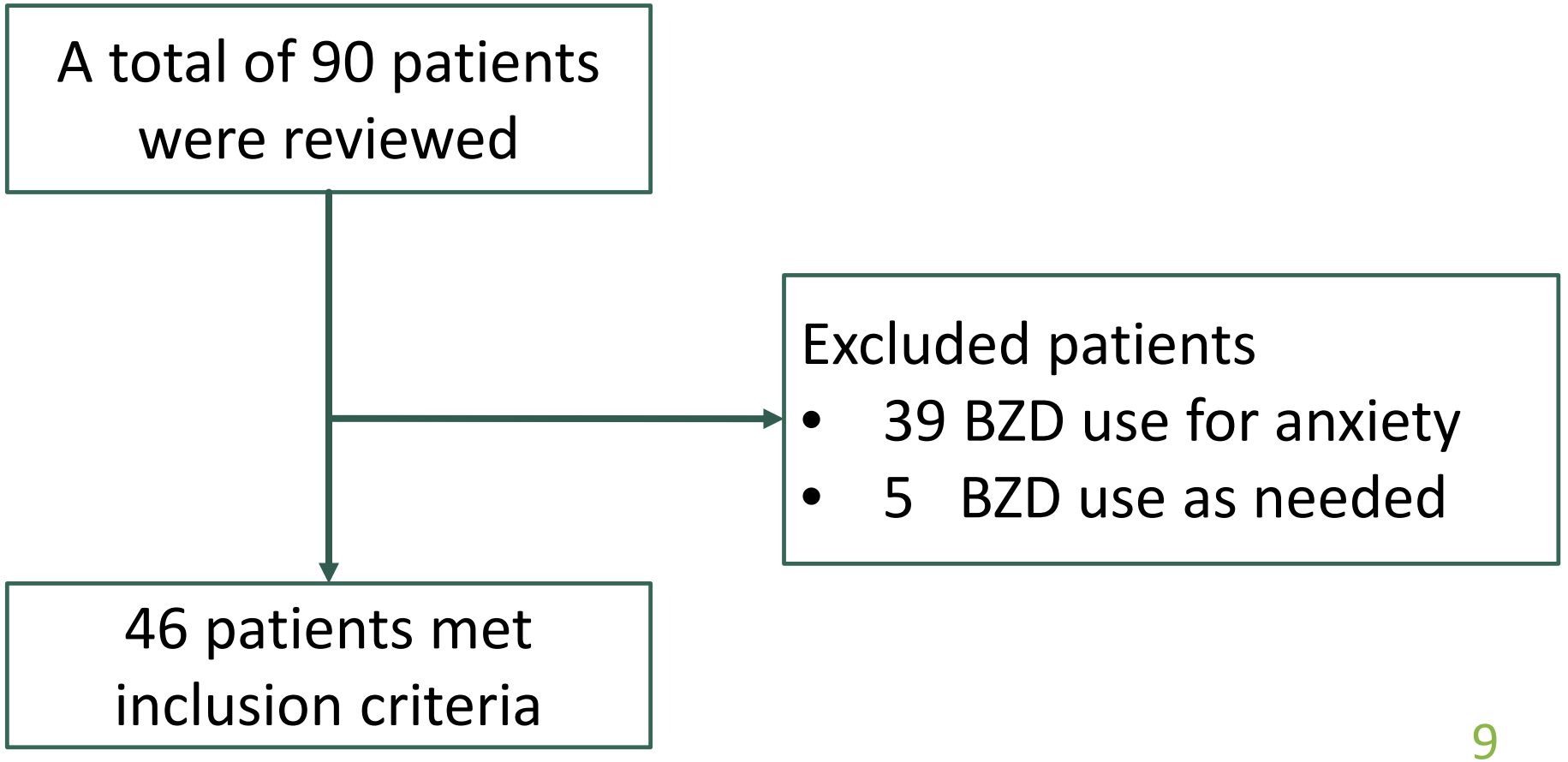
- The purpose of this study was to evaluate the current BZD fixed-dose protocol and outline the transition to STT in the ICU

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

Screening


A total of 90 patients were reviewed
Excluded patients
• 39 BZD use for anxiety
• 5 BZD use as needed
46 patients met inclusion criteria

Outcomes

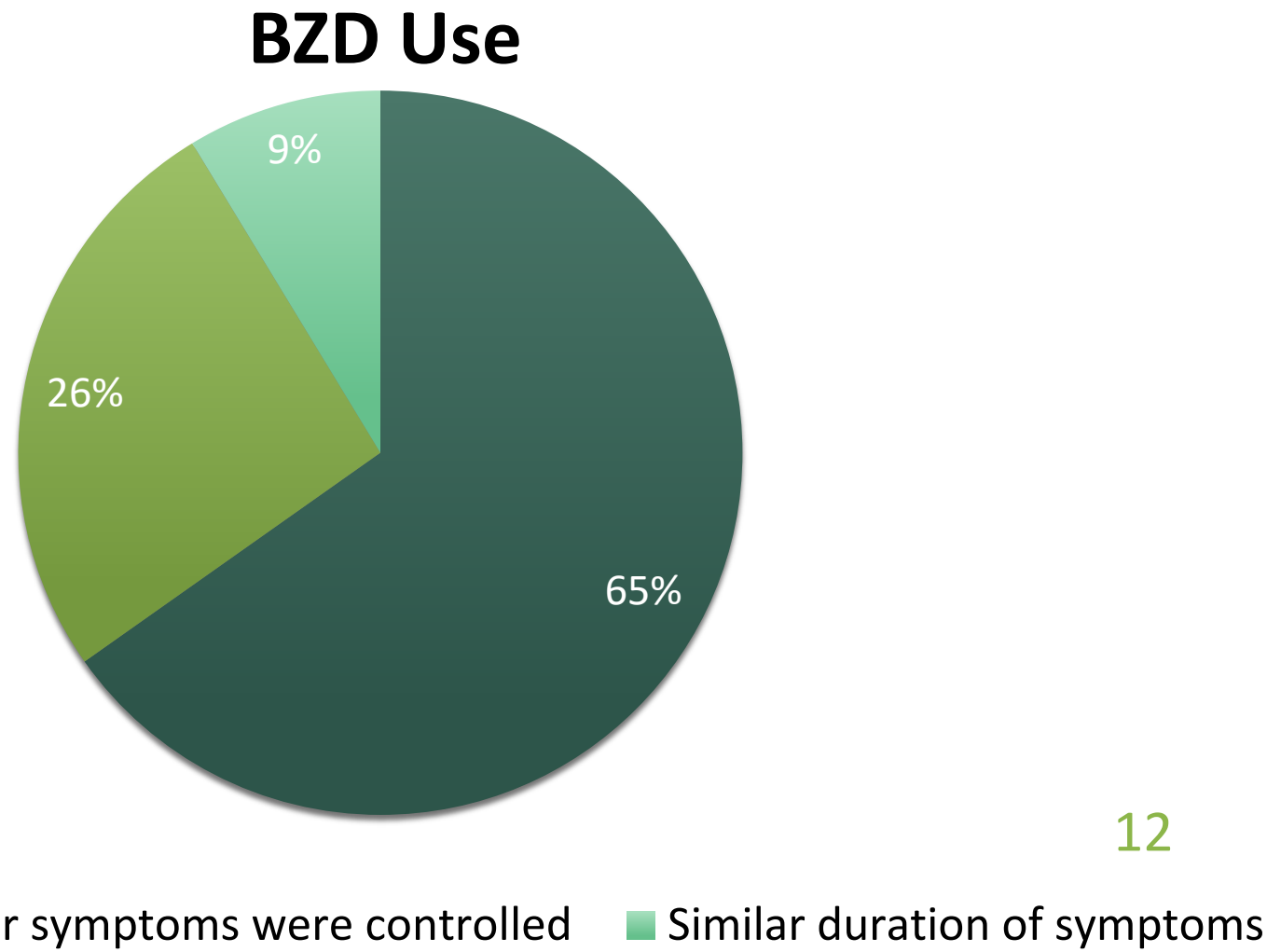
- Primary outcomes
  - Amount of BZD(s) used
    - Chlordiazepoxide daily mg dose
  - Duration of BZD therapy
    - Days of BZD use
  - Time to symptom control
    - Total days; beginning of symptoms to when symptoms were controlled
- Secondary outcomes
  - BZD-related adverse effects
    - Any BZD-related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

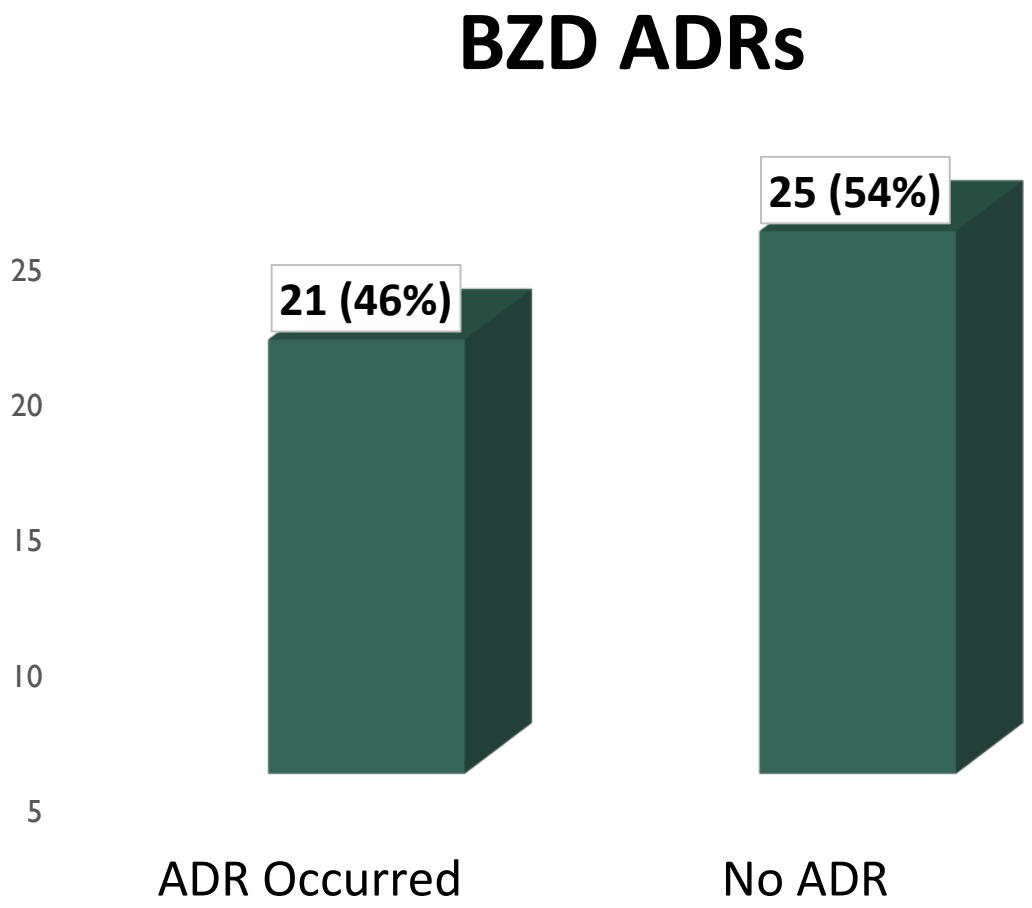
- Descriptive statistics
  - Mean
    - Duration of therapy
    - Time to symptom control
  - Median
    - Daily BZD use
    - LOS in the ICU

Results: Primary Outcomes

- Daily BZD(s) used:
  - 75 mg daily
- Duration of BZD therapy:
  - 5.4 days
- Time to symptom control:
  - 4.25 days



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

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

Assessment Answer

- 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

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