

Relationship Between Initiation of New Anti-Hypertensive Medications and Falls Risks to be Used as a Predictive Model for Nursing During Inpatient Hospitalization



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Introduction

- Anti-hypertensive medications may contribute to falls with injury, but no stratification for classes of medication (Tinetti et al., 2014)
- The Systolic Blood Pressure Intervention Trial (SPRINT) found no significant risk for patients on anti-hypertensive medications (Cai & Calhoun, 2018)
- Most studies conducted on loop diuretics and falls were in ambulatory environments or nursing homes.

Background

Most organizations focus on several nursing interventions to reduce a facility's falls rate. These interventions include utilizing bed alarms, ensuring the call-light is in reach, and hourly safety rounds. However, the falls rate had remained steady over the past few years, 2.70, 2.80, and 2.61 per 1,000 patient days for 2017, 2018, and Q2 2019, respectively.

Our team of researchers discussed several classes of medications and hypothesized that a predictive model used for nursing emphasizing increased risk may decrease falls risk when implemented throughout the organization. Two research questions for the nursing research project emerged:

1. To formulate a predictive model for nursing to identify patients at higher risk for falls that may be associated with the initiation of certain medications during hospitalization
2. To determine a predictive timeframe for the increased risk

Primary Objectives:

- To determine the prevalence of falls on patients with newly initiated loop diuretics or alpha-1 peripheral blockers.
- To determine whether the initiation of specific medications increase falls in inpatients 18-89 years of age

Secondary Objectives:

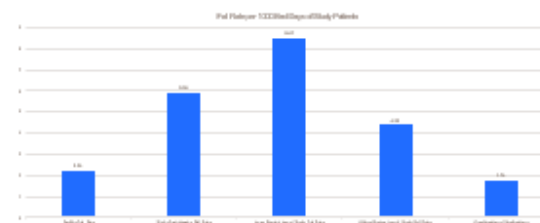
- Determine if there is an increase in falls with injury
- Describe the timeframe of the initiation of the loop diuretic or peripheral alpha-1 blocker medication to time of fall

Methods

- Retrospective descriptive quantitative protocol
- Inclusion: 18-89 yrs, inpatient, initiated on loop diuretic and/or alpha-1 peripheral blockers (if on PO loop diuretic and changed to IV – patient included).
- Exclusion: Primary behavioral health diagnosis and lower extremity amputation.
- 1,803 records were reviewed and 213 patients excluded due to criteria, leaving 1,590 charts reviewed
- Once patients were identified, this was compared to the patients who fell at the organization during hospitalization. The time from medication administration to the fall event was calculated

Results

- The study included 59.7% males and 42.1% females with an average age of 67.9 years of age. Patients with falls had an average age of 71.6. No correlation was determined with age or gender
- The facility falls rate for study timeframe was 2.24 falls per 1,000 patient days
- Patients initiated on loop diuretics and met study criteria had a falls rate of 8.47 falls per 1,000 patient days
- Patients initiated on alpha-1 peripheral blockers and met study criteria had a falls rate of 4.39 and those on a combination of both 1.74 falls per 1,000 patient days.
- The distribution of time for those on peripheral alpha-1 blockers did not reveal a correlation with some occurring within two hours of administration, while others 10 to 20 hours after administration.
- The loop diuretic leg of the study suggested that the increased falls rate was longer than anticipated. While several falls occurred within two hours of administration, the majority of falls occurred within 14 hours of initiation. Upon further review, the majority of these patients had some level of congestive heart failure and kidney disease.



Study Limitations

- Small sample size
- Inability to perform modeling for possible contributing factors, including narcotic administration
- Hand abstraction of data, requiring review of every home medication reconciliation

Conclusion

- Study suggests that patients initiated on loop diuretics may be at an increased falls risk for nearly 14 hours after medication administration
- Adding loop diuretic to post-fall summary could increase sample size and aid further studies
- Nurses could use this information as a predictive model to increase interventions to reduce falls
- Additional studies could provide additional information

References

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