

Medication Driven Fall Risk Scoring Among Adult Inpatients Experiencing Falls During Admission



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Introduction

The Morse Fall Score is a widely utilized clinical tool for assessing patient fall risk, incorporating domains such as fall history, mobility, and mental status. However, it does not account for medication-related fall risks, despite numerous hospital-administered medications having adverse effects including dizziness, hypotension, and anticholinergic properties. As Baptist Medical Center Jacksonville (BMCJ) implements a quality improvement initiative targeting fall risk reduction, we sought to determine whether medication-specific risk assessment provides complementary value to the Morse scoring system.

Objectives

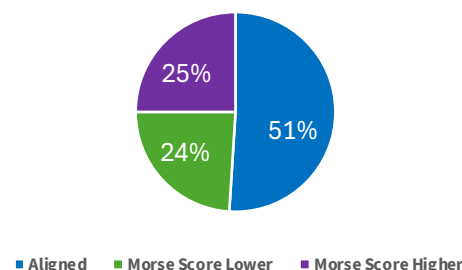
To compare a medication-focused fall risk algorithm adapted from the Agency for Healthcare Research and Quality (AHRQ) with the Morse fall risk score currently utilized by our nursing team.

Methods

A retrospective chart review was conducted on 100 inpatients at BMCJ who experienced documented falls between October 2024 and September 2025. Medication administration records were examined, and all medications taken within 24 hours preceding each fall were scored using Beasley et al.'s validated pharmaceutical fall risk assessment. Scores were classified as "aligned" when both the Morse and medication-based algorithms predicted the same risk level (high or low), and "misaligned" when predictions differed. Risk classifications were cross-tabulated in a 2x2 contingency table. Cohen's kappa (κ) was used to quantify inter-method agreement beyond chance, interpreted using the Landis and Koch framework. The McNemar test assessed whether the two tools differed systematically in the proportion of patients classified as high-risk. A two-sided p-value 0.05 was considered statistically significant.

Medications play a major role in fall risk, and pharmacists are essential in identifying these risks.

Morse Score vs. Pharmaceutical Risk



By combining the medication-based algorithm with traditional assessments, hospitals can better detect high-risk patients and help prevent falls.

Results

The Morse score classified 59 patients (59%) as high-risk compared to 58 (58%) by the medication-based algorithm. Risk classifications were misaligned in 49 cases (49%): 24 patients were low-risk by Morse but high-risk by medication score, and 25 were low-risk by medication score but high-risk by Morse. The remaining 51 cases (51%) were concordant, with 34 cases (34%) classified as high-risk and 17 cases (17%) as low-risk by both tools. Cohen's kappa was $\kappa = -0.009$, indicating no agreement beyond chance. The McNemar test was not statistically significant ($p > 0.88$), suggesting neither tool systematically classified more patients as high-risk. Notably, in 75% of cases, the medication algorithm was as accurate or more accurate than the Morse Score.

Conclusion

This study demonstrates substantial discordance between medication-based and Morse fall risk assessments, with misalignment in nearly half of cases. Importantly, neither instrument alone captures the full spectrum of at-risk patients suggesting concurrent utilization may enhance sensitivity. BMCJ Pharmacy will collaborate with the Pharmacy Therapeutics Committee to develop an integrated electronic health record calculator and standardized protocols guiding pharmacist interventions based on combined risk assessments.

Disclosure

None of the authors have anything to disclose.