

# Usage of falls-risk-increasing drugs among patients with high risk of falls in the nursing ward of Tartu University Hospital

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## Background and importance

Medicines may have unwanted adverse drug reactions that may increase the risk of falls (e.g. dizziness, drowsiness, loss of consciousness) and the prevalence increases with age<sup>1</sup>. Assessing a patient's likelihood of falling is usually done during the hospital admission and the Morse fall scale (MFS) is used in Estonia. However, the MFS does not take into account medications to predict future falls.

## Aim and objectives

To assess the usage of falls-risk-increasing medications among patients with high risk of falls according to MFS in the nursing ward of Tartu University Hospital.

## Materials and methods

Patients with high risk according to the MFS were included in the study (February-August 2020) from the nursing ward of Tartu University Hospital. A list of medications was compiled to identify falls-risk-increasing medications<sup>2-5</sup> and the medication fall risk score (MFRS) was calculated for each patient (Tabel 1)<sup>6</sup>. Medications were classified as high (3 points), medium (2 points) or low risk drugs (1 point). MFRS  $\geq 6$  identifies patients with higher risk for falls.

Tabel 1. Medication Fall Risk Score.

Point Value (Risk Level)	Medications	Adverse reaction
3 (High)	Anti-Parkinson Drugs Antipsychotics Anxiolytics Hypnotics and Sedatives Antidepressants Anticholinergics	Postural hypotension Sedation Postural disturbances Dizziness
2 (Medium)	Cardiac Glycosides Antiarrhythmics Alpha-Adrenoceptor Antagonists Diuretics Beta-Blocking Agents Agents Acting on the Renin-Angiotensin System Analgesics Anti-Epileptics Antihistamines	Somnolence Drowsiness Postural hypotension
1 (Low)	PPIs and H2 Antagonists Oral Anti-Diabetic Drugs Nitrates Calcium Channel Blocker	Confusion Hypoglycaemia Hypotension
<b>Score <math>\geq 6</math> <math>\Rightarrow</math> Higher risk for fall <math>\Rightarrow</math> Evaluate patient</b>		

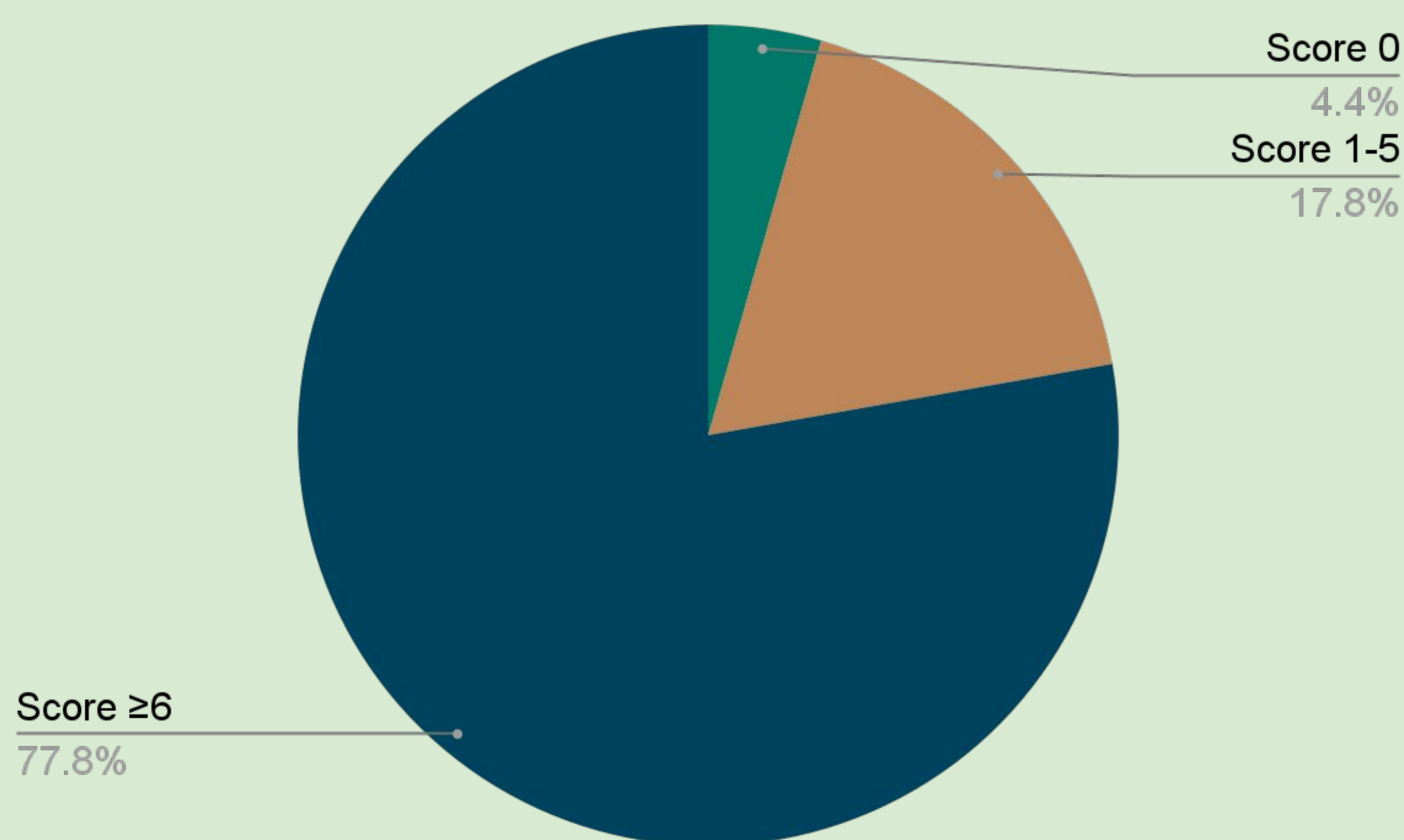


Figure 1. Results of the medication fall risk score.

## Results

A total of 45 patients were included in the study with a mean age of 81 years and one third of them were men. On average, a patient took 7.7 medications. 63% of patients had fallen during the past year. More than half of the medications used ( $n = 94$ ) were associated with an increased risk of falls (Tabel 2). Mostly used falls-risk-increasing medications in the study were antipsychotics, analgesics, diuretics, agents acting on the renin-angiotensin system and beta-blocking agents. Most of the patients ( $n = 35$ ) had their MFRS  $\geq 6$  and the average score was 9.6 points which means that these patients had a higher risk factor for falls (Figure 1).

## Conclusion and relevance

All included patients had a higher risk for falls according to MFS and 80% of them also had increased risk according to MFRS. The highest mean medication fall risk score result (10.9 points) was calculated in the 70-79 age group. Tartu University Hospital should also use the medication fall risk score to identify falls-risk-increasing medications and to prevent future falls due to medications.

Tabel 2. Frequency of medications with different risk levels.

Risk level of medication	No. of medications (n) (%)	Median (n) (range)
High	14 (15)	1.35 (0-3)
Medium	24 (26)	3.02 (1-6)
Low	11 (12)	1.64 (1-4)
No risk	45 (47)	2.73 (0-7)
Total	94 (100)	7.69 (1-15)

## References

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