

EXCESSIVE POLYPHARMACY AND OTHER DETERMINANTS FOR UNPLANNED HOSPITAL ADMISSIONS

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BACKGROUND & AIM

Polypharmacy can lead to harm, that is frequently compounded by unplanned hospital admissions. Prior to investigating targeted clinical pharmacy interventions, we first need to better characterize patients at risk for such admissions, including their medication use. The aim of this study was hence to identify determinants for unplanned hospital admissions in community-dwelling adults.

METHODS

A retrospective, observational cohort study was performed. Data from the Integrated Computerized Network and the InterMutualistic Agency database were used. Patients aged 40 years or older with data available for the years 2013-2015 were included.

An index date was defined per patient as the last general practitioner (GP) contact for that patient in 2014. The preceding 12 months were used to collect the determinants. For the occurrence of an unplanned hospital admission, a period of 12 months after the index date was used.

A multivariable logistic regression analysis was used to identify determinants for unplanned hospital admissions. Polypharmacy was defined as the use of more than five, but less than nine different medications; excessive polypharmacy was defined as the use of more than nine different medications during the prior year.

RESULTS

A total of 40,411 patients was included in the project and 2126 (5.26%) patients had at least one unplanned hospital admission. The mean age was 58.3 (± 12.3) years, 51.2% took less than 5 different medications and 17.6% took more than 9 different medications. Results of the multivariable logistic regression model have been summarized in Table 1.

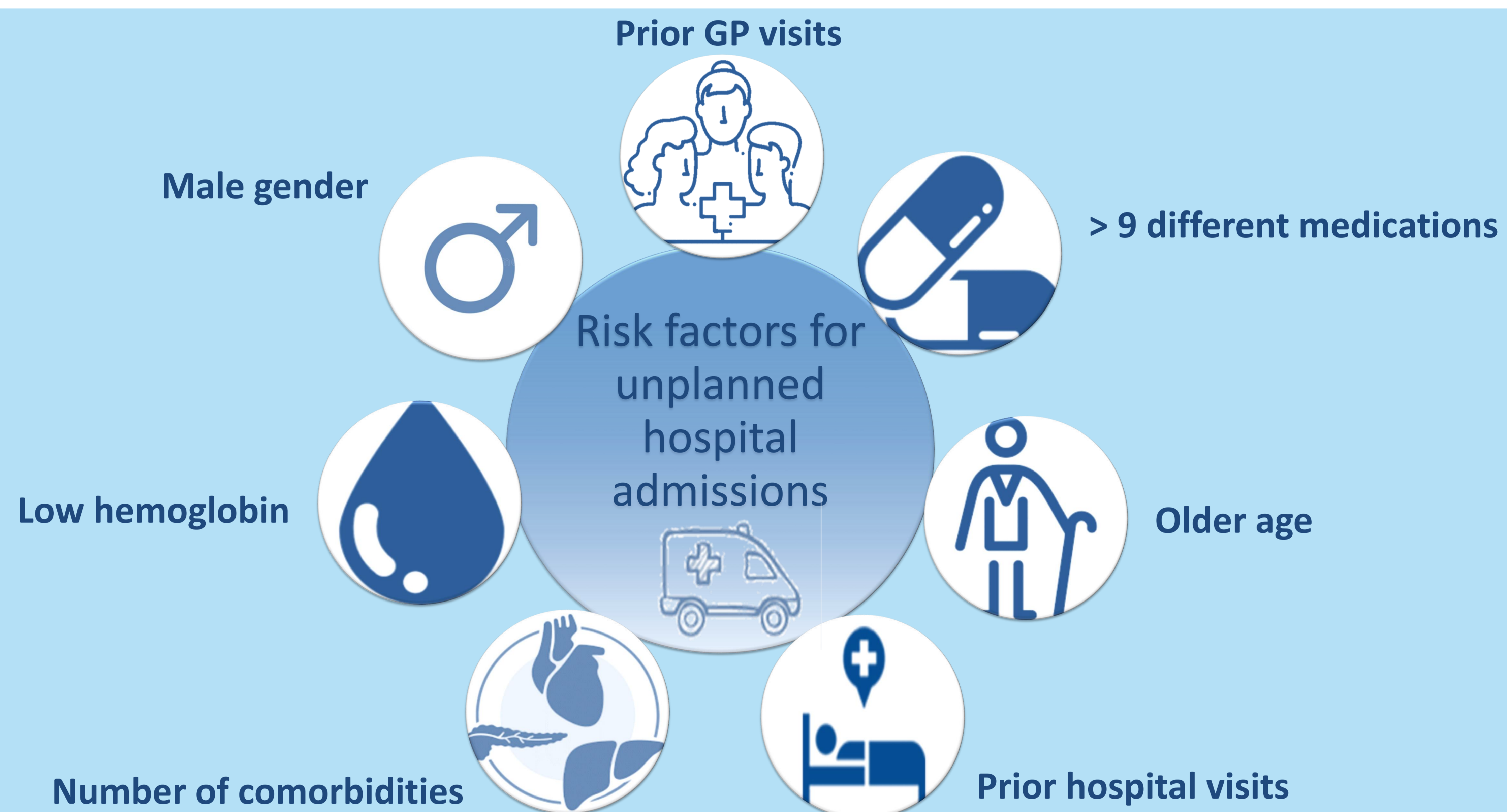


Table 1: Multivariable logistic regression model

Variables	Estimate	Adjusted OR	Standard error	p-value
Male	0.141	1.151	0.063	0.0273*
Age	0.031	1.031	0.003	<.0001*
BMI	0.001	1.001	0.006	0.8989
Hemoglobin: women <12 g/dl, men <13g/dl	0.286	1.331	0.115	0.0192*
Creatinine	0.039	1.040	0.096	0.6839
Aspartate aminotransferase: women >93U/l, men >111U/L	0.808	2.243	0.485	0.0965
Number of prior ED visits	0.436	1.547	0.059	<.0001*
Number of prior hospital admissions	0.261	1.298	0.059	<.0001*
Number of prior unplanned hospital admissions	0.897	2.452	0.060	<.0001*
Number of prior GP contacts	0.017	1.017	0.006	0.0098*
Polypharmacy (5-9 drugs)	-0.001	0.999	0.076	0.9887
Excessive polypharmacy (>9 drugs)	0.311	1.365	0.107	0.0062*
Number of chronic comorbidities	0.044	1.045	0.012	0.0003*

OR: odds ratio; BMI: body mass index; ED: emergency department; GP: general practitioner

*statistically significant (2 sided P-value < 0.05)

DISCUSSION AND CONCLUSION

The model identified seven determinants for unplanned hospital admissions: excessive polypharmacy, male gender, number of comorbidities, older age, low hemoglobin level, and prior hospital and GP visits. The single largest determinant was the number of prior unplanned admissions.

For hospital pharmacists it is essential to take these determinants into account whenever providing clinical pharmacy interventions, particularly in the case of limited staffing and/or when resources are scarce.