

A nationwide register-based study on automated dose dispensing for primary care patients

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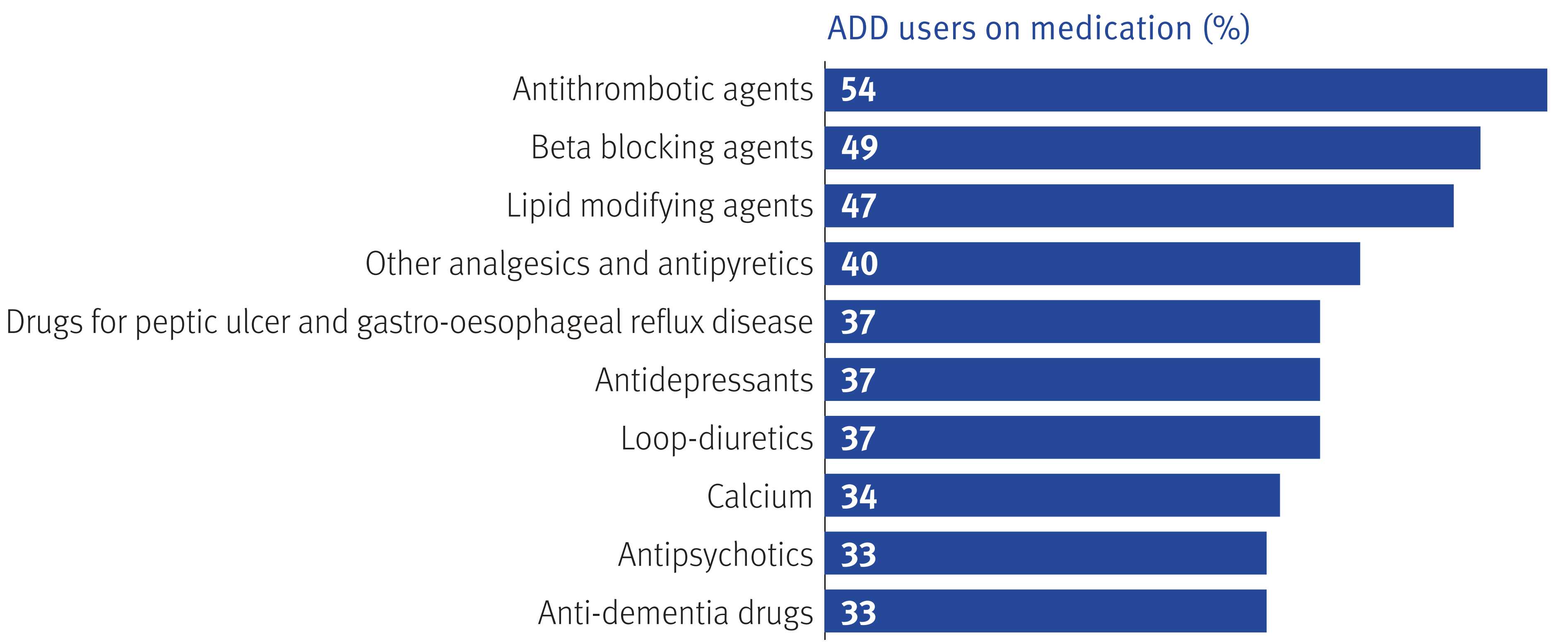
Introduction

Automated dose dispensing (ADD) is a service ensuring the safe use of medicines, especially in older adults in primary care^{1–3}. In ADD, regularly used medicines are machine-packed in unit-doses according to administration times and dispensed by a community pharmacy. The ADD procedure should also include multi-professional collaboration and annual medication reviews. While ADD has the potential to improve the quality of pharmacotherapy, there is a lack of up-to-date and nationwide-level information on ADD users and medicines in ADD. Using nationwide register data on primary care patients, the aim of this study is to evaluate the number of patients using the ADD service and the prevalence of excessive polypharmacy among these patients as well as to determine the most frequently dispensed medicines in ADD.

Method

Data on all dispensations recorded in the centralised national Prescription Centre were retrieved for 1.1.2022–31.12.2022. The recorded dose-dispensing distributions were evaluated, and the study population comprised all persons with at least one recorded dose-dispensing in 2022. Product- and patient-level data were collected for each dispensation. Medicines were

Figure 1. The most common medicine groups among patients using the automated dose dispensing (ADD) service



categorised according to the Anatomic Therapeutic Chemical (ATC) Classification System. Excessive polypharmacy was defined as ≥ 10 regular medications. Descriptive analyses were conducted using R.

Results

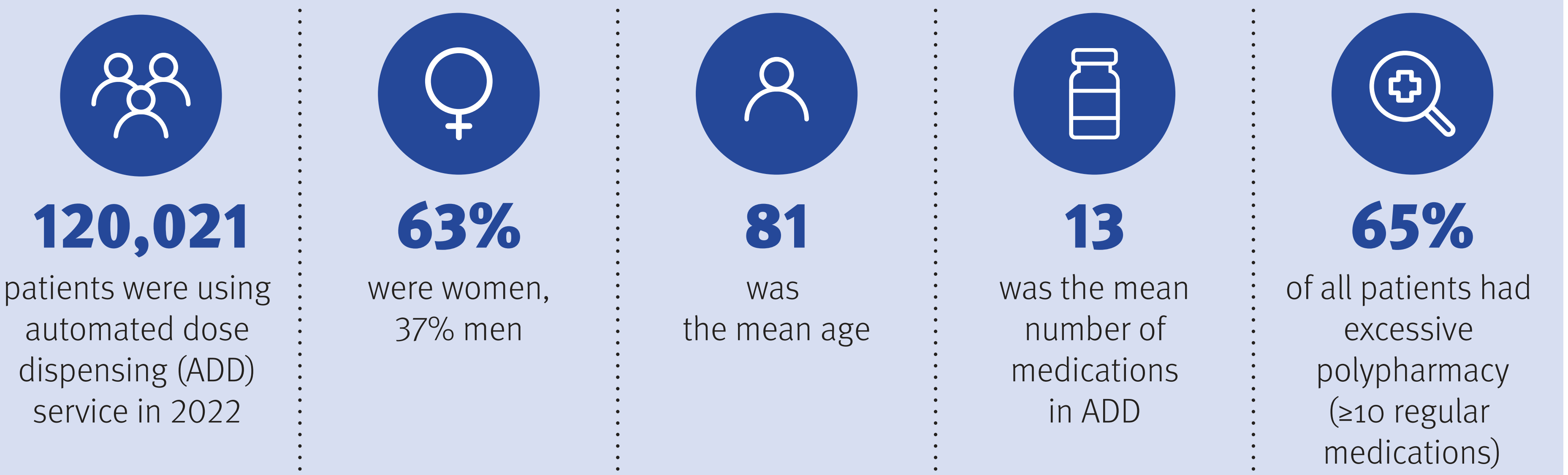
Altogether, 120,021 patients were using ADD in 2022, and 63% of them were women. The age range was 6–108, and the mean age was 81. Of the patients using ADD; 78% were 75 years old or older, covering 16% of the population of the same age. For people aged 90+, the coverage of the population in

ADD was 54 % for women and 45% for men. The mean number of medications in ADD was 13.4 for women and 12.9 for men, and 65% of all patients had excessive polypharmacy. On the active pharmaceutical ingredient (API) level, there were 353 different dose-dispensed APIs. The most frequently dispensed APIs in ADD were bisoprolol, furosemide, paracetamol, calcium combinations with vitamin D, and pantoprazole. The most common medicine groups were antithrombotic agents (ATC code: B01A), beta blocking agents (C07A), and lipid modifying agents (C10A) (**Figure 1**).

Conclusions

Especially for older adults, ADD is an important service provided by community pharmacies. Excessive polypharmacy is common among ADD users. Pharmacists, together with other healthcare professionals, should actively work on identifying potentially inappropriate and unnecessary medicine use.

Key findings



References

1 Sinnemäki, J., Sihvo, S., Isojärvi, J., Blom, M., Airaksinen, M., & Mäntylä, A. (2013). Automated dose dispensing service for primary healthcare patients: a systematic review. *Systematic reviews*, 2, 1-7.

2 Cheung, K. C., Van Den Bemt, P. M., Bouvy, M. L., Wensing, M., & De Smet, P. A. (2014). Medication incidents related to automated dose dispensing in community pharmacies and hospitals-a reporting system study. *PLoS One*, 9(7), e101686.

3 Mikkola, H., Sinnemäki, J., Hämeen-Anttila, K., Laukkanen, E., & Reinikainen, L. (2022). Lääkkeiden koneellisen annosjakelun nykytila ja kehittämistarpeet. Lääkealan turvallisuus- ja kehittämiskeskus Fimea. Fimea kehittää, arvioi ja informoi -julkaisusarja 7/2022, Kuopio 2022. [In Finnish]

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