Discrepancy between electronic medicine list, pharmacy delivery and patient reported medicine intake in Greenland

Kleist, Inaluk; Andersen, Stig

Published in:
International Journal of Circumpolar Health

DOI (link to publication from Publisher):
10.1080/22423982.2021.1955493

Publication date:
2021

Document Version
Publisher's PDF, also known as Version of record

INTERNATIONAL JOURNAL OF CIRCUMPOLAR HEALTH
2021, VOL. 80, 1955493
https://doi.org/10.1080/22423982.2021.1955493

Taylor & Francis
Taylor & Francis Group

Discrepancy between electronic medicine list, pharmacy delivery and patient reported medicine intake in Greenland

Inaluk Kleist [a,b] and Stig Andersen [a,b,c]

[a]Department of Geriatric Medicine, Aalborg University Hospital, Aalborg, Denmark; [b]Department of Clinical Medicine, Aalborg University, Aalborg, Denmark; [c]Greenland Institute of Health Research, Ilisimatusarfik, University of Greenland, Nuuk, Greenland

ABSTRACT

Medicine use is a cornerstone in the treatment of many conditions, but ill-use has the potential to harm the patient. Thus, accurate medication information is critical for patient care and safety. To investigate the association between participants' reporting of using medicine daily, medicine list on Electronic Medical Record (EMR) and number of medicines handed out. Thirty-seven elderly Greenlanders were included, representing three different locations in Greenland. They were interviewed on daily medicine intake. Medicine list and pharmacy delivery were retrieved from the EMR. The difference between the number of drugs recorded in the EMR and the number delivered by pharmacy increased with number of drugs prescribed ($p<0.0001$). Thirty participants claimed that they were on daily medicine, and the EMR was in accordance with the delivered recorded by the pharmacy in just five participants. Eight had no registered medicine delivery. Four of seven, who claimed not being on daily medicine, were on daily medicine according to EMR. We found distinct discrepancies between EMR medicine list, medicine delivery by pharmacy and patient self-reported medicine use.

ARTICLE HISTORY
Received 31 March 2021
Revised 29 June 2021
Accepted 10 July 2021

KEYWORDS
Electronic medicine record; pharmacy hand-outs; self-reported; interview; elderly; Greenland

Introduction

The use of medicine is a cornerstone in the medical profession, but ill-use has the potential to harm the patient. The number of drugs prescribed increases with age as does frailty. Greenland had 56.081 inhabitants in 2020 and 4885 were 65+ years old [1]. Healthcare service may differ between the national hospital in Nuuk, 5 regional hospitals and 11 healthcare centres in Greenland. All hospitals and healthcare centres have pharmacies that register medicine handed out to patients. We aimed to evaluate the association between medicine list on EMR, medicine delivery by pharmacy and reporting of medicine intake by the elderly in Greenland.

Material and methods

This report is based on a study, translating tools and validating an algorithm for work-up of cognitive function in Greenland [2]. In brief, we included 11/11/15 persons randomly selected among people aged 65+ in city/town/smaller town. An interview was conducted by a Greenlandic doctor (IK), and participants reported if they took medication daily. The medicine list and information on medicine delivery was retrieved from the EMR. We included number of daily medicines, excluding *pro re nata* and temporarily medicine. Approval by the Ethics Committee for Greenland (*KVUG 2018-20*) was obtained and participants signed the informed consent. The health authorities in Greenland acknowledged the study.

Data were described using medians and interquartile ranges (IQR), numbers and percentages. Association was tested using Spearman's correlation coefficient. Analyses were performed using Stata version 16.1.

Results

Participants descriptive are given in Table 1. The number of drugs prescribed according to EMR and the number handed out by the pharmacy differed markedly, and the more drugs prescribed, the larger the difference ($r^2=0.72$, $p<0.0001$). Five of the 30 participants reporting to take medication daily had the same number of drugs handed out as stated in the EMR. The pharmacy had not handed out any medicine to eight participants, who reported taking medicine daily: 3/1/4 in the city/town/smaller town, respectively. The remaining 17, who took medicine daily, had a discrepancy

CONTACT Inaluk Kleist inaluk88@gmail.com Department of Geriatric Medicine, Aalborg University Hospital, Hobrovej 18-22, Aalborg 9000, Denmark

Table 1. Participant descriptives for all participants and by each geographical location.

		All participants (n=37)	City (n=11)	Town (n=11)	Smaller town (n=15)
Sex	Male, n (%)	17 (45.9%)	5 (45.5%)	6 (54.6%)	6 (40.0%)
	Female, n (%)	20 (54.1%)	6 (54.5%)	5 (45.4%)	9 (60.0%)
Age (years)	Median (IQR)	73 (7)	75 (6)	70 (8)	75 (8)
Daily medicine intake self-report	Yes, n (%)	30 (81.1%)	9 (81.8%)	8 (72.7%)	13 (86.7%)
	No, n (%)	7 (18.9%)	2 (18.2%)	3 (27.3%)	2 (13.3%)
Drugs according to EMR (n)	Median (IQR)	4 (5)	5 (4)	2 (3)	4 (6)
Drugs handed out by the pharmacy (n)	Median (IQR)	1 (3)	1 (4)	1 (1)	1 (5)
Discrepancy in number of drugs according to EMR and the number handed out by pharmacy	Median (IQR)	2 (4)	3 (4)	0 (2)	2 (3)

between EMR and number of drugs handed out by the pharmacy. Three of the seven participants reporting not taking medicine daily had no prescription medication, two were prescribed daily medicine, and two had drugs handed out by the pharmacy.

Discussion

Marked discrepancies were identified between reported intake of medicine, number of drugs prescribed and number of drugs handed out consistent with other studies [3]. Our study added individual interview of elderly Greenlanders in Greenlandic by a Greenlandic doctor to medicine list review. Out of the 37 participants, 30 reported to be on daily medication, and 25 had a discrepancy in the number of drugs in the EMR and the number of drugs handed out by the pharmacy. Seven reported not taking daily medication, but four of these were on daily medication. Thus, 78% of all participants showed some discrepancy, either with self-reported medicine intake versus EMR, EMR versus drugs handed out, or self-reported versus drugs handed out. The discrepancy with EMR may be speculated to be due to delayed or lack of updating of the medicine list. Discrepancies may also be due to the individual's choice, and these are the first data to ascertain adherence among elderly Greenlanders. More than one in four elderly Greenlanders who reported to be on daily medicine had prescription medication, but no record of any drug handed out. In conclusion, our results suggest a need for focus on medicine at all levels, both in the EMR, in the recording of delivery by pharmacy and in the patient involvement. This is important as complete medication information is critical to research, clinical care and patient safety.

Acknowledgements

We would like to thank the residents in the city, town, a smaller town in Greenland for their helpful participation.

Authors contribution

IK contributed to study design, collected data in all locations, analysed and interpreted the data, prepared table and is the main author of the manuscript. SA contributed to the conception of idea, resource development, design of study, and contributed to data interpretation and editing of the manuscript.

Availability of data and materials

The dataset with individual patients used during the current study is based on a small population and hence there are constraints on availability for ethical reasons.

Disclosure statement

The authors declare that they have no competing interests.

Funding

The project was supported by the Government of Greenland and Velux Foundation.

ORCID

Inaluk Kleist http://orcid.org/0000-0002-9021-3813
Stig Andersen http://orcid.org/0000-0003-3632-5213

References

[1] Statistikbanken. Befolkningen pr 1. januar 1977–2020 (National Statistics for the Population of Greenland). Available from: https://bank.stat.gl/pxweb/da/Greenland/Greenland__BE__BE01__BE0120/BEXST1.PX/table/tableViewLayout1/
[2] Kleist I, Noahsen P, Gredal O, et al. Diagnosing dementia in the Arctic: translating tools and developing and validating an algorithm for assessment of impaired cognitive function in Greenland Inuit. Int J Circumpolar Health. 2021;80(1):1948247.
[3] Field TS, Mazor KM, Briesacher B, et al. Adverse drug events resulting from patient errors in older adults. J Am Geriatr Soc. 2007;55(2):271–276.