The value of blood medication analysis to medication verification and reconciliation in older adults at the emergency department

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This study will investigate the value and applicability of LC/MS/MS to assess medication use to medication verification and reconciliation in older adults with polypharmacy visiting the ED. Discrepancies between LC/MS/MS and medication verification…

Ethical review	Approved WMO
Status	Recruiting
Health condition type	Other condition
Study type	Observational invasive

Summary

ID

NL-OMON57030

Source
ToetsingOnline

Brief title
MANATEE

Condition

- Other condition

Synonym
Medication reconciliation, medications found in blood

Health condition

65-plussers met (verdenking op) polyfarmacie die op de SEH komen voor de interne geneeskunde

Research involving
Human

Sponsors and support

Primary sponsor: Amsterdam UMC
Source(s) of monetary or material Support: Stichting de Merel

Intervention

Keyword: Emergency department, Medication reconciliation, Medication verification, Older adults

Outcome measures

Primary outcome

The aim of this study is to explore the value and applicability of LC/MS/MS analysis in older adults with (suspected) polypharmacy at the ED. We will determine the agreement between the LC/MS/MS and the results of the medication verification team in older adults visiting the ED with (suspected) polypharmacy. Reasons for discrepancies will be explored. Furthermore we will retrospectively determine the impact the LC/MS/MS results could have had on the diagnostic process and treatment policy.

Secondary outcome

Estimation of patient groups with a high risk of medication discrepencies (with potential relevant impact on diagnostic process and treatment policy).

Study description

Background summary

One in four older adults is prescribed more than five medications (1, 2). In the emergency department setting, this percentage increases up to 61% (3). However, actual medication use among older adults presenting at the ED is often

unclear, including prescribed, over-the-counter, and recreational drug use (4, 5). Even if complete prescription lists are available, this does not prove the actual intake of medication as non-compliance occurs in almost 50% of older adults with chronic illnesses (5-7). To tackle this problem, current policy consists of medication verification and reconciliation by a physician or pharmacist (8). Results of this analysis are at risk of being incomplete due to inaccuracy of patient recall and incomplete or delayed access to pharmacy records (9). In patients with cognitive deficits or loss of con-sciousness, medication verification is even more challenging and merely based on recent pharmacist give-outs and caretaker*s knowledge, if available (10). Unclear medication use may lead to errors in medication prescription by doctors, which could decrease the effective-ness of treatment and cause serious harm (11, 12). One in seven ED visits of older adults are medication related, of which three-quarters are preventable due to underuse, noncompliance or adverse drug events (13). Consequences we hypothesize could partially be prevented if doctors had a more accurate display of the patient*s actual medication use.

Currently, the ED does not use pharmacological analysis techniques, like the liquid chromatography tandem mass spectrometry (LC/MS/MS), to assess medication use. This technique is mainly used in toxicology, endocrine system, proteins and newborn screening (14). For an ED, it has mainly been applied to determine the detect recreational drugs in pa-tients presenting with intoxication (15). Additionally, the LC/MS/MS could be used to deter-mine medications in patients* blood (14). A previous study with LC/MS/MS demonstrated that 63.0% of patients have a discrepancy between the actual intake and the medication verifica-tion. They found that opioids and diazepam were the most common medications detected in the blood without prescription (16). This extra information could provide more insights into patients* compliance and optimize the diagnostic process and treatment policy, beyond the standard care practice of medication verification.

Study objective

This study will investigate the value and applicability of LC/MS/MS to assess medication use to medication verification and reconciliation in older adults with polypharmacy visiting the ED. Discrepancies between LC/MS/MS and medication verification and reconciliation will be described and analysed including the potential impact it could have had on the diagnostic process and treatment policy. We hypothesize that LC/MS/MS will provide additional insights to the medication verification and reconciliation which will alter the treatment policy.

Study design

This observational study will be conducted in the ED of Amsterdam UMC, location AMC. During the study, a questionnaire concerning demographic characteristics

and medication use will be conducted at baseline by the researcher at the ED with the patient or their caretaker/family. One blood sample will be taken, either by intravenous cannula or a venepuncture, and collected in a 6 ml EDTA tube. Blood samples will be analysed at a later stage as the LC/MS/MS is located at the Clinical Pharmaceutical and Toxicology laboratory at OLVG, location West. The value of the results of the LC/MS/MS to the medication will be determined retrospectively by a five point scale for the diagnostic process and treatment policy by the research team. After the analysis, patients might be contacted by phone if additional questions arise regarding medication use due to the results.

Study burden and risks

There are risks associated with venipuncture. There is a risk of pain, haematoma formation and vasovagal reaction. There is also a risk of needlestick injury, where a person comes into contact with another person's blood or body fluids. Contamination is dangerous for disease carriers, but also for those being cared for, such as patients. The chances of this happening during a venipuncture are very low.

Venipuncture is avoided as much as possible by using a venipuncture in the first place. If a venipuncture is needed, the chances of complications are low. Venipunctures are carried out by trained healthcare professionals where venipunctures are part of routine care.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Elderly (65 years and older)

Inclusion criteria

• Patient is 65 years or older.
• Patient visits the emergency department of Amsterdam UMC, location AMC, for the internal medicine specialty or for another medicine specialty but is subsequentially admitted for the internal medicine specialty.and is then subsequentially admitted for the internal medicine specialty.
• Patients use five or more prescribed medications, or are suspected of using five or more prescribed medications as determined by the treating physician at the emergency department. The medications must have a systemic effect, with at least 10% availability in the systemic circulation. Supplements are excluded.
• Competent individuals can only participate if they wish to be informed about incidental relevant findings regarding their health from the analysis.

Exclusion criteria

Patients are excluded if no medication verification was performed by the pharmacy team due to reasons such as personnel shortage. Note: patients are eligible for inclusion if medication verification could not be performed because the patient or representatives were not available at time of admission, i.e. due to severe illness, confusion etc.

Study design

Design

Study type: Observational invasive

Masking:	Open (masking not used)
Control:	Uncontrolled
Primary purpose:	Health services research

Recruitment

NL

Recruitment status:	Recruiting
Start date (anticipated):	20-09-2024
Enrollment:	100
Type:	Actual

Ethics review

Approved WMO

Date:	19-08-2024
Application type:	First submission
Review commission:	METC Amsterdam UMC

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
CCMO	NL86797.018.24