

Medication review: Case report of a fragile patient's fall

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Background

An 85-year old woman was admitted to hospital through the emergency department for dehydration and an axis fracture caused by a fall. Medical history included: hypertension, hypothyroidism, hip replacement, breast cancer operated in 2009, stroke in 2011, cognitive impairment (CI). Home medication included: levothyroxine 50 mcg QD, clopidogrel 75 mg BID, irbesartan/idochlorothiazide 300/25 mg QD, venlafaxine 150 mg QD, omeprazole 20 mg QD, paroxetine 5 mg BID, atorvastatin 10 mg QD, carvedilol 12.5 mg QD, bupropione 150 mg QD, iron supplement 80 mg QD, quetiapine 25 mg BID. No known drug allergy.

Two previous admissions for falls this year (before the implementation of the medication review project in May 2017).

Diagnosis:

Dehydration, C2 fracture and right upper limb after accidental fall.

Medical history:

Hypertension
Hypothyroidism
Hip replacement
Breast cancer operated in 2009
Stroke in 2011
Cognitive impairment

Physical examination:

- Temperature : 36.5°C
- Blood pressure : 100/70

Lab results:

- Creatinine (0,7-1,2mg/dl) : 1.18
- Urea (10-50 mg/dl) : 89
- CRP (0-5 mg/l) : 7.83
- Potassium (3.4-5.0 mmol/l) : 2.96
- Sodium (136-145 mmol/l) : 142

Table 1. Patient's characteristics

Purpose

To assess the medication review of a fragile patient.

Material and methods

The Pharmacist completed an accurate list of the patient's home medication and identified medication discrepancies (MDs) using 2015 Beers and STOPP/START criteria (version 2) for any potentially inappropriate drugs in the elderly, Micromedex database for drug-drug interactions (DDIs) and ATC classification for therapeutic duplications.

Results

After the comprehensive review of the patient with 11 drugs as home treatment, the following MDs were identified: 5 drugs classified as being potentially inappropriate drugs (Beers/STOPP/START criteria), 9 major DDIs (carvedilol with paroxetine and bupropione: hypotension; clopidogrel and omeprazole: thrombotic risk; concomitant use of paroxetine, bupropione, venlafaxine: risk of serotonin syndrome; clopidogrel and paroxetine and venlafaxine: risk of bleeding; clopidogrel, a CYP2B6 inhibitor, which can increase bupropione concentrations causing convulsions) and 2 therapeutic duplications (N06).

The following recommendations were made by the Pharmacist:

Suspend paroxetine (anticholinergic effect and risk of falls), bupropione (risk of falls), quetiapine (risk of cerebrovascular event and mortality in patients with CI) and omeprazole (risk of *Clostridium difficile* infection, fractures and interactions with clopidogrel); monitor blood pressure to assess treatment (irbesartan/idochlorothiazide and carvedilol).

Conclusion

Medication review programs conducted by Pharmacists are effective strategies which ensure patient safety and improve quality of care. This hospitalisation, which is representative of many admissions of elderly fragile patients, could have been prevented if risk factors (combinations of CNS side effects and hypotension action associated with falls, anticholinergic drugs, dehydration) had been identified previously.



Figure 1. Elderly fragile patient

	Drug	Dose	Admin route	Frequency
1	Levothyroxine	50 mcg	os	QD
2	Clopidogrel	75 mg	os	BID
3	Irbesartan + idochlorothiazide	300mg+ 12.5mg	os	QD
4	Venlafaxine	150 mg	os	QD
5	Omeprazole	20 mg	os	QD
6	Paroxetine	5 mg	os	BID
7	Atorvastatin	10 mg	os	BID
8	Carvedilolo	12.5 mg	os	QD
9	Bupropione	150 mg	os	QD
10	Iron supplement	80 mg	os	QS
11	Quetiapine	25 mg	os	BID

Table 2. Home medication

STOPP/START criteria for potentially inappropriate prescribing in older people: version 2

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Abstract

Background: Medication review is a key strategy to improve patient safety and reduce hospital admissions. The aim of this study was to assess the impact of medication review on the use of potentially inappropriate drugs in the elderly.

Methods: We conducted a retrospective cohort study in a community pharmacy in Glasgow, Scotland. All patients aged 65 years and over were included in the study. Medication review was performed on a regular basis (every 6-12 months) and the results were compared with the 2015 Beers and STOPP/START criteria. The impact of medication review on the use of potentially inappropriate drugs was assessed using the STOPP/START criteria.

Results: Medication review identified 11 potentially inappropriate drugs in the elderly. Of these, 5 were classified as being potentially inappropriate drugs (Beers/STOPP/START criteria), 9 major DDIs (carvedilol with paroxetine and bupropione: hypotension; clopidogrel and omeprazole: thrombotic risk; concomitant use of paroxetine, bupropione, venlafaxine: risk of serotonin syndrome; clopidogrel and paroxetine and venlafaxine: risk of bleeding; clopidogrel, a CYP2B6 inhibitor, which can increase bupropione concentrations causing convulsions) and 2 therapeutic duplications (N06).

Conclusion: Medication review programs conducted by pharmacists are effective strategies which ensure patient safety and improve quality of care. This hospitalisation, which is representative of many admissions of elderly fragile patients, could have been prevented if risk factors (combinations of CNS side effects and hypotension action associated with falls, anticholinergic drugs, dehydration) had been identified previously.

Keywords: medication review, elderly, potentially inappropriate drugs, DDIs, therapeutic duplications

Micromedex® 2.0

AGS
BEERS
CRITERIA 2015

ATC
CODE
.com

Figure 2. Tools to perform MR

5 drugs classified as being potentially inappropriate

9 major DDIs

2 therapeutic duplications

Table 3. Identified MDs

	Drug	Dose	Admin route	Frequency
1	Levothyroxine	50 mcg	os	QD
2	Clopidogrel	75 mg	os	BID
3	Irbesartan + idochlorothiazide	300mg+ 12.5mg	os	QD
4	Venlafaxine	150 mg	os	QD
5	Omeprazole	40 mg	os	QD
6	Paroxetine	5 mg	os	BID
7	Atorvastatin	10 mg	os	BID
8	Carvedilolo	12.5 mg	os	QD
9	Bupropione	150 mg	os	QD
10	Iron supplement	80 mg	os	QS
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Table 4. MR of home medication conducted by Pharmacist