# 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/idrochlorothiazide 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, buproprione 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).

Figure 1. Elderly fragile patient

**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

| | Drug | Dose | Admin route | Frequency |
|---|---|---|---|---|
| 1 | Levothyroxine | 50 mcg | os | QD |
| 2 | Clopidogrel | 75 mg | os | BID |
| 3 | Irbersartan + idrochlorothiazide | 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 | Buproprione | 150 mg | os | QD |
| 10 | Iron supplement | 80 mg | os | QS |
| 11 | Quetiapine | 25 mg | os | BID |

Table 2. Home medication

## 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.

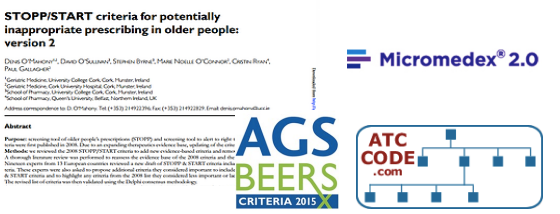


Figure 2. Tools to perform MR

## 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 bupriopione 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/idrochlorothiazide and carvedilol).

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 | **Irbersartan + idrochlorothiazide** | 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~~ | ~~Buproprione~~ | ~~150 mg~~ | ~~os~~ | ~~QD~~ |
| 10 | Iron supplement | 80 mg | os | QS |
| ~~11~~ | ~~Quetiapine~~ | ~~25 mg~~ | ~~os~~ | ~~BID~~ |

Table 4. MR of home medication conducted by Pharmacist

## 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.