19th Congress of the EAHP 26-28 March 2014, Barcelona, Spain

Pharmacist-physician collaboration to ensure the safe dosing in renal impairment among patients admitted to an emergency ward in Finland

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Background

Renal impairment (RI) increases the risk of adverse drug events especially in elderly patients, since kidney function declines with age. Many risks can be avoided by appropriate dosing adjustment in certain drugs. However the need for dosing adjustment due to RI may often remain unrecognized.

Purpose

To identify the admissions requiring dosing adjustment due to RI and to evaluate the implementation of the identified dosing adjustments in patients admitted to the emergency ward.

Material and Methods

A clinical pharmacist reviewed the medications of all emergency ward admissions for four months in a 350-bed secondary care hospital in Western Finland. A Finnish up-to-date decision support database Renbase® was used to determine the level of RI based on the Modification of Diet in Renal Disease equation: mild (estimated glomerular filtration rate: 80–50 ml/min), moderate (50–30 ml/min), severe (30-10ml/min). Specific evidence-based instructions for dosing adjustment provided by Renbase® were applied. Medications which required dosing adjustment due to RI were identified by the pharmacist. A communication form was used to inform physicians before the daily rounds and followed whether required dosing adjustments were implemented or not.

Results

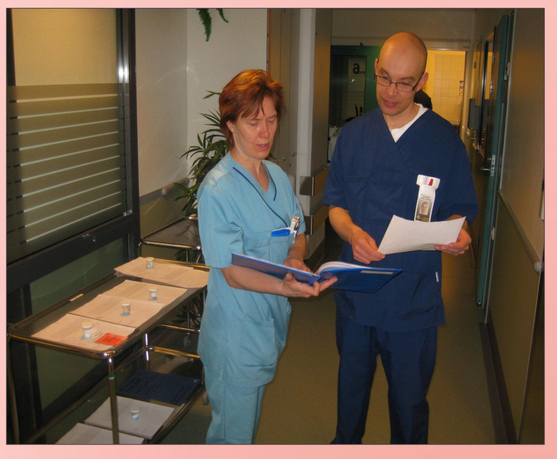
Of the all 768 reviewed admissions, 82 (11%) had mild, moderate or severe RI. 27 out of 82 (33%) patients with RI (1 mild, 21 moderate and 5 severe) were identified having one or more drugs required dosing adjustment due to RI. Almost all identified patients (except two) were over 65 years old and two-thirds women. Identified patients had a total of 32 medications that required either modification in dosing (n: 22) or to be avoided (n: 10). The most commonly associated drugs were metformin (in two-third of the cases), sitagliptin, spironolactone and triamterene. Identified drug adjustments due to RI were implemented in 24 out of the 32 medications (75%) in the emergency ward.

Clinical pharmacist reviewed a total of **768** emergency ward admissions

Patients with mild, moderate or severe RI **(n= 82)**

27 out of 82 (33%) patients with RI *(1 mild, 21 moderate and 5 severe)* were identified having one or more drugs required dosing adjustment due to RI.

Identified 27 patients had a total of **32** medications that required either **modification in dosing (n=22)** or **to be avoided (n=10)**



Identified drug adjustments due to RI were implemented in **24 out of the 32** medications **(75%)**

Conclusion

Safety of dosing in RI should be ensured especially among elderly female patients. The need for dosing adjustment due to moderate RI should be taken into account more sufficiently. Dosing adjustment due to RI is needed most commonly in specific antidiabetics and potassium-sparing diuretics.

No conflict of interest

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