

Abstract

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Title of the master thesis: Analysis of drug dosage adjustments in patients with chronic kidney disease

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Several medications excreted by the kidneys or associated with an increased risk for adverse drug events in patient with chronic kidney disease (CKD) require dosage adjustment, cautious use or avoidance. However, a number of studies show that appropriate dosage adjustment is not provided in many cases. Our objective was to analyze appropriateness of drug dosages and contraindicated medications in patients with CKD admitted to the hospital in Hradec Králové via the department of emergency medicine.

This study is an observational cross-sectional study and represents a sub-study of the previous study that examined drug-relatedness of unplanned hospital admissions to University Hospital Hradec Králové in 2018. The data were obtained from electronic medical records. The appropriateness of drug use and drug dosages was analyzed in patients with an estimated glomerular filtration rate (eGFR) between 15 and 60 mL/min/1.73 m² based on comparison with the Summary of Product Characteristics (SmPC).

The medication history of 375 patients with CKD in stages G3a–G4 has been checked. 220 patients (59 %) had at least one medication requiring dosage adjustment due to decreased renal function and 112 patients (30 %) used at least one medication with an inappropriate dosage. Contraindicated medications were identified in 49 patients (13 %). Patients used a total of 3007 medications, of which 367 medications required dosage adjustment. 134 drugs were prescribed in inappropriate dosages and 69 contraindicated drugs were identified.

The most frequent medications requiring dosage adjustment were cardiovascular medications, metformin and medications acting on the central nervous system. The most frequently inappropriately dosed medications were perindopril, fenofibrate, metformin, ramipril and spironolactone. The most frequent contraindicated medications were low-dose acetylsalicylic acid, hydrochlorothiazide and rosuvastatin.

The appropriateness of drug dosing was assessed only on the basis of agreement with the SmPC. However, the choice of dosages should be also influenced by other factors such as: goals and the strategy of the treatment, therapeutic index, drug interactions, rate of extrarenal elimination of the drug or the possibility of monitoring goals and risks of pharmacotherapy.

Key words: chronic kidney disease, dose adjustment, cross-sectional study

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