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Meeting Abstract

Prevalence of dosing errors in elderly patients with impaired renal function: a survey in ambulatory patients

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Outline

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Introduction: Several drugs require dose adjustment in patients with impaired renal function, which however, often goes undetected. Serum creatinine may be normal in patients while renal function is already reduced. The estimated GFR (eGFR) allows a more precise evaluation of the renal function. This study was carried out in a group practice for family medicine, in Frankfurt/ Main, Germany. The exploration aimed at investigating if patients with renal insufficiency were recognised and if their prescriptions were appropriate in terms of dose adjustment or contra-indications.

Methods: In patients (>65yrs) with renal insufficiency (creatinine clearance <60 ml/min), their prescribed medication was retrospectively explored (Observation period 1.1.2008 to 1.4.2009). The Cockcroft-Gault formula was used as estimate for the eGFR, using a creatinine value from the patient's charts. In 90 patients, a second eGFR could be estimated from a second creatinine value obtained within 3-6 months. The recommended dose of each prescription in the SmPC (Fachinformation“) was compared to the dose that had been actually prescribed.

Results: Out of 232 consecutively patients >65 yrs, 102 had an eGFR <60 ml/min, 16 of these had an eGFR <30 ml/min. The eGFR was closely correlated ($r^2=0.81$) with an independent second eGFR. Out of these 102 patients, 48 had a serum creatinine level within the normal range. Renal adjustment was required in 263 of a total of 613 prescriptions. 72 prescriptions in a total of 45 patients were not appropriately adjusted (32) or prescribed despite a contraindication (40). For chronic prescriptions, metformin, ramipril, enalapril, HCTZ, and spironolactone accounted for 70% of inappropriate dosing; the magnitude of misdosing was 1.5 to 4 fold (median 2). 9 temporary prescriptions (of a total of 60 prescriptions) in 8 patients were not adjusted (cefuroxim, cefpodoxim, levofloxacin). We could not prove that patients with normal serum creatinine had a higher rate of inappropriate dosing than those with already elevated creatinine.

Discussion and conclusion: In this GP practice, we have demonstrated a considerable prevalence of inappropriate dosing in patients with impaired renal function. It remains to be elucidated whether surveillance of appropriate dosing in renal impairment can be optimized e.g. with CPOE.