Drug dosing in patients with renal impairment

KM. ANTONIAK[1 2] and J. VELLA SZIJJ[1]

1Department of Pharmacy, Faculty of Medicine and Surgery, University of Malta, Msida, Malta

2East Tallinn Central Hospital, Tallinn, Estonia

email: kairi.antoniak.17@um.edu.mt

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L-Università ta' Malta Faculty of Medicine & Surgery | Department of Pharmacy

INTRODUCTION

Inappropriate prescribing (IP) is common in patients with poor renal function in hospital and in outpatient settings. The extent of IP among patients with impaired renal function varies between countries and medical specialities[1].

AIM

To assess prevalence of IP in surgical wards in a 400-bed acute care hospital and to identify the most common drug classes which are inappropriately prescribed.

METHOD

The retrospective descriptive study included patients 18 years and older admitted to surgical wards for more than 24 hours with documented estimated glomerular filtration rates (eGFR) less than 60 ml/min/1.73m^2. Patients were selected using a stratified random sampling method. Data about medications and eGFR results were collected using electronic health records. Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) formula was used for the assessment of dosage adjustment.

RESULTS

One hundred and thirty-seven patients (63% female; 37% male) from general surgery (n=66), orthopaedics (n=41) and urology (n=30) wards were included in the study. The mean age of the study population was 78 (range 42-98) years with Charlson comorbidity index of 5 (inter quartile range 2) and mean length of hospital stay of 5 (range 1-31) days. Chronic kidney disease and acute kidney injury (AKI) were recorded in 12.9% (n=18) and 10.8% (n=15) of the patients, respectively. AKI was documented in health records of 2 patients (n=15). The prevalence of IP among study population was 38.3% (222 of 579 prescriptions). At least one inappropriate prescription was present for 83 (59.7%) patients and 23 (27.7%) of them received ≥3 inappropriate medications. One or more contraindicated medications according to renal function was prescribed for 29 (20.9%) patients. The most common drug classes which were inappropriately prescribed were antimicrobials (44.1%) and analgesics (68.0%) (Table 1).

Table 1. Inappropriate prescribing according to ward (N=579) and medication class (N=415)

Characteristic	Total number of prescriptions, n	Inappropriate prescriptions, n (%)
Inappropriate prescribing according to ward		
General surgery	310	105 (33.9%)
Orthopaedics	146	52 (35.6%)
Urology	123	65 (52.8%)
Inappropriate prescribing according to medication class		
Antimicrobials	136	60 (44.1%)
Analgesics	97	66 (68.0%)
Cardiovascular agents	50	16 (32.0%)
Anticoagulants	132	39 (29.6%)

CONCLUSION

The need for renal dosage adjustment can be an issue in surgical patients with poor renal function. Acknowledging decrease in renal function and providing appropriate recommendations for dosage adjustment could help improve outcomes in renally impaired patients.

REFERENCES

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Contact information: Kairi Marlen Antoniak, kairi.antoniak.17@um.edu.mt

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