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ABSTRACT

A Retrospective Assessment of Drug Dose Adjustment and Drug-Drug Interaction (DDI) for Patients with Kidney Failure in Palestine Governmental Hospitals- Dialysis Department

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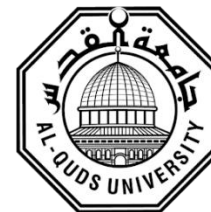
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Background: The study is conducted in order to assess both DDI and dose adjustment for patients with kidney failure. It's a retrospective cross-sectional observational study. The data was collected from Palestine governmental hospitals, it included 101 patients, and contains the history of drugs prescribed during six months (between 1 August 2022, to 31 January 2023). The data was analyzed and the assessment of DDI and dose adjustment were done using official guidelines and references.

Objectives: To assess the dose adjustment criteria and DDI among kidney failure patients in the dialysis department of Palestine governmental hospitals

Methods: A retrospective cross-sectional observational study was conducted at the dialysis department of Palestine governmental hospitals using patient records between 1 August 2022, to 31 January 2023. The data collected included age, gender, number of dialysis/week, first dialysis date, eGFR, laboratory tests results and prescribed medications. The assessment of dose adjustment in the study was conducted using "The Renal Drug Handbook and "Drug Dosing Adjustments in Patients with Chronic Kidney Disease". Regarding dose adjustment assessment, the drugs were categorized into properly adjusted, unadjusted, and other drugs that do not need adjustment based on creatinine clearance, drugs that do need adjustment were categorized as maximum daily dose mentioned, need monitoring, not recommended, contraindicated and no



specific recommendations. DDI assessment was conducted using “The Renal Drug Handbook and Medscape. DDI were categorized into contraindicated, serious, moderate and mild interactions.

Results: Data included in the study was for 101 patients, made up of 55 (54.45%) males and 46 (45.54%) females. The mean eGFR was 11.43 mg/dl, mean age was 56.2 years old, and mean number of drugs/patient was 15. Regarding DDI assessment, 1.5% of DDI cases were categorized as contraindicated. These were between Calcium carbonate and Ceftriaxone. 15.2% were serious, most of them were between Azithromycin; Ceftriaxone, Cefuroxime and Enoxaparin with heparin. 69% were moderate, while 13.3% were mild interactions.

Regarding dose adjustment assessment, Piperacillin/Tazobact, Famotidine and Amoxicillin/Clavulanic acid were the least adjusted drugs with only 2.9% of the whole cases were properly adjusted. Bisoprolol, Ciprofloxacin, Meropenem and Enoxaparin needed adjustment while 76% of cases prescribed these drugs were properly adjusted. Finally, Cefuroxime, Ceftazidime and Metoclopramide were the most properly adjusted drugs with 100% of the cases properly adjusted. Other drugs were prescribed but do not need dose adjustment based on creatinine clearance, these fall into contraindicated like Oxycodone; need monitoring like Diclofenac sodium and Ibuprofen, not recommended like Morphine, and drugs with maximum daily dose mentioned like Enalapril.

Conclusion: Relatively high numbers of DDI were found , and a high portion of prescribed drugs required dose readjustment, this results in lowering patients’ therapeutic outcomes. This study highlights the importance of following the right guidelines for both DDI in multiple therapy and drug dose adjustment for patients with kidney failure in order to achieve the best pharmacotherapy outcomes.

Keywords: Dose adjustment, kidney failure, Palestine governmental hospitals-dialysis department, eGFR, creatinine clearance, DDI, unadjusted, properly adjusted, multiple therapy.