UNIVERSITI TEKNOLOGI MARA

ANALYSIS OF DRUG UTILIZATION IN ADULT ANEMIC CKD PATIENTS

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ABSTRACT

Drug interactions is one of the factors contribute to drug related problems (DRP) which can result in higher morbidity and mortality besides higher cost of healthcare. Besides anti-anemic treatment, CKD patients also commonly prescribed with supplements, vitamins, anti bacterial and beta-blocking agent. **Objective** of this study is to investigate the prevalence, mechanism, and severity of drug interactions with anti-anemic drugs in anemic CKD patients as well as its correlation with number of co morbidities. **Method:** This retrospective cohort study was involving prescriptions gain from the outpatient unit at Hospital Tunku Ampuan Rahimah (HTAR), Klang with inclusion criteria (Prescriptions of anti-anemic drugs prescribed for CKD patients with age more than 18 years old). Demographic data, types of anti anemic drugs prescribed, other concurrent treatment and co morbidities were collected. Types of drug-drug interactions, their mechanisms and severity were analyze. **Results:** Out of 120, 72 had suspected drug-drug interactions with a total of 72 events with a mean number of 1 per patient. There were only two types of drug interactions being detected in 72 prescriptions. The major category of medications that interact with iron was Calcium salts 71 (98.6%), meanwhile Ciprofloxacin only (1.4%). Both of the drug-drug interactions mechanisms were pharmacokinetics with moderate significance. There is no significance differences between the DDI events with number of co morbidities (r_s= -0.008, $p>0.05$). **Conclusion:** More than half of the prescriptions showing suspected drug-drug interactions events that involving anti-anemic medications with pharmacokinetic mechanism and moderate in term of severity. The highest prevalence of interactions was interaction between Iron and Calcium salts. There is also no significance relationship between number of co morbidities and the drug-drug interactions. However, these drug-drug interactions can be prevented by administrating the medications separately at least at 2 hours

CHAPTER 1

INTRODUCTION

1.1 Background

Based on CPG, the prevalence of CKD and end-stage renal disease (ESRD) is increasing worldwide which estimated at >500 million individuals globally (Jha et al., 2013). The **prevalence** of CKD among adults in west Malaysia was **9.07%** (Hooi, et.al., 2013).

In a study done in CKD patients in Saudi Arabia who had not undergone dialysis, the prevalence of anemia in CKD stage 1, 2, 3, 4, and 5 were 42%, 33%, 48%, 71%, and 82% respectively. The complications of anemia in CKD are including hypoxia, secondary hyperparathyroidism and the development of renal osteodystrophy. Anemia in CKD also can cause significant adverse patient outcomes, such as hospitalizations, cardiovascular disease (CVD), cognitive impairment and mortality (module 3, 2012).

Medications that use as anti-anemic drugs in CKD patients are include ESAs, iron, Vitamin B12 and folate (Kidney Disease: Improving Global Outcomes