

Antimicrobial dosing error in intermittent & continuous hemodialysis

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Abstract

To describe the most commonly prescribed antibiotics in HD patients, identify the most frequently occurring errors during prescribing the antibiotics in HD patients, which include the errors in dosage, or frequency.

Introduction

Antibiotic drugs are the most frequently prescribed medications among hospitalized patients for life-saving purposes, mainly in immunocompromised patient, like in patient with end stage renal disease on hemodialysis (HD) or those who had documented bacterial infection [1]. Antibiotics disposition and their pharmacokinetics and pharmacodynamics properties are affected in hemodialysis patient which increases the number of antibiotics dosing errors [2]. Several epidemiological studies found that the majority of medication error related to antibiotics occurred during the prescribing phase (30.8%) [3,4]. However, there is missing data about the prevalence of errors in antibiotics dosing in HD patients.

Method

An observational retrospective cohort study included around 110 end-stage chronic kidney disease patients on HD over a one-year period (2016 to 2017). We collected the demographic data which included age, gender, height in (cm), weight in (kg), ideal body weight was calculated in patients who received aminoglycosides antibiotics or Colistin, and the antibiotic received including its dose, route, and frequency.

Results

From a total of 110 HD patients were collected, male gender counted for 57.3% of them with an average age 63 years \pm 16. Empirical antibiotics were administered to 73.64% HD patients. Cefazolin, piperacillin-tazobactam, ciprofloxacin, and amoxicillin-clavulanic acid were the most frequently prescribed antibiotics in HD patients

(26.4%, 16.4%, 13%, and 13%), respectively. However, 27% (n= 30) of HD patents did not receive an appropriately adjusted-dose antibiotics. Medication errors related to prescribing the antibiotics in HD patients mainly occurred with the Meropnem (86%), by receiving it with wrong dose and frequency. Half of HD patients received an inappropriate ciprofloxacin and amoxicillin-clavulanic acid antibiotics regimen, mainly with oral route. The wrong frequency was reported with 71.43% among those who received an oral ciprofloxacin, and 57.14% in those who received oral amoxicillin-clavulanic acid antibiotic.

Conclusion: The result showed that errors in prescribing antibiotics in HD patients are common. The errors mainly occurred with the prescription of meropnem, ciprofloxacin, and from amoxicillin-clavulanic acid antibiotics. This proves that enhancing health care providers' awareness about appropriate dosing regimens in HD patients is very importance.

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