

The role of military clinical pharmacists in Management of infection in patients with COVID-19 admitted to ICU

Kaveh Kazemian¹, Reza toroghi², Hamideh Yari³

1. Clinical pharmacist specialist, Fellowship in critical care pharmacotherapy. Azad University of medical sciences, pharmacy school.

2. Air and space medicine specialist. Aja university of medical sciences, . Air and space medicine faculty.

3. Anesthesiologist. Intensivist. Aja University of medical sciences, Medicine faculty.

Introduction: COVID-19 disease was first reported in December 2019 in Wuhan, China, and in March 2020 the World Health Organization officially designated it as a pandemic that is still ongoing. Patients with Covid-19 who are hospitalized, especially in the intensive care unit, are at higher risk for infectious complications during their stay. Covid-19 is associated with multi organ failure, which is associated with increased length of stay in the ICU and duration of mechanical ventilation. In addition, the nature of the disease is associated with defective immune systems and can affect innate and acquired immunity. Due to these reasons and the widespread use of systemic corticosteroids in the treatment of these patients, we expect to see infectious complications in patients Covid-19 admitted to ICU.

Method: In our hospital, clinical pharmacists, in collaboration with infectious disease specialists and other physicians involved in the treatment of Covid-19 patients, evaluated the drug profiles of 170 patients admitted to the intensive care unit. In this study, the clinical pharmacist evaluated the patients' clinical condition and also evaluated the results of the patient's laboratory tests to accurately adjust the dose of antibiotics, antivirals and antifungal drugs. Also, according to the results of infectious culture, local pattern of common infections and clinical conditions of patients, recommend appropriate treatments for rational prescription of drugs to physicians.

Result: In this study, major drug interactions that required a change in medication regimen or discontinuation of medication were recorded. Among patients admitted to ICU, 53 patients had major drug interactions (31.2%) in their drug profile, with the highest interactions between ciprofloxacin with theophylline (22 patients, 12.9%) and imipenem with sodium valproate (18 patients, 10.6%). Due to renal function in patients admitted to the ICU, 92 patients (54.1%) required

antibiotic dose adjustment. Vancomycin was the most widely used drug that was not disproportionately adjusted for renal function (47 patients, 27.6%). In order to rationally use of the drug, new drugs were proposed for 86 patients (50.6%) according to the results of laboratory tests, infectious cultures or the potential for drug interactions. The clinical pharmacist specialist recommended evaluation of serological biomarkers and pulmonary specimens for the possibility of fungal infections for 33 patients (19.4%) with symptoms of refractory fever despite appropriate antibiotic treatment, deteriorating of gas exchange, initiation of hemoptysis and new pleural effusion.

Conclusion: Considering the effective role of the clinical pharmacist in the management of antibiotic treatment, it is recommended to use the consults of the clinical pharmacist to improve the rational use of the drug, adjust the dose of antibiotics according to renal and liver function and prevent interactions or antibiotic resistance in hospitalized patients.