

Investigating the effect of plasma exchange in the treatment of patients with severe covid-19 hospitalized in the intensive care unit of Imam Khomeini Hospital, Ardabil

Abstract

Background: Plasmapheresis is a purification method that blocks the "cytokine storm" process and reduces the damage caused by the inflammatory response. Early management of cytokine storm using immunomodulators, cytokine antagonists, leads to reduced mortality in COVID-19 patients. This treatment can be used for severe and critical patients in the early stages of the disease. But currently there are few studies that show the benefits of plasmapheresis in the treatment of Covid-19 patients.

Aim: This study was conducted with the aim of evaluating the effect of plasma administration in the treatment of patients with covid-19 in Ardabil.

Materials and methods: The present study was a retrospective analysis with a comparison group on 464 patients with covid-19 (233 intervention group and 231 comparison group), which was conducted from the first of June to the end of September 2019 in Imam Khomeini Hospital of Ardabil University of Medical Sciences. The samples were taken by random sampling method. Demographic variables of patients, need to be transferred to ICU, length of stay in the ICU, death in hospital, length of stay, response to treatment based on radiological criteria (CT scan) and laboratory, fever and other clinical variables were recorded and analyzed.

Results: The mortality rate in the plasma milling group was significantly lower than the comparison group, but there was no significant difference in the length of hospitalization between the two groups. Changes in body temperature and breathing were significantly different between the two groups, and a significant decrease in ESR, CRP, and LDH was seen in the intervention group compared to the comparison group. Also, there was a significant difference in changes in oxygen saturation between the two groups.

Conclusion: plasma burr had a significant effect on the death rate of patients and also a significant difference was seen in changes in oxygen saturation and the rate of extubation in the two groups. Also, clinical changes including body temperature and breathing rate in the plasmapheresis group were significantly better than the control group.

Key words: Plasma exchange – Covid -19 - Cytokine storm