TOCILIZUMAB IN SEVERE COVID-19 PNEUMONIA

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Objective:

Background: Exaggerated immune response to infection and excessive release of proinflammatory cytokines is considered crucial to development severe COVID-19. It is believed that successful modulation of the inflammatory response will improve patient outcomes. It has been demonstrated that therapeutic intervention on the interleukin-6 axis can reduce mortality resulting in the approval tocilizumab in the treatment of severe COVID-19 patients who are already on corticosteroid and oxygen therapy.

Aim: Our goal was to investigate the impact of tocilizumab on the outcome of patients with severe COVID-19 pneumonia.

Methods: The study included patients hospitalized between 11/2021 and 03/2022 at the Clinic for Respiratory Diseases Jordanovac due to severe COVID-19 pneumonia and respiratory failure with a tendency to progression. In all patients tocilizumab has been applied concomitantly with methylprednisolone.

Results: A total number of patients was 31 (24 men and 7 women), average age 59.29 (SD +/- 12.36) years. Only 13% of patients were fully vaccinated. Of the comorbidities, 55% of patients had arterial hypertension, 23% diabetes, 10% chronic obstructive pulmonary disease, 16% dyslipidemia.

Initial average PaO2 / FiO2 ratio was 133.29 (sd +/- 56.23). 61.29% patients required a high-flow oxygen therapy (HFOT). Mean leukocyte count was 8.67 x 10^9 (SD +/- 5.35), lymphocyte 14% (sd +/- 9%), CRP 123.17 (sd +/- 71.96).

48 h after tocilizumab administration mean leukocyte count was 13.27 x 10^9 (SD +/- 9.36), lymphocyte 10.51% (SD +/- 0.11), CRP 30.07 (SD +/- 42.01), PaO2 / FiO2 110.28 (SD +/- 44.05). Mean CRP value was was significantly lower (p=0,05) 48 hours after tocilizumab administration.

14 days after tocilizumab application the mean leukocytes value was 16.26 x 10^9 (SD +/- 12.16), lymphocytes 13.86% (SD +/- 17.40%), CRP 23.25 (SD +/- 31,16) , PaO2 / Fio2 ratio was 201.19 (SD +/- 146.045).

71% of patients recovered and were discharged from the hospital, 29% of patients died during hospitalization.

Conclusion: Significant decrease in inflammatory markers after tocilizumab administration suggests inflammatory response suppression. Yet, a fatal progression of the disease was recorded in 29% of patients. Therefore, further research is needed to find the optimal treatment options of severe COVID-19 disease.