

SUMMARY

The aim of the study was to assess the concentration of transferrin and its isoforms and other acute phase proteins in the blood serum of patients with COVID-19. The study group consisted of 96 patients aged 22 to 89 years (average 59.2 years) diagnosed with COVID-19 hospitalized in the Department of Gastroenterology, Hepatology and Internal Diseases and in the COVID-19 Department of the Provincial Hospital in Białystok. SARS-CoV-2 infection was diagnosed using a qualitative real-time reverse transcription polymerase chain reaction (RT-PCR) genetic test and qualitative detection of the SARS - CoV - 2 (Ag) antigen in nasal swab samples using the Panbio™ COVID rapid test -19Ag. Cytokine storm was detected in 34 patients. A total of 76 patients required oxygen therapy: 43 patients with low-flow oxygen therapy; 23 patients with high-flow; 10 patients required ventilator therapy. In 63 patients, the clinical severity of the disease was moderate, in 14 it was severe, and in 19 it was critical. Despite the therapy, 9 patients (9.4%) were transferred to the intensive care unit, and 13 patients died (mortality rate 13.5%). The control group consisted of 30 healthy patients aged 21-84, 15 men and 15 women, attending the Occupational Medicine Outpatient Clinic of the University Clinical Hospital in Białystok, in whom SARS-CoV-2 infection was excluded.

It has been shown that the concentration of acute phase proteins depends on the severity of COVID-19 disease, the presence of a cytokine storm and the oxygen therapy used. Patients transferred to the Intensive Care Unit had higher concentrations of CRP, procalcitonin, haptoglobin, α 1-acid glycoprotein and α 1-antitrypsin and lower concentrations of transferrin. Lower procalcitonin levels and higher transferrin levels were observed in patients who survived compared to those who died. Changes in the concentration of transferrin isoforms, specifically 5-sialoTRF, have been demonstrated depending on the severity of the disease. Moreover, in patients who survived, the concentration of 5-sialoTRF was lower than in patients who died.

High concentration of 5-sialoTRF in seriously ill patients may be a reason to consider it as a prognostic marker for survival of COVID-19 patients. A large discrepancy was found in the scores of the modified MEWS early warning scale compared to the clinical disease severity scale.

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