

Gasorelin/prednisolone

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COVID-19 infection and weight increase : case report

An elderly man in his 70s [exact age not stated] developed COVID-19 infection during treatment with goserelin and prednisolone. Additionally, he had increased weight during treatment with goserelin [not all dosages and outcomes stated; routes and times to reaction onsets not stated].

The man, who presented with fever, diarrhoea and abdominal pain for the previous 10 days, was admitted. He had been receiving goserelin for prostate cancer and prednisolone 2.5mg once daily for chronic back pain. On admission, clinical evaluation revealed BP 134/85mm Hg, body temperature 38.7°C, HR 87 beats/minute, respiratory rate 18 breaths/minute and oxygen saturation 92%. He was overweight (slightly) with BMI 27 kg/m². Laboratory examinations revealed elevated CRP, thrombocytopenia and moderately elevated ferritin, and decreased haemoglobin. Arterial blood gas analysis showed respiratory alkalosis with hypoxaemia and normal lactate. An X-ray examination showed scattered consolidations in the right lung. A real-time reverse transcriptase PCR test of a nasopharyngeal specimen showed a positive test result for severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2). He was eventually diagnosed with COVID-19 infection.

The man was prescribed empirical treatment with cefotaxime and ciprofloxacin for suspected bacterial superinfection. He also received off-label lopinavir/ritonavir and hydroxychloroquine for COVID-19. Twelve hours later, his condition deteriorated, with rapidly progressing respiratory failure, oxygen saturation at 86% on 12-L oxygen, and a respiratory frequency of 40 breaths/minute. Thus, he was transferred to the ICU and was intubated. A chest x-ray revealed extensive bilateral coalescent opacities qualifying as severe acute respiratory distress syndrome (ARDS). During the first 36 hours in the ICU, he was in unstable cardiopulmonary condition and required high fractional inspired oxygen (FiO₂) and norepinephrine in moderate doses. He also developed supraventricular tachyarrhythmia, which was treated with repeated electrical and pharmacological cardioversion. By day 7 of hospitalisation, he accumulated significant amounts of fluid (positive fluid balance of 8L). His creatinine levels were increasing, and the response was poor with the unspecified diuretics. He was then started with the continuous venovenous haemodiafiltration to ensure a negative fluid balance. Antiviral therapy was discontinued after 3 days. Due to rising leucocyte counts and CRP, the antibiotics were changed to meropenem. One week after admission, he achieved circulatory stability. He also exhibited a slowly decreasing oxygen demand, but his ferritin had risen markedly to 36023 µg/L, which was accompanied by occasional fever and marked increased in CRP, LDH, neutrophil count and triglycerides. Additionally, he had increased levels of fibrinogen and bilirubin. Further evaluation revealed elevated soluble IL-2 receptor level 6809 U/mL indicating immune activation and T-cell activation. A bone marrow smear showed haemophagocytosis. Flow cytometry of peripheral blood demonstrated a significant decrease in circulating CD4⁺ and CD8⁺ T cells (161 /µL and 32 /µL, respectively) but an expanded population of clonal B cells that expressed kappa, CD5, CD19, CD20 (weakly), CD43, CD45 and CD200. He was eventually detected with monoclonal B-cell lymphocytosis (MBL). A trephine biopsy revealed MBL. Based on the findings, he was eventually diagnosed with haemophagocytic lymphohistiocytosis. He then received off-label IV tocilizumab 800mg for COVID-19. The following day, his CRP declined rapidly, followed by a significant but slow decline in ferritin and LDH levels. Fever was not observed after tocilizumab administration. Three days later, he also received single dose of immune-globulin. He showed clinical improvement 5–7 days later, and he was successfully extubated. After his improvement, the serum levels of selected cytokines were analysed (the samples were taken prior to tocilizumab administration), which revealed markedly elevated IL-6 levels, moderately elevated TNF and IL-10.

Tholin B, et al. Hemophagocytic lymphohistiocytosis in a patient with COVID-19 treated with tocilizumab: a case report. *Journal of Medical Case Reports* 14: No. 1, 2020.
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