

Multiple drugs

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Severe COVID-19, prolonged viral shedding, lack of efficacy and off-label use: case report

A 75-year-old man developed severe COVID-19 following treatment with rituximab for mantle cell lymphoma (MCL), and exhibited prolonged viral shedding following treatment with rituximab for MCL, and off label treatment with dexamethasone and methylprednisolone for COVID-19. Additionally, he exhibited lack of efficacy during treatment with remdesivir, and off-label therapies including dexamethasone, methylprednisolone, immune-globulin, ivermectin and interferon-beta-1b for COVID-19 [*not all routes and dosages stated*].

The man, who had MCL, presented to a hospital in Japan with a 2 day history of fever. He had received rituximab 3 months previously. After presentation, he tested positive for COVID-19 on nasopharyngeal SARS-CoV-2 PCR. He was admitted to hospital.

The man started receiving off-label treatment with dexamethasone 4mg on day 6 of admission for COVID-19. On day 10, oxygen therapy via nasal cannula was started followed by nasal high-flow therapy from day 11. Additionally, he started receiving remdesivir 200mg on day 1, followed by 100mg daily on days 2–10 for 10 days and steroid pulse therapy with off-label methylprednisolone 1g for 3 days. However, his respiratory status did not improve, and he was shifted to the ICU on day 15. Then, he received off-label IV immune-globulin [immunoglobulin] 12.5g daily from day 21–25. He received a second 10-day course of remdesivir from day 27, off-label ivermectin 12mg single administration on day 29 and off-label interferon-beta-1b 9.6 million IU on alternate days from day 30–42. Tapered methylprednisolone was administered until day 36. He did not respond to any of these treatments given for COVID-19, and remained positive for COVID-19 (lack of efficacy). During his stay in the ICU, he developed gastrointestinal haemorrhage and a urinary tract infection [*aetiologies not stated*]. He was withdrawn from nasal high-flow oxygen therapy on day 42, and was discharged from the ICU on day 43. Subsequently, his oxygen demand gradually decreased. CT scan performed on day 49 showed worsening bilateral ground glass opacities and reticular shadows compared to that on day 15. However, his respiratory status continued to gradually improve. The PCR test result was negative for the first time on day 76. However, on day 78, the PCR test was positive once again. On day 87, the need for supplemental oxygen at rest disappeared. Treatment with rituximab was considered as risk factor for development of severe COVID-19, and treatment with rituximab, dexamethasone and methylprednisolone was considered as risk factor for prolonged viral shedding. On days 80 and 84, two consecutive negative PCR test results were confirmed. He was transferred to another hospital for intensive rehabilitation on day 89.

Horiuchi H, et al. Recovery from severe persistent COVID-19 without evidence of an anti-SARS-CoV-2 antibody response in a man with mantle cell lymphoma treated with rituximab. *Journal of Infection and Chemotherapy* 28: 329-332, No. 2, Feb 2022. Available from: URL: <http://doi.org/10.1016/j.jiac.2021.11.018>

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