Multiple drugs

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Various toxicities, and lack of efficacy following off-label use: case report

A woman [*age at reaction onset not stated*] developed chemotherapy-induced diabetes mellitus during treatment with blinatumomab, vincristine and unspecified antineoplastics, and drug-related peripheral neuropathy during treatment with vincristine for pre-B-cell acute lymphoblastic leukaemia. At the age of 17 years, she developed COVID-19 infection during treatment with blinatumomab, vincristine, methotrexate, mercaptopurine and unspecified antineoplastics for pre-B-cell acute lymphoblastic leukaemia, and exhibited lack of efficacy during off-label treatment with hydroxychloroquine, immune globulin, anakinra and methylprednisolone for COVID-19 infection [*not all dosages and routes stated*].

The woman with pre-B-cell acute lymphoblastic leukaemia with central nervous system relapse in maintenance phase chemotherapy included blinatumomab and intrathecal unspecified antineoplastics presented with fever, dry cough, and myalgias following exposure to COVID-19 from her mother. She had also been receiving vincristine. She had developed chemotherapy-induced diabetes mellitus and vincristine-related peripheral neuropathy.

The woman was admitted and started on empiric cefepime. Three days later, her nasal aspirate PCR test for SARS-CoV-2 resulted positive. She was diagnosed with COVID-19 [*durations of treatments to reactions onsets not stated*] and was transferred to another hospital for further management. Her initial laboratory tests were notable for an absolute neutrophil count of $0.04 \times 10^3/\mu L$, absolute lymphocyte count of $0.38 \times 10^3/\mu L$, alanine aminotransferase of 115 U/L, aspartate aminotransferase of 92 U/L, lactate dehydrogenase of 1015 U/L, C-reactive protein (CRP) of 14.2 mg/dL, D-dimer of 0.56 µg/mL, and serum creatinine of 0.46 mg/dL. On hospital day 6, she was started on low flow nasal cannula for worsening dyspnoea and hypoxaemia. Given her increased oxygen requirement, off-label oral hydroxychloroquine 800mg once, followed by 400mg at 6, 24, and 48h following the initial dose was initiated. Additionally, she received off-label IV immune globulin 2 g/kg divided in 3 doses between hospital days 6 and 8. Her respiratory status worsened, and she required a maximum of 3L nasal cannula. On hospital day 9, off-label IV anakinra was initiated at dose of 200mg every 8h. Two days later, off-label methylprednisolone 1 mg/kg every 12h was initiated, followed by a 1 week taper. Anakinra was given for a total of 12 days. Because of lack of clinical improvement, off-label IV remdesivir 200mg on day 1, followed by 100mg once a day for 9 more days was initiated on hospital day 13. She was weaned off respiratory support by hospital day 17 and continued to receive cefepime. On hospital day 20, her symptoms resolved. Later, she was discharged home while continuing maintenance chemotherapy with mercaptopurine and methotrexate. In early June 2020, 52 days after her initial admission, she presented again with fever. Nasal swab SARS-CoV-2 PCR continued to be positive 60 days after her initial positive test. At this time, laboratory tests were notable for an absolute neutrophil count of 170 cells/µL, serum creatinine of 0.33 mg/dL, aspartate aminotransferase of 40 U/L, and alanine aminotransferase of 73 U/L. A chest radiograph showed improved right-sided opacities from the prior admission, oxygen saturations remained normal, and she had minimal respiratory symptoms. She continued to worsen on hospital day 7 with an increased oxygen requirement to 6L nasal cannula. She was given an additional 2 g/kg of IV immune globulin. Bronchioalveolar lavage fluid was PCR positive for SARS-CoV-2 with a low cycle count. Given concern for active COVID-19 infection, a second course of remdesivir was initiated on hospital day 8. She was transferred to the ICU after continued respiratory distress requiring noninvasive positive pressure and received off-label convalescent-anti-SARS-CoV-2-plasma on hospital day 9. She defervesced that same day but continued to require noninvasive positive pressure support. She was able to wean off supplemental oxygen by hospital day 13. She was discharged on hospital day 19. Her most recent SARS-CoV-2 PCR obtained in mid-July remained positive, nearly 100 days after her initial positive test, but with no related re-admissions and she remained off supplemental oxygen [*not all outcomes stated*].

DeVine MN, et al. Management of an Immunocompromised Pediatric Patient with Multiple Hospitalizations for Symptomatic COVID-19. Journal of Pediatric Hematology/Oncology 44: e293-e295, No. 1, Jan 2022. Available from: URL: https://journals.lww.com/jpho-online/Fulltext/2022/01000/Management_of_an_Immunocompromised_Pediatric.60.aspx

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