Multiple drugs

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Pancytopenia, unmasking of myelodysplastic-syndrome and lack of efficacy: case report

A 64-year-old man exhibited unmasking of myelodysplastic-syndrome following administration of COVID-19-vaccine. Further, he developed pancytopenia secondary to piperacillin/tazobactam and COVID-19-vaccine. Additionally, he exhibited lack of efficacy of methylprednisolone while being treated for pancytopenia [*dosages not stated; not all routes stated*].

The man, who had a history of chronic obstructive pulmonary disease was admitted with 6 day history of worsening abdominal pain and fever. He developed the symptoms one day after the administration of first dose of COVID-19-vaccine [mRNA COVID-19 vaccine] in March 2021. Prior to the admission, he was recommended to undergo a colonoscopy after a positive fecal occult blood test. During the admission, laboratory examinations revealed platelet count of 147×10^9/L, white blood cell count of 7.6×10^9/L, haemoglobin of 10.4 g/dl and a mean corpuscular volume of 104.1 fL. His metabolic panel was unremarkable. His lipase level was 47 U/L. Abdomen/pelvis CT scan revealed a narrowing of the colon at the area of the splenic flexure, suggestive of a neoplastic or infectious process. He received empiric treatment with IV piperacillin/tazobactam [Zosyn] along with unspecified supportive care and IV fluids. On day 02, he developed pancytopenia, persistent macrocytic anaemia and thrombocytopenia. Blood test results were as follows; white blood cell count $3.7x10^9$/L, haemoglobin 8.2 g/dl, platelet count $74x10^9$/L, neutrophil 13%, band neutrophil 19%, lymphocytes 52%, atypical lymphocytes 3% and monocytes 1%. Later in the day, he became hypotensive and developed lactic acidosis. He was transferred to an ICU. He received multiple fluid boluses and subsequently blood pressure was improved.

Additionally, the man received IV methylprednisolone. The next day, examinations revealed an absolute reticulocyte count of 0.4×10^9/L, an elevated erythrocyte sedimentation rate of 124 mm/h, an elevated haptoglobin of 446 mg/dl, ferritin was increased to 970 mcg/L, iron was 29 µg/dl, total iron-binding capacity was 202 µg/dl, partial thromboplastin time was increased to 37s, fibrinogen was elevated to 860 mg/dl, D-dimer was increased to 6.54 mcg/mL with a normal international normalized ratio of 1.17 and prothrombin time of 12.4 s. Peripheral smear demonstrated monocytosis, macrocytosis and few immature myeloid cells. Vitamin B12 and folate levels were within normal limits. His urine, stool and blood cultures were unremarkable. Later, his haemodynamic stability was improved. On day 04, he was transferred out of the ICU. His anaemia and leukopenia remained unchanged, but thrombocytopenia continued to worsen. He received two units of platelets. On day 05, endoscopy showed two polyps, one 5mm polyp in the descending colon and a 10mm pedunculated polyp approximately 15cm from the anal verge. On day 06, he left the hospital against medical advice. He was afebrile and haemodynamically stable, he did not receive any additional treatment for pancytopenia. At the time of discharge, complete blood count revealed a white blood cell count of 2.5×10^9/L, platelet count 78×10^9/L, haemoglobin 7.5 g/dl, neutrophils 38%, lymphocytes 40% and monocytes 21%. Months after the discharge, a bone marrow biopsy revealed myelodysplastic syndrome. He received treatment at an outside healthcare facility. It as concluded that the COVID-19-vaccine had unmasked the symptoms of myelodysplastic syndrome, and the piperacillin/tazobactam and COVID-19-vaccine had induced the pancytopenia.

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