Annals of Hematology & Oncology

Open Access

Austin Publishing Group

Case Report

Case Report: Aplastic Crisis in a Patient with HbS-Beta Thalassemia and Sars-CoV-19 Infection

Lambros Bourantas*
Consultant Hematologist, General Hospital Larnaca, Cyprus

***Corresponding author: Lambros Bourantas**
Consultant Hematologist, General Hospital Larnaca, Pandoras, Larnaca, 6301, Cyprus.
Email: l.bourantas@shso.org.cy

Received: March 07, 2023
Accepted: April 13, 2023
Published: April 20, 2023

Case Report

A 67-year-old man with a history of HbS-beta thalassemia, was admitted to our hospital with dyspnoea, low oxygen saturation <90%, on room air, for 12 hours before admission, palpitations, and tachycardia for 3 days. He had been tested positive for Sars-Co-V-19 7 days before admission, when he had cough and pharyngitis symptoms.

Patient was vaccinated with 2 doses of Astra-Zeneca vaccines, February and May 2021, and one dose of Pfizer vaccine end of November 2021, two months prior his admission. His medical history included diabetes melitus, hypertension and prostate hypertrophy. He did not suffer often severe veno-occlusive crises and had been for long-term on Hydroxycarbamide 1g daily. His other medication included Glimepiride 4mg od, Sitagliptin 100mg od, Telmisartan 80mg; he had no drug allergies.

On examination the vital signs showed blood pressure 140/80mmHg, pulses 100/min, temperature 36°C, Sat O_2 98% on room air, with pO_2 96.8mmHg, and lactates 1.1mmol/l. The GCS score was normal 15/15, full orientated. Bilateral crepitation sounds on both bases were noted, and the chest x-ray showed small shadowing of both bases.

The full blood count showed pancytopenia with WBC $1.69x10^9$/lit, Neut $1.17x10^9$/lit, Hb85g/l, PLTs $66x10^9$/lit; LDH was 642u/l, total and indirect bilirubin were normal, and CRP 53.8. D-dimers were high, 1025.7µg/l. The peripheral blood film confirmed pancytopenia, with very few circulating sickle cells.

Patient was admitted in the Covid Unit of our Hospital. Intravenous fluids, and antibiotics, Ceftriaxone and Azithromycin, were commenced, amongst with Enoxaparin 80mg BD s/c. One unit of packed red blood cells was transfused. Hydroxycarbamide was discontinued.

On day 2 of admission, patient was still stable haemodynamically, however there was further drop on blood cells with WBC $1.2x10^9$/lit, Neut $0.89x10^9$/lit, Hb 79g/l, with stable PLTs $67x10^9$/lit. The reticulocytes were low, $0.027x10^6$/µl. A further unit of red cells and a dose of GCSF 300mcg were administrated. Dexamethasone 6mg and Remdesivir 200mg STAT dose were started. A CT of thorax showed bilateral lung changes, consistent with Covid infection, but no elements of pulmonary embolism or acute chest crisis.

On day 4, patient became hypoxic on renal canula 2 litters, with $SatO_2$ 89%, off oxygen, and tachycardic, heart rate 105/min; the arterial blood gas showed sat O2 91.8%, with pO_2 64.4mmHg, pCO_2 25.8mmHg, pH7.508, HCO_3 20mmol/l. He was switched to high flow O_2 50% on venturi mask, keeping sat O_2 94%. He was reporting tiredness and dizziness, but no significant pains. There were still bilateral crepitations on both lung bases. A CT pulmonary angiography of chest showed again bilateral lower lung field changes, consistent with Covid 19 infection, but no evidence of pulmonary embolism, or acute chest syndrome.

On full blood count the WBC $8.27x10^9$/lit and Neut $6.56x10^9$/lit were normal, Hb was low 78g/l, with retic $0.030x10^6$/µl, and PLTs were $78x10^9$/lit. GCSF was discontinued, and another unit of packed red blood cells was administrated. Ceftriaxone was switched to Meropenem.

Citation: Bourantas L. Case Report: Aplastic Crisis in a Patient with HbS-Beta Thalassemia and Sars-CoV-19 Infection. Ann Hematol Onco. 2023; 10(1): 1420.

Patient was transferred to Covid Unit of General Hospital of Nicosia, continued treatment with fluids, antibiotics, Dexamethasone and Remdesivir; he remained haemodynamically stable, and no red blood cell exchange was required. He completed 10 days of antibiotics and was discharged from Hospital in stable condition. His full blood count cells were gradually recovered, with neutrophils and platelets to normal levels, and Hb115g/l, back to his baseline, with high reticulocytes; Hydroxycarbamide was restarted.

Further investigation showed negative serology for HIV, HBV, HCV, as well as negative IgM for EBV, CMV, VZV and parvovirus. The urine antigen for Legionella and Streptococcus pneumonia, and serum antibodies for Rickettsia typhi, Rickettsia Coroni and Salmonella typhi were all negative.

Interestingly, a few months after this episode, patient started experiencing joint pains; after Rheumatology review, he was found positive on ANA and ds-DNA anti-bodies and was started on Hydroxychloroquine.

Patient received a fourth dose of Covid vaccine, Moderna, mid-January 2023, and remains in fairly stable condition.

Since the begging of Sars-CoV-19 pandemia, there are numerous reports of haematological complications of the virus, including neutropenia, lymphopenia, thrombocytopenia, haemolytic anemia, including micro-angiopathic haemolytic anemia and, in rare cases, pancytopenia and aplastic anemia, in haematological and non-haematological patients [1].

Furthermore, the vaccines against Sars-CoV-19 have been rarely reported to be involved in pancytopenia and aplastic anemia, with usually easy and quick recovery of full blood count after management [2-4].

Patients' laboratory findings of pancytopenia and low reticulocyte count were consistent with aplastic crisis. Aplastic crisis is usually caused by Parvovirus 19 in sickle cell patients, but also other viruses, HIV, HBV, HCV and EBV, Streptococcal infection as well as medications, such as Hydroxycarbamide. The aplastic crisis related to Parvovirus 19 is usually self-limited within 7-10 days [5].

Since patient had been on Hydroxycarbamide for several years, and all results for other potential microbial causes were negative, we suggest that patient's laboratory findings of pancytopenia with low reticulocyte counts, were most likely related to the Sars-CoV-19 infection.

Patients' counts and reticulocytes were recovered within a few days and Sars-Cov-19 infection was well controlled with red cell transfusions, GCSF, Dexamethasone, Remdesivir and antibiotics, without need to perform red cell exchange transfusion, or bone marrow aspiration and trephine. To our knowledge, this is the first reported episode of acute aplastic crisis in a patient with sickle cell disease, related to Sars-CoV-19 infection, in the literature.

References

1. Gina Zini, Giuseppe d'Onofrio. Coronavirus disease 2019 (COVID-19): Focus on peripheral blood cell morphology. Brit Journal of Haem. 2023; 200: 404-419.

2. Tabata S, Hosoi H, Murata S, Takeda S, Mushino T, et al. Severe aplastic anemia after COVID-19 mRNA vaccination: Causality or coincidence?. Jour of Autoimmunity. 2022; 126: 102782.

3. Toral Shastri, Randhawa N, Aly R, Ghouse M. Vone Marrow Suppression Secondary to the COVID-19 Booster Vaccine: A Case Report. J Blood Med. 2022; 13: 69–74.

4. Cecchi N, Giannotta JA, Barcellini W, Fattizzo B. A case of severe aplastic anaemia after SARS-CoV-2 vaccination. Brit Journal of Haem. 2022; 196:6, 1334-1336.

5. Jagadeeswaran R, Rivers A. Evolving treatment paradigms in sickle cell disease.. Hematology Am Soc Hematol Educ Program. 2017; 2017: 440–446.