COVID-19 Exacerbates Idiopathic Thrombocytopenia (ITP) in a Patient with Underlying Rheumatoid Arthritis

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Introduction

- Thrombocytopenia is commonly seen in COVID-19 positive patients.
- Proposed mechanisms include:
  - Complement activation
  - Consumptive coagulopathy
  - Direct bone marrow suppression
- Idiopathic thrombocytopenia (ITP) being exacerbated by COVID-19 infection has been rarely reported.
- Studies have shown 20% of patients with underlying autoimmune diseases develop ITP with COVID-19 infection.
- The overall diagnosis, treatment, and prognosis of ITP superimposed on COVID-19 requires further study.

Case Description

- A 66 year-old-male presented after experiencing an episode of melena. He was admitted for lower gastrointestinal bleeding and incidentally was found to be COVID-19 positive.
- The patient had a past medical history of rheumatoid arthritis on hydroxychloroquine, liver cirrhosis, hypotension, thrombocytopenia (baseline 30k K/uL), and chronic kidney disease.
- CBC on admission indicated a hemoglobin of 9.8 g/dL, WBC of 7.1 and platelet count of 5k K/uL. No schistocytes or platelet abnormality was seen with peripheral blood smear. Additional labs demonstrated a PTT/INR of 35.1 sec/1.29, fibrinogen of 309 mg/dL, D-dimer of 3,257 ng/mL, and BUN/Cr of 103 mg/dL / 5.4 mg/dL
- The patient was diagnosed with ITP and was treated with desmopressin and 2 unit of platelets. Within the first 6 hours of admission, platelet count improved to 7k K/uL.
- Intravenous Immune-globulin G (IVIG) and prednisone 60 mg was initiated and an additional unit of fresh frozen plasma (FFP) was given resulting in platelet increase to 14k then to 22k K/uL. The patient required a total of 8-doses of IVIG with prednisone to maintain the platelet count above 30k K/uL.
- The patient's symptoms resolved and he was subsequently discharged.
- At three week follow-up appointment the patient's platelet count remained above 60k K/uL on prednisone treatment.

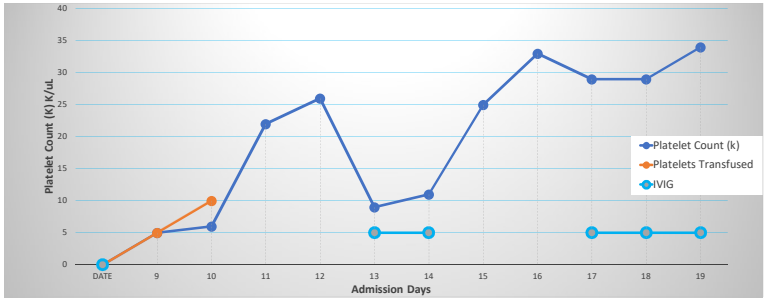

Figure 1: Platelet trend during admission showing changes of platelet count while on platelet transfusion and IVIG therapy.

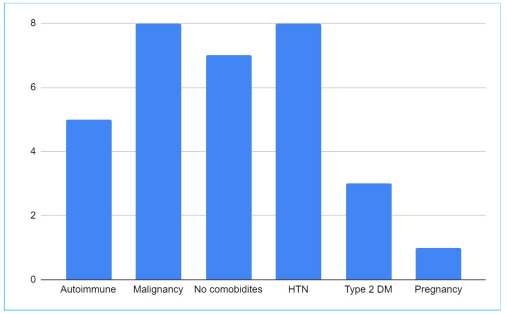

Figure 2: Typical comorbidities associated with ITP. (Sahu, K. K., Borogovac, A., & Cerny, J. (2021). COVID-19 related immune hemolysis and thrombocytopenia. *Journal of medical virology*, *93*(2), 1164-1170.)

Case Discussion

- This case presents a patient with previous autoimmune disorder and diagnosed with ITP secondary to hypersplenism, undiagnosed chronic ITP, and exacerbated by COVID-19 infection.
- Reports in literature have detailed COVID-19 causing a significant drop in platelets with brisk peripheral destruction, leading to subsequent diagnosis of de novo or exacerbated ITP.
- It appears that ITP diagnosis is more likely in the setting of prior known autoimmune disease, as in the patient presented here.
- Additional research will be required to elucidate the specific mechanism involved.

Teaching Points

- Diagnosing new onset ITP can be difficult in the setting of COVID.
- High dose prednisone and IVIG has shown to be very effective in treating ITP in COVID patients.
- Effects of COVID on patients with autoimmune disease is not well understood and require further research.

References

1. Gavriilaki, E., Sakellari, I., Gavriilaki, M., & Anagnostopoulos, A. (2021). Thrombocytopenia in COVID-19: pathophysiology matters. *Annals of Hematology*, *100*(8), 2139-2140.
2. Sahu, K. K., Borogovac, A., & Cerny, J. (2021). COVID-19 related immune hemolysis and thrombocytopenia. *Journal of medical virology*, *93*(2), 1164-1170.