A Case of COVID-19 Induced Non-Febrile Neutropenia- Does SARS-COV-2 Destroy Neutrophils?

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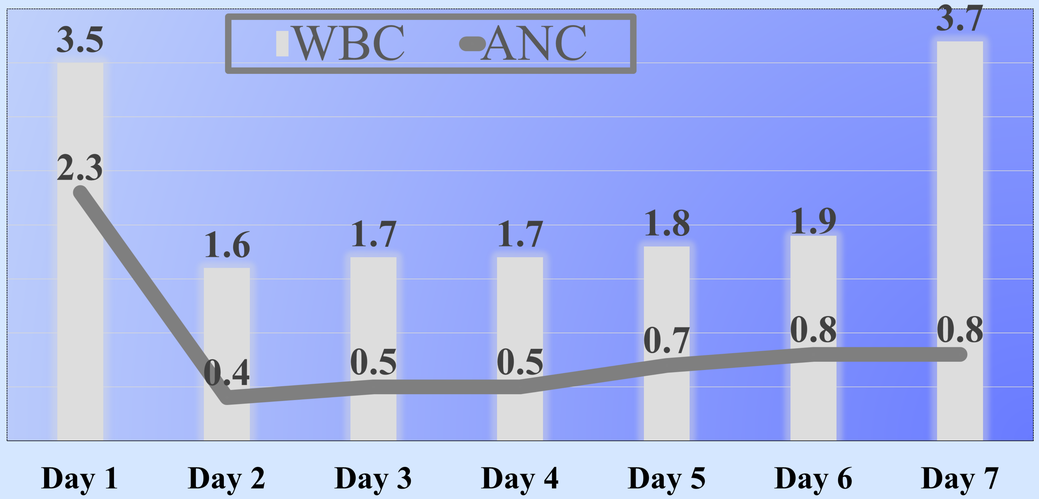
Introduction

We present a case of isolated non-febrile neutropenia in COVID-19 infection without any other hematologic abnormalities:

Case Presentation

- A 57 years old woman with COVID-19 infection presented with WBC count of 3500 cells/microL with normal absolute neutrophil count (ANC) of 2300 cells/microL.
- On day 2, her WBC counts dropped to 1600 cells/microL. Her differential count showed mild lymphocytosis (50%) and monocytosis (20%) with significant neutropenia with ANC of **400cells/microL.**
- She remained afebrile throughout. She received supportive care including acetaminophen and broad-spectrum prophylactic antibiotics which were discontinued after negative infectious workup.

Timeline of Neutropenia



Case Presentation

- WBC count improved to 1900 cells/ microL with ANC of **800 cells/micro** on day 6. She was discharged home with advice to observe neutropenic precautions and frequent CBC for ANC surveillance.
- Our patient did not have history of benign essential neutropenia, cyclical neutropenia, malignancy, rheumatologic disorder or chemotherapeutic drug use associated with neutropenia.
- She did not have other COVID-19 related hematological manifestations e.g. hypercoagulability, VTE, thrombocytopenia and lymphopenia.

Discussion

It is unclear if neutropenia associated with COVID-19 infection results from immune mediated effects or direct viral damage. Possible mechanisms include:

- bone marrow suppression
- Transient agranulocytosis leading to peripheral neutrophil consumption

Conclusion

Further scientific studies are needed to understand mechanism and management of COVID 19 related neutropenia.

References

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