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Insights into Neulasta-Associated Splenic Infarction: Unveiling a Rare Complication in Chemotherapy for Chronic Myelomonocytic Leukemia

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INTRODUCTION

Febrile neutropenia (FN) poses significant risks in chemotherapy, impacting morbidity, mortality, and treatment efficacy. Neulasta (pegfilgrastim), a granulocyte colony-stimulating factor (G-CSF), mitigates neutropenia severity, reduces FN risk, and aids full-dose chemotherapy. G-CSF, crucial for primary and secondary prophylaxis, carries risks like bone pain and rare, severe complications including splenic and myocardial infarction. Some cases necessitate conservative management, while others require splenectomy. Awareness of these complexities is vital for optimizing patient care during chemotherapy.

CASE PRESENTATION

In October 2023, a 67-year-old male with high-risk chronic myelomonocytic leukemia (CMML) presented with symptoms suggestive of sepsis, including malaise, dizziness, chills, tachycardia, and hypotension. Despite initial treatment with fluids and antibiotics, his condition deteriorated, necessitating transfer to the intensive care unit due to persistent hypotension and lactic acidosis. This marked his fourth admission for neutropenic fever since his CMML diagnosis, further complicated by peripheral blast crisis and severe thrombocytopenia. Management included azacitidine/venetoclax therapy for blast crisis and vigilant monitoring for potential complications like tumor lysis syndrome. He had recently received chemotherapy on 4/5/24 and pegfilgrastim on 4/8/24 for neutropenic support. The patient complained of severe abdominal pain, rated 8/10. CT imaging on 4/10/24 revealed hepatosplenomegaly and diffuse low-density lesions in the spleen consistent with a developing splenic infarct, although no active bleeding was observed. His critical illness appeared related to his underlying CMML, recent chemotherapy, and treatment complications like splenic infarction, potentially from pegfilgrastim use.



Fig - Hepatosplenomegaly with multiple splenic hypodensities consistent with splenic infarction (red arrow) after using G-CSF.

CONCLUSIONS

Pegfilgrastim is indispensable in oncology, facilitating intensive chemotherapy and stem cell mobilization. However, its potential for severe splenic adverse events must not be overlooked. Case reports reveal splenic infarction and life-threatening rupture in cancer patients and healthy stem cell donors receiving G-CSF. The proposed pathogenesis involves G-CSF inducing splenic hematopoiesis, leading to congestion, infarction, and heightened rupture risk, particularly with baseline splenomegaly or prolonged exposure. Prompt surgical intervention is crucial for rupture, while infarcts may be initially managed conservatively. Despite limited data, the significant morbidity and mortality risks demand heightened clinical vigilance. G-CSF recipients with symptoms warrant imaging, especially those with risk factors. Early recognition and management are vital for optimizing patient outcomes amidst this serious but rare toxicity.

REFERENCES

1. Watring NJ, Wagner TW, Stark JJ. Spontaneous splenic rupture secondary to pegfilgrastim to prevent neutropenia in a patient with non-small-cell lung carcinoma. Am J Emerg Med. 2007 Feb;25(2):247-8. doi: 10.1016/j.ajem.2006.10.005. PMID: 17276841.
2. Masood N, Shaikh AJ, Memon WA, Idress R. Splenic rupture, secondary to G-CSF use for chemotherapy induced neutropenia: a case report and review of literature. Cases J. 2008 Dec 24;1(1):418. doi: 10.1186/1757-1626-1-418. PMID: 19108744; PMCID: PMC2615768.

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