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Hypersensitivity Reaction to Filgrastim: A Case Report

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Abstract **Case Report**

Filgrastim, a recombinant granulocyte-colony stimulating factor (G-CSF), is commonly used to prevent and treat chemotherapy-induced neutropenia. Hypersensitivity reactions to filgrastim are rare and typically immediate; however, delayed allergic responses after multiple administrations have been occasionally reported. We present a case of a 50-year-old female with localized triple-negative breast cancer who developed an acute hypersensitivity reaction following the sixth filgrastim injection. The reaction included diffuse erythematous rash, dyspnea, chest tightness, and tachycardia, which resolved rapidly after discontinuation of filgrastim and symptomatic treatment. This case highlights the importance of ongoing clinical vigilance during GCSF therapy and the need for systematic pharmacovigilance reporting to enhance patient safety.

Keywords: Filgrastim, Hypersensitivity, Granulocyte-Colony Stimulating Factor, Chemotherapy, Pharmacovigilance.

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INTRODUCTION

Filgrastim, a recombinant granulocyte-colony stimulating factor (G-CSF), is widely used in oncology to prevent and treat chemotherapy-induced neutropenia. While generally well tolerated, hypersensitivity reactions are rare and usually immediate. However, delayed allergic reactions after multiple administrations have been sporadically reported. This case highlights an acute hypersensitivity reaction occurring after the sixth injection of filgrastim, emphasizing the need for ongoing clinical vigilance and pharmacovigilance reporting.

CASE PRESENTATION

A 50-year-old female patient with no known history of allergies was treated for localized triple-negative breast cancer. Neoadjuvant dose-dense chemotherapy with doxorubicin–cyclophosphamide (AC 60) every two weeks was initiated. Primary prophylaxis with subcutaneous filgrastim at 30 MUI/day was started 24 hours post-chemotherapy and continued for several days. The initial filgrastim injections were well tolerated without adverse events.

Following the sixth filgrastim injection, the patient developed an acute hypersensitivity reaction within minutes, characterized by diffuse erythematous rash, moderate dyspnea with chest tightness, and tachycardia, without hypotension or shock signs. Clinical examination revealed no laryngeal edema. Filgrastim was immediately discontinued. Symptomatic treatment with antihistamines and oral corticosteroids was initiated, resulting in rapid symptom resolution within one hour. The patient's subsequent course was favorable. The diagnosis of filgrastim-induced hypersensitivity was established based on the temporal relationship and exclusion of other causes.

DISCUSSION

Hypersensitivity reactions to filgrastim are rare despite its widespread use in oncology and hematology. Clinical trials and guidelines primarily report mild adverse effects, with severe allergic reactions being exceptional. Most documented cases occur during initial administrations, suggesting an immediate hypersensitivity mechanism. However, recent reports, including this case, describe delayed reactions after several tolerated doses, indicating possible progressive sensitization.

Physiopathological mechanisms may include non-IgE-mediated (anaphylactoid) reactions, as evidenced by the frequent absence of elevated serum tryptase and negative allergy testing. Excipients such as polysorbate 80, present in some filgrastim formulations, may contribute to hypersensitivity. Management

involves immediate cessation of filgrastim and symptomatic treatment, with generally favorable outcomes. Rechallenge is discouraged due to risk of more severe recurrence. Alternative therapeutic options should be considered based on clinical context.

CONCLUSION

This case underscores the importance of continuous vigilance during G-CSF therapy, even after multiple uneventful administrations, and reinforces the necessity for systematic reporting of such adverse events to improve the safety profile of filgrastim.

Ethical Considerations

Written informed consent was obtained from the patient for publication of this case report. Patient anonymity has been preserved.

Declaration of Interest

The authors declare that they have no competing interests.

Declaration of Generative AI Use

Not applicable / No use of generative AI tools was involved in the preparation of this manuscript.

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