"Managing Azathioprine-Induced Myelosuppression and Alopecia Totalis: Lessons from a SLE Patient"

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INTRODUCTION

Azathioprine (AZA), an immunosuppressant and mercaptopurine analog, is used to manage rheumatological and immunological conditions. Although effective, AZA can cause myelosuppression, sometimes necessitating dose adjustments or discontinuation. While severe pancytopenia or alopecia is rare, these issues can arise. This report describes a case of severe myelosuppression and alopecia totalis following AZA treatment in a patient with systemic lupus erythematosus (SLE).

CASE REPORT

A 27-year-old healthy female presented with an 8-month history of fever, cough with pleuritic chest pain, and hemoptysis. Clinical and biochemical evaluations diagnosed her with SLE and secondary pulmonary vasculitis. She was initially treated with systemic steroids, followed by AZA. AZA was started at 25 mg daily (0.8 mg/kg) and increased to 75 mg daily (2 mg/kg) over three months. After dose escalation, she developed increased hair loss, feverishness, and lethargy, prompting her admission to a medical facility. Examination revealed significant non-scarring alopecia, (Figure 1) but no clinical signs of an SLE flare.

Laboratory tests showed pancytopenia: hemoglobin 8.4 g/dL, white blood cells 880/µL, platelets 130K/µL, and absolute neutrophil count 38/µL. Inflammatory markers, complement levels, and septic screening were normal. AZA was discontinued, and she was treated for neutropenic sepsis with high-dose steroids and GM-CSF. Despite these measures, blood parameters did not improve as expected. After 25 days of treatment, hair loss ceased, and cytopenias began to recover. Bone marrow analysis was not performed during the acute phase. Upon discharge, her blood counts were WBC 6,130/µL, hemoglobin 10.9 g/dL, and platelets 85K/µL.

Given her SLE and lung pathology, she continued immunosuppressive therapy but was switched from AZA to IV Rituximab. Six weeks later, her blood counts had improved (WBC 10K/µL, hemoglobin 10.9 g/dL, platelets 289K/µL), and hair regrowth was observed. (Figure 2)

CONCLUSION

This case underscores the need for clinicians to be vigilant for early signs of severe myelosuppression, such as alopecia, in patients receiving azathioprine. Awareness of these uncommon side effects is crucial for effective management.

REFERENCES:

1.Sharma R, Poddar S, Poddar I. Azathioprine Induced Anagen Effluvium- An Uncommon Adverse Effect of a Commonly Used Drug. Indian J Dermatol. 2022 Nov-Dec;67(6):815-817. doi: 10.4103/ijd.ijd_497_22. PMID: 36998853; PMCID: PMC10043677

Mishra, Debashish; Sharma, Shefali Khanna; Sharma, Aman; Jain, Sanjay; Dhir, Varun. Alopecia as the First Manifestation of Azathioprine Myelosuppression in a Genetically Predisposed Patient. Indian Journal of Rheumatology 14(1):p 61-64, March 2019. | DOI: 10.4103/injr.injr_127_18.

3. Balasubramanian P, Jagadeesan S, Anjaneyan G, Thomas J. An Interesting Case Report of Azathioprine-Induced Anagen Effluvium. Indian J Dermatol. 2015 May-Jun;60(3):324. doi: 10.4103/0019-5154.156471. PMID: 26120190; PMCID: PMC4458977.

4. Alastair L. Hepburn, Santosh Narat, Justin C. Mason, The management of peripheral blood cytopenias in systemic lupus erythematosus, Rheumatology, Volume 49, Issue 12, December 2010, Pages 2243–2254, https://doi.org/10.1093/rheumatology/keq269.

5. Karran P, Attard N. Thiopurines in current medical practice: molecular mechanisms and contributions to therapy-related cancer. Nat Rev Cancer. 2008; 8(1): 24-36. doi:https://doi.org/10.1038/nrc2292



FIGURE 1: On admission patient had severe non scarring alopecia



FIGURE 2: After 6 weeks of AZA withdrawal evidence of hair regrowth



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