Isolated Neutropenia: A clinical audit to assess cost-effectiveness of investigation in a commonly referred, and often benign entity

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Background:

Neutropenia, defined by an absolute neutrophil count below 1.5×10⁹/L, is frequently encountered in clinical practice. It is stratified as mild (1.0–1.5 ×10⁹/L), moderate (0.5–0.99 ×10⁹/L), or severe (<0.5 ×10⁹/L). While often perceived as high risk, many cases are benign, particularly those related to ethnicity, transient viral suppression, medications, or nutritional deficiency. Despite the low likelihood of clinically significant outcomes, patients with isolated neutropenia are frequently referred to specialist clinics, potentially leading to unnecessary investigations and healthcare expenditure.

Aim:

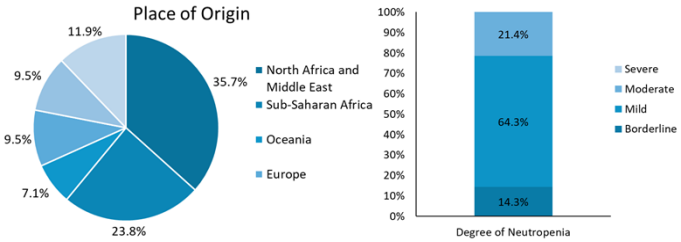
To evaluate the clinical characteristics, diagnostic yield, outcomes, and cost-effectiveness of investigations in patients referred for isolated neutropenia at Northern Health.

Methods:

We conducted a retrospective audit of adult patients referred to haematology outpatients between January–December 2023. Exclusion criteria were recent chemotherapy or known malignancy. Data collected included demographics, severity of neutropenia, investigations ordered, final diagnoses, follow-up requirements, and associated costs (calculated using Medicare Benefits Schedule rates). Statistical analysis included descriptive measures and chi-square testing.

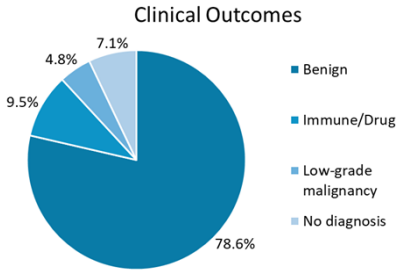
Study Population Characteristics:

Forty-two patients were included (mean age 47.2 years). The largest subgroup was aged 21–40 years (40.5%). Most were of North African/Middle Eastern (35.7%) or Sub-Saharan African (23.8%) origin. Mild neutropenia was most common (64.3%), followed by moderate (21.4%). No patients had severe neutropenia; 14.3% had borderline low counts.



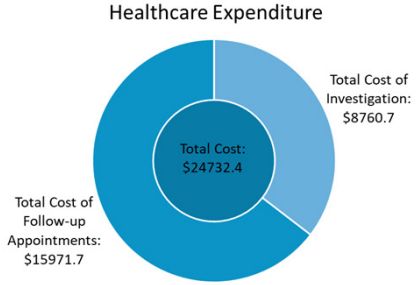
Diagnostic Outcomes:

Benign neutropenia accounted for 78.6% of cases. Immune/drug-related neutropenia was diagnosed in 9.5%, low-grade malignancy in 4.8%, and no diagnosis in 7.1%. Importantly, all malignancy cases had additional clinical features prompting investigation. Only two patients (4.8%) experienced recurrent infections; none required hospitalisation.



Costs:

The mean cost of investigations was $208.60 per patient (total $8,760.70). Follow-up costs averaged $380.30 per patient (total $15,971.70). Combined, the annual cost for this small cohort was $24,732.40.



Conclusion:

This audit confirms that the vast majority of isolated neutropenia referrals represent benign or self-limiting causes, with low risk of infection or malignant transformation. Clinically significant pathology was uncommon, and when present, it was associated with additional clinical or laboratory abnormalities. A greater role for general practitioners in the initial investigation and monitoring of low-risk patients is indicated. Referral should be reserved for patients with progressive cytopenias or additional red-flag features. This strategy would reduce healthcare costs, minimise unnecessary anxiety, and optimise haematology outpatient resources.