Clinical Audit of Erythropoietin Level assessment in patients with Sickle Cell Disease

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Aim

- The aim of this audit was to evaluate the appropriateness and frequency of erythropoietin (EPO) level testing in adult patients with sickle cell disease (SCD).
- The audit seeks to identify patterns of underuse and overuse, assess alignment with clinical indications, and propose improvements to ensure EPO testing is used effectively to support patient management and optimise resource utilisation.

Introduction

- SCD is an inherited condition associated with anaemia and organ damage. EPO is critical in stimulating red blood cell production
- Managing patients with SCD remains challenging with limitations in improving both life expectancy and quality of life for affected individuals despite advancements in treatment [1,2].

Standards / Guidelines

At the time of the audit, no formal national or institutional guidelines were in place regarding the frequency or indications for EPO testing in patients with SCD[3]. Therefore, audit standards were developed based on current best clinical practice, relevant literature, and expert consensus [4,5].

Method

- This retrospective audit analysed a random sample of 50 adult patients with confirmed SCD who attended Homerton University Hospital over the last 13 months.
- Patients' EPO levels and haemoglobin (Hb) levels were collected, and patients were categorised into three treatment groups: hydroxyurea, regular transfusions, or no treatment.
- The frequency and appropriateness of EPO testing were assessed across these groups.

Conclusion

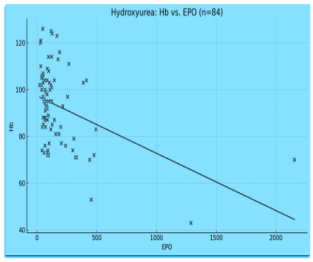
- Routine and unindicated EPO testing in patients with SCD contributes to unnecessary healthcare costs without improving patient outcomes.
- In contrast, targeted and clinically justified testing provides meaningful diagnostic information and supports effective decision-making.
- The absence of formal guidelines further contributed to variability in EPO testing.

Recommendations

- Limit EPO testing to clinically indicated scenarios.
- Remove EPO from routine test panels.
- Develop a local guideline in the form of a flowchart.
- Provide educational sessions to clinical staff.

Results

A



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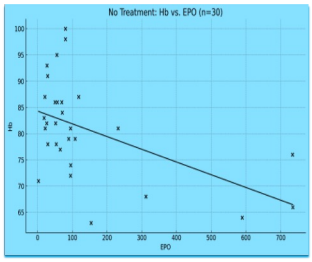

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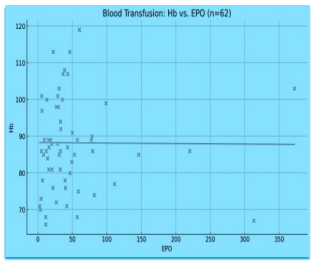
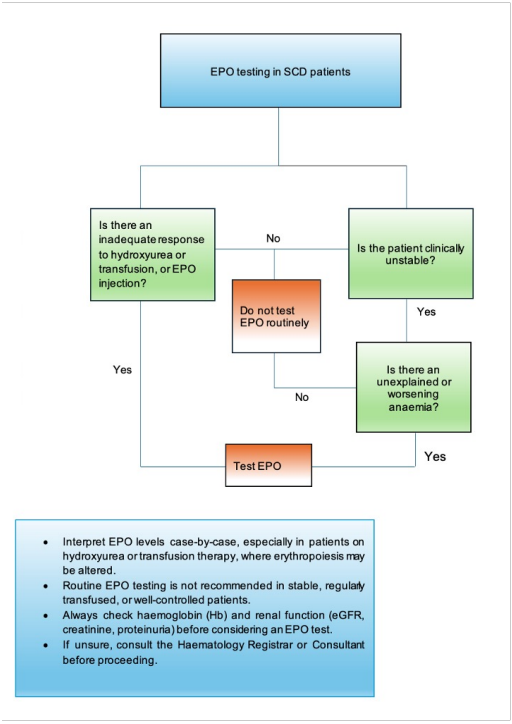


- *Linear regression analysis showed a statistically significant negative linear relationship between EPO and Hb levels in patients treated with hydroxyurea (A) and in patients not receiving treatment (B).*
- *No relationship was observed in the blood transfusion group (C).*



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