Unmasking Pseudohyperkalemia in Chronic Lymphocytic Leukemia: A Life-Saving Lesson in Laboratory Interpretation

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INTRODUCTION

Pseudohyperkalemia is a laboratory artifact wherein falsely elevated potassium levels result from in vitro leukocyte lysis.

Common in patients with CLL and leukocytosis

Often leads to unnecessary and potentially harmful interventions such as dialysis when mistaken for true refractory hyperkalemia.

AIM



CASE

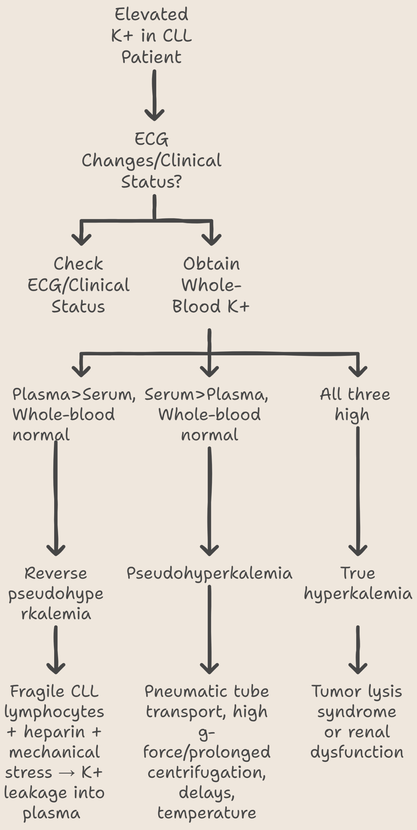
60 M with known CLL presented with abdominal discomfort and dyspnea.I Initial BMP revealed potassium 8.0 mmol/L, no ECG changes or muscular symptoms. After receiving standard hyperkalemia management, potassium levels remained elevated (7.7 and 8.2 mmol/L). Point-of-care test was performed, revealing a potassium level of 3.7 mmol/L, confirming pseudohyperkalemia.

THE K GAP

Serum is normally about 0.2–0.4 mmol/L higher than plasma due to clot-related platelet K+ release. When this gap exceeds 0.4, it is indicative of pseudohyerkalemia.

While not a single universal cutoff, the literature consistently treats ⩾0.4 mmol/L as a “red-flag” gap.

CLINICAL IMPLICATION



BEST PRACTICES

Collection

Use large-bore needle and minimize tourniquet time. Avoid fist clenching.

Testing

Prefer immediate whole-blood blood-gas potassium in dry syringes. Analyze within minutes. Use soft Spin.

Systems

Add LIS/EMR flag when WBC is high. Reflex a confirmatory potassium before treatment.

Transport

Avoid pneumatic tube systems for suspected cases. Hand-carry the sample to the lab.

Interpretation

Use serum–plasma gap and matrix patterns. Correlate with ECG and clinical context.

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