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# Lessons Learnt from a Patient with Pseudohyperkalaemia Secondary to Polycythaemia Rubra Vera in a Neuro-ICU Patient Resulting in Dangerous Interventions: Lessons Learnt on Patient Safety Improvement

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**Abstract :** Pseudohyperkalaemia is a common benign in vitro phenomenon caused by the release of potassium ions (K+) from cells during specimen processing. Analysis of haemolysed blood samples for predominantly intracellular electrolytes may lead to re-investigation and potentially harmful interventions. We report a case of a 52-year male with myeloproliferative disease manifested as Polycythaemia Rubra Vera, Hypertension and hypertensive nephropathy with stage 3 chronic kidney disease admitted to Neuro-intensive care unit (NICU) with an intra-cerebral haemorrhage secondary to hypertensive bleed. His initial blood investigations showed hyperkalemia with serum K+ 6.2 mmol/L yet the bedside arterial blood gas analysis yielded K+ of 4.6 mmol/L. The patient was however given hyperkalemia regime twice based on venous electrolyte analysis. The discrepancy between the bedside electrolyte analysis using arterial blood and venous blood prompted further evaluation. The 12 lead Electrocardiogram showed U waves and sinus bradycardia corresponding to the serum K+ of 2.8 mmol/L on arterial blood gas analysis. Immediate K+ replacement ensured the patient did not develop life-threatening cardiac complications. Pseudohyperkalaemia may pose diagnostic challenges in the absence of detectable haemolysis and should be suspected in susceptible patients with normal Electrocardiogram and Glomerular Filtration Rate to avoid potentially life-threatening interventions. When in doubt, rapid analysis of arterial blood gas may be useful for accurate quantification of potassium.

**Keywords :** patient safety, pseudohyperkalaemia, haemolysis, myeloproliferative disorder
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