

## Short Communication

# Overcoming spurious hyperkalemia due to platelets

Suhanyah Mahathevan<sup>1</sup>, Siriwardene S C<sup>1</sup> and Hewamana S<sup>2</sup>

<sup>1</sup>Lanka Hospitals Diagnostics, Sri Lanka

<sup>2</sup>Lanka Hospital, Sri Lanka

## Editor

Suhanyah Mahathevan et al.  
Lanka Hospitals Diagnostics, Sri  
Lanka

---

**Background:** The occurrence of spuriously excessive serum potassium stages have been related with excessive platelet counts. It is because of the degranulation of platelets in the course of clotting in vitro, freeing potassium into the serum.

**Case Presentation:** A 69-year-old man changed into admitted following a fall. On admission the white cellular count was 12,920/ $\mu$ L, hemoglobin 83 g/L and the platelet count 1,550,000/ $\mu$ L (150,000-450,000). Serum sodium, potassium and chloride were respectively 141, 5.8 (three.5-5.1) and 113 mmol/L respectively. Plasma sodium, potassium and chloride (on a sample gathered into lithium heparin at the identical time) had been 141, 4.3 and 112 mmol/L, respectively. Serum creatinine became 1.5 mg/dL (0.8-1.3). The blood image showed macrocytes and spherocytes with normal leucocytes, collectively with extreme thrombocytosis. Bone marrow turned into normocellular and had extended megakaryocytes with a few dysplastic forms. Platelet lakes/clumps have been prominent. The myeloid series changed into everyday and the erythroid series had reduced precursors. The trephine biopsy showed increased megakaryocytes with clustering, without full-size fibrosis. JAK2 V617F mutation was detected. The affected person changed into diagnosed to have vital thrombocythemia.

A 76-yr-old woman with myelofibrosis have become admitted for splenectomy as a remedy for continual anaemia and belly discomfort. The history and physical examination was regular excluding the large spleen. The affected man or woman became receiving no medications. Admission laboratory investigation demonstrated a mild anaemia, regular platelet and leukocyte counts, and a normal serum potassium concentration. Following a humdrum splenectomy on day two, the patient advanced a wound dehiscence, which required surgical repair. The day in advance than her 2d operation (scheduled for day 15), the electrolyte willpower confirmed a serum potassium of 6.0 mEq. L<sup>-1</sup>. The specimen become checked for haemolysis, but none come to be observed. The health practitioner noted that the affected individual's serum potassium interest were growing little by little following surgical remedy, but the dating with the parallel increase in the white mobile count and platelet count number emerge as not noticed. No instant explanation turn out to be located for the hyperkalaemia, nor had been there any symptoms. The patient become now not receiving potassium supplements or cytotoxic therapy. Renal feature

tests were regular and there was no clinical proof of adrenal insufficiency and diabetes mellitus. The ECG changed into regular. To lessen the hyperkalaemia simply so the postponement of surgical remedy is probably avoided, the medical doctor ordered glucose and insulin, to be observed by the usage of a sodium polystyrene sulfonate. Because spurious hyperkalaemia changed into suspected, a blood pattern end up amassed into a heparinized tube just preceding to glucose and insulin administration. This sample had a potassium recognition of 4.6 mEq. L<sup>-1</sup>. Fortunately, no adverse consequences resulted from the glucose and insulin remedy. After the spurious nature of hyperkalaemia changed into mentioned, the affected man or woman underwent a humdrum belly repair under general anaesthesia. All potassium tiers were determined with the Kodak Ektachem Potentiometric test, which has a famous deviation of 1-1.2% of the mean within the variety of values recorded on this affected person.

**Discussion:** This case illustrates the occurrence of spurious hyperkalemia associated with marked thrombocytosis. The series of a pattern into lithium heparin at the same time, allowed the laboratory to difficulty the actual potassium level. Essential thrombocythemia is identified via an increased platelet count due to extraordinary pluripotent stem cellular proliferation ensuing in excessive megakaryocyte division. The above investigations supports this prognosis as in opposition to a secondary thrombocythemia. The clinical complications involve the sequela of atypical platelet function, namely haemorrhage or thrombosis. Potassium measurement should be executed in a plasma sample (and not in serum) in the presence of marked thrombocytosis.

In blood chemistries, clerical (mislabelling or miscollection of samples) and technical (problems at some point of series and processing of samples) problems are relatively clean to resolve due to the fact a repeat sample is unlikely to offer the same bizarre end result. A factitious blood test end result represents a genuine result in the affected individual, however one that is self-inflicted (for instance, surreptitious ingestion of coumadin). A more tough hassle to remedy is a spurious result, which is defined as a technically correct end result that doesn't mirror the proper situation of the affected man or woman. Haematological troubles can produce spurious results. For instance, in vitro cellular lysis or metabolism due to a high cellular count range can produce spurious abnormalities of the serum potassium, glucose, and blood gases. The patient defined in this document represents an example of hyperkalaemia that turned into to begin with considered to be proper hyperkalaemia, and because of this concern, an vain intervention become initiated. Most clinicians recognize that hyperkalaemia can end result from in vitro haemolysis. In truth, chemistry laboratory employees look for the presence of haemolysis in patients with surprising hyperkalaemia. Our affected man or woman did now not have in vivo or in vitro proof of haemolysis. Less frequently diagnosed is the hyper-

kalaemia associated with thrombocythaemia, and leukoproliferative disorders together with acute and persistent lymphocytic leukaemia, acute and continual myelogenous leukaemia, and myelofibrosis. We did not perform blood fuel assessment or diploma glucose ranges after the splenectomy. However, it must be stated that each of these essential variables are also liable to spurious modifications because of cell proliferation. Spurious hypoxia has been mentioned in patients with leukocytosis and thrombocytosis, which in intense cases won't be removed through retaining the pattern in ice. In vitro oxygen consumption may be arrested through along with potassium cyanide to the leukaemic blood, is Cells metabolize glucose in vitro and spurious hypoglycaemia has been described in sufferers with uncontrolled acute and persistent leukaemia , and polycythaemia vera. This hypoglycaemia can be minimized by way of the usage of cooling the blood, or via blending it with an adequate amount of sodium fluoride. Because platelets consume very small portions of glucose, spurious hypoglycaemia due to thrombocytosis is rare.

**Conclusion:** Inside the presence of excessive thrombocytosis and/or leukocytosis, in vitro cell lysis for the duration of clotting may result in falsely extended serum potassium values which can cause the misdiagnosis of hyperkalaemia or the failure to recognize hypokalaemia. This problem can be overcome by filing for evaluation the blood sample in a heparinized tube.