

A Brother and Sister with Fluctuating Potassium Concentrations

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CASE DESCRIPTION

A 61-year-old man was admitted to the emergency department (ED) for increased potassium concentration of 6.3 mmol/L (reference interval, 3.5–5.0 mmol/L) that was ordered by the general practitioner as part of a yearly medical checkup. Physical examination did not reveal any symptoms associated with hyperkalemia. Reanalysis of potassium in a new blood sample drawn in the hospital resulted in a value of 3.7 mmol/L. Remarkably, his visit to the ED had been the third one in 3 years' time, all taking place after a yearly medical checkup during the winter season with increased potassium at each visit that was within the reference interval after reanalysis of a new blood sample drawn in the hospital. The patient was referred to an internist for further examination who ordered a potassium analysis 1 month after the last visit to the ED. Again, an increased concentration was noticed (6.6 mmol/L) followed by admission to the emergency room. Reanalysis of potassium in the hospital again showed a healthy potassium concentration (3.6 mmol/L). The patient did not use any medication. On his visit to the internist, he mentioned that 1 year ago his sister was also admitted to the ED for an increased potassium concentration (7.9 mmol/L) that could not be confirmed in a newly drawn blood sample.

QUESTIONS TO CONSIDER
• What are possible causes of discrepant potassium results?
• What is the differential diagnosis of hyperkalemia?
• Which erythrocyte enzyme deficiencies can result in hemolysis?

Final Publication and Comments

The final published version with discussion and comments from the experts will appear in the March 2019 issue of *Clinical Chemistry*. To view the case and comments online, go to <http://www.clinchem.org/content/vol65/issue3> and follow the link to the Clinical Case Study and Commentaries.

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