Hyperphosphatemia in an 11-year-old girl with acute myeloid leukemia: Questions

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Case presentation

An 11-year-old girl, recently diagnosed with acute myeloid leukemia, was treated according to the NOPHO DBH AML 2012 protocol [1]. After the third chemotherapy course, consisting of cytarabine, mitoxantrone, and intrathecal methotrexate, she was admitted to the Department of Pediatric Oncology because of septic shock during febrile neutropenia. She was treated with meropenem and vancomycin and blood cultures were positive for *Streptococcus mitis*. Because of persistent fever, the central venous catheter was removed. Nevertheless, the fever persisted and a chest CT was performed, which revealed multiple abnormalities suggestive of pulmonary aspergillosis, which was confirmed by bronchoalveolar lavage (BAL). On day 5 of admission, she was started on AmBisome® (liposomal amphotericin B; 5 mg/kg in glucose 5%). Because of her persisting neutropenia, granulocyte colony-stimulating factor (G-CSF) was administered. Fever disappeared with neutrophil recovery, approximately 5 days after the start of G-CSF and AmBisome®.

Repeated blood tests showed normal renal function (creatinine 35 µmol/L, urea 3.7 mmol/L). Potassium supplementation was started because of hypokalemia. While phosphate concentrations

Plasma phosphate concentration

Fig. 1 Course of phosphate concentrations. The dotted lines represent the reference range (0.70–1.40 mmol/L)

were low at 0.54 mmol/L on day 5, they rose spontaneously and from day 7 onwards laboratory tests showed progressive hyperphosphatemia, with a maximum of 2.28 mmol/L (Fig. 1).

Question

What is the most likely cause of the hyperphosphatemia observed in this patient?

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

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References

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The answer to this question can be found at <https://doi.org/10.1007/s00467-018-4101-5>.

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