uncommon, regardless the mode of delivery, as shown by Kelton *et al.*, in a review of 94 cases.[3] Data from this study are in agreement with those from literature showing that children born to mothers with ITP have low risk of having severe thrombocytopenia and associated hemorrhage.[4] Thrombocytopenic mothers should be treated in order to avoid maternal bleeding during labor and invasive procedures, such as cordocentesis and preventive Cesarean section are not justified.[5]

*Dayse Maria Lourenço,**
Renato Martins Santana°
*Carla Valadares Vignal**

**Hematology Dept. and*
°Obstetrical and Gynecology Dept. of Universidade Federal de São Paulo, Brazil

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Correspondence: D.M. Lourenço, Rua Estilo Baroco, 630 Apto 152, São Paulo, SP, Brazil, code 04709-011. Fax. international +55.11.5718806.

Pronounced electrolyte abnormalities in a patient with acute leukemia

Sir,

Even though severe hypokalemia has been associated with acute leukemia,[1] other acid-base and/or electrolyte disturbances have also been reported infrequently in such patients. We describe an interesting case of severe, multiple and interrelated electrolyte abnormalities in a patient with acute leukemia. A 76-year-old man was admitted to the hospital with a 4-week history of malaise, fatigue, muscle weakness, 5 kg weight loss, fever up to 39°C, cough and rusty sputum. The patient was not on any drugs that affect electrolyte levels, such as diuretics. Upon admission he had a temperature of 38.6°C, a pulse rate of 78 beats per minute, a respiratory rate of 25 breaths per minute and a blood pressure of 130/80 mmHg. At physical examination a diminution of breath sounds at the base of the left lung associated with dullness to percussion was found. Enlargement of the left tonsil and of bilateral cervical lymph nodes was also observed. The remainder of the physical examination was normal. An electrocardiogram revealed inverted T-waves, prolonged Q-T intervals and the presence of U waves. An X-ray of the chest showed right pleural effusion.

The results of laboratory tests on patient admission are shown in Table 1. A urine dipstick was positive for leukocytes and trace positive for blood, but negative for protein; the urine sediment contained 3-4 erythrocytes, 4-5 white blood cells and many granular casts per high-power field. Intravenous and oral potassium and magnesium supplements were given, and cefrazidime 2 g/8 h IV was administered. Four days later serum electrolytes were within normal limits. Bone marrow aspirate and biopsy analysis confirmed the diagnosis of acute myelomonocytic leukemia and the patient was treated with etoposide and cytosine arabinoside. The patient died two months later of septicemia due to *Pseudomonas aeruginosa*. Of the various electrolyte abnormalities our patient developed, severe hypokalemia with inappropriate kaliuresis ($FEK^+ > 6.4\%$, TTKG > 2) was prominent and could be ascribed: 1) to lysozymuria, which may induce renal tubular dysfunction with kaliuresis;[1] 2) to the concomitant severe hypomagnesemia, since it is well known that hypomagnesemia of any cause can lead to potassium depletion through both urinary and fecal losses,[2] and 3) to potassium entry into metabolically active leukemic cells.[1] Severe hypomagnesemia with inappropriate magnesiuria ($FEMg^{++} > 2.5\%$) was also found, which could be the result of a leukemia-induced or even lysozyme-induced tubular dysfunction,[1] or of the coexisting phosphate depletion.[3] Hypophosphatemia with appropriate renal phosphate conservation ($FEPO_4^{---} < 20\%$, $TmPO_4^{---}/GFR > 0.87$ mmol/L) was observed, possibly due to decreased phosphate intake and/or to a shift of phosphate into rapidly growing tumor cells.[4]

Finally, hypocalcemia with inappropriate calciuresis (FECa++ > 3%) was evident, owing to hypoalbuminemia and/or to concomitant hypomagnesemia and respiratory alkalosis, both of which could result in hypercalciuria.[5]

Table 1. Laboratory values found in the patient .

Hematocrit (%)	0.31
White-cell count (/L)	67.1×10^9
Differential count (%)	
Neutrophils	29
Blasts	23
Monocytes	40
Lymphocytes	8
Platelet count (/L)	184×10^9
Arterial pH	7.51
PCO_2 (Kpa)	4.12
Serum bicarbonate (mmol/L)	24
Serum glucose (mmol/L)	6.05
Serum creatinine (μmol/L)	115
Serum uric acid (μmol/L)	375
Serum total proteins (g/L)	60
Serum albumin (g/L)	28
Serum LDH (μKat/L)	34.6
Serum sodium (mmol/L)	135
Serum potassium (mmol/L)	2.6
Serum magnesium (mmol/L)	0.46
Serum calcium (mmol/L)	1.65
Serum phosphorus (mmol/L)	0.77
Urine sodium (mmol/L)	114
Urine potassium (mmol/L)	23
FEK^+ (%)	28.7
TTKG	8
Urine magnesium (mmol/L)	2.65
$FEMg^{++}$ (%)	18.7
Urine phosphate (mmol/L)	4.2
$FEPO_4^{---}$ (%)	17.6
$TmPO_4^{---}$/GFR (mmol/L)	0.93
Urine calcium (mmol/L)	3.37
$FECa^{++}$ (%)	6.6

FE: fractional excretion. Standard formulas were used to calculate the fractional excretion of electrolytes. TTKG: transtubular potassium gradient, estimated from the equation:

$$TTKG = \frac{Urine\ K^+ \div Uosm/Posm}{Serum\ K+}$$

$TmPO_4^{---}$/GFR: renal threshold phosphate concentration, calculated using the Bijvoet nomogram

Moses S. Elisaf
Kostas Burads
Kostas C. Siamopoulos

Dept. of Internal Medicine, University of Ioannina Medical School, Greece

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Correspondence: Kostas C. Siamopoulos, University of Ioannina Medical School, GR 451 10, Ioannina, Greece. Tel. international +30.651.46728. Fax: international +30.651.45944.