Acute Renal Failure in Rhabdomyolysis Associated with Hypokalemia

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Dear Sir,

It is well known that nontraumatic rhabdomyolysis (NR) has several causes [1] and complicates up to 33% of cases with acute renal failure (ARF). We report on 2 patients who developed ARF, due to NR and associated to hypokalemia and ileus, after a prolonged period of immobilization because of neurologic or psychiatric pathology.

Patient 1: A 51-year-old male was admitted to a department of internal medicine because of a short loss of consciousness. The patient had been taking low-dose neuroleptics for a psychiatric pathology for some years. Physical examination showed: temperature 37.5°C; heart rate 120 beats/min, and blood pressure 130/90 mm Hg. Standard ECG disclosed an atrial flutter. There was a diffuse swelling of the abdomen with marked pain and no peristalsis. On rectal examination there was no stool. Initial laboratory values are shown in table 1. Oligoanuria was present. Therapy was started with intravenous fluids, sodium bicarbonate, potassium aspartate and the association of a continuous intravenous infusion of subpharmacological doses of dopamine (3 µg/kg/min) plus an intravenous bolus of frusemide (60 mg) 3 times/day [2]. On the following days azotemia progressed and it was necessary to start hemodialysis on the 4th hospital day. Nine hemodialyses were performed. The normal range of serum potassium was achieved on the 10th day, ileus resolved completely on the 16th day and normal renal function was reached on the 20th hospital day.

Patient 2: A 46-year-old male was admitted to the emergency unit comatose and with hyperosmolar syndrome. Cerebral CT disclosed a mesencephalic hemorrhage. Examination revealed paralysis of arms and legs with absence of deep reflexes. Temperature was 37.2°C, heart rate 130 beats/min and blood pressure 100/60 mm Hg. The abdomen was swollen and hypertympanic. Peristalsis was absent. Rectal examination revealed no stool. Initial laboratory values are shown in table 1. Therapy was started with intravenous fluids, sodium bicarbonate, potassium aspartate, dopamine at subpharmacological doses and a bolus of frusemide 3 times/day [2]. On the following days, azotemia progressed, oligoanuria developed and it was necessary to start hemodialysis. Oligoanuria persisted for 11 days during which 10 hemodialytic treatments were performed. Serum potassium reached normal

values on the 9th day, ileus resolved completely on the 15th day and normal renal function was restored on the 27th hospital day.

Comments: Both cases have common features : (a) occurrence after prolonged immo-

bilization; (b) no objective signs of muscle damage; (c) concomitant ileus, and (d) low serum potassium at the onset. Subclinical NR may occur in hypokalemic patients and serum potassium concentration does not have a predictive values for the occurrence or severity of NR [3]. Serum osmolality emerged as the major determinant for the occurrence of NR in the hypokalemic state.

Two more aspects may be considered in our patients: (a) prolonged immobilization may have worsened the degree of NR, and (b) acidosis may have masked the real serum potassium levels at the onset [4]. The ileus complicating NR in both patients might have been due to hypokalemia as it completely resolved when serum potassium achieved normal range.

This experience has convinced us that in all cases of ARF the possibility of muscle damage should be borne in mind and CPK be measured in all patients, particularly when they are hypokalemic and have been bedridden for a longer period of time.

References

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