

Fatal Lactic Acidosis Due to Metformin

Metformine Bağlı Ölümcül Laktik Asidoz

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Dear Sir

A 55 year-old male patient with complaints of nausea, abdominal pain, somnolence, and drug ingestion was admitted to the emergency department. He ingested 50-60 tablets of 850 mg metformin in a suicide attempt and after 3.5 hours of ingestion he first sought medical assistance in the state hospital; then the patient was transferred to our hospital. He had had type 2 diabetes mellitus for 3 years and had been using metformin, rosiglitazone, and glipizide. On physical examination, blood pressure was 90/50 mmHg, pulse rate 110 bpm, and he was lethargic. An intravenous line was inserted for isotonic sodium chloride infusion. Blood was drawn for laboratory assessments. Since four hours had passed after ingestion, gastric lavage was not performed. One gram of charcoal per kilogram body weight was administered via a nasogastric tube. Laboratory tests yielded a leukocyte count of 11,000/mm³, haemoglobin 12.8 g/dL, haematocrit 37.3%, platelet count of 263,000/mm³, urea 23 mg/dL, creatinine 1.8 mg/dL, blood glucose 352 mg/dL, ALT 52 IU/L, AST 39 IU/L, LDH 441 IU/L, lactate 181 mg/dL, pH 7.29, pO₂ 44 mmHg, pCO₂ 39 mmHg, HCO₃ 18 mEq/L and oxygen saturation was 74%. Sinus rhythm was detected on ECG. Bicarbonate was given by intravenous push at a dose of 1 mEq/kg body weight and the patient was transferred to the intensive care unit. During follow-up, hypotension and respiratory arrest developed; therefore he was intubated and mechanical ventilation was initiated. Repeat arterial blood gas testing revealed a pH of 6.8, pO₂ of 85 mmHg, pCO₂ of 49 mmHg, HCO₃ of 7 mEq/L, and oxygen saturation of 86%. Haemofiltration was performed for lactic acidosis. During follow-up cardiac arrest occurred and cardiopulmonary resuscitation (CPR) was performed. Since he did not respond to 45 minutes of CPR eventually he was accepted as exitus.

Metformin is a biguanide oral antidiabetic medication. Biguanides lower blood glucose levels by reducing intestinal glucose absorption

and gluconeogenesis, and by increasing peripheral glucose uptake. In addition, they can lead to lactic acidosis, hypothermia, and hypotension (1-3). Correction of metabolic acidosis due to biguanide intoxication is of paramount importance. Sodium bicarbonate is the most frequently used agent in the treatment. Haemofiltration and bicarbonate replacement are the most appropriate therapy in the treatment of acidosis associated with metformin (4-6).

We performed haemodialysis using bicarbonate fluids but we lost the patient. As a result, haemofiltration should be initiated immediately in patients with acidosis associated with metformin. Thus mortality rates can be decreased.

Best regards

Conflict of Interest

No conflict of interest is declared by the authors.

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