

A Case of Potassium Thiocyanate Indigestion

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Abstract

Background: Potassium thiocyanate is a colorless chemical compound which is used to effect bleeding from movies or television dramas. In the early 1900s, it was used as a treatment for hypertension. We report a case of potassium thiocyanate ingestion for the purpose of suicide.

Case presentation: A 26-year-old woman visited the emergency department. She was taking the chemical compound - potassium thiocyanate - with alcohol one hour before the visit to the emergency department. She said she took about 50 g of potassium thiocyanate. She was admitted to the intensive care unit for 2 days and had a treatment of forced diuresis. She was discharged without experiencing any other toxic effects that might have been caused by potassium thiocyanate.

Conclusion: Potassium thiocyanate is not currently used in the clinical field, but is still available on the internet. We want to share this case and provide evidence to treat the patient for potassium thiocyanate overdose.

INTRODUCTION

Potassium thiocyanate ($K^+ -S-C\equiv N$, CAS number 333-20-0) is a colorless chemical compound which is used to effect bleeding from movies or television dramas. When potassium thiocyanate comes to a solution containing Fe^{3+} , it turns red like blood, used to produce bleeding effect 1. In the early 1900s, potassium thiocyanate was used for treating hypertension. However, fetal side effects have been reported and it was discontinued 2. After discontinuation of use as a medicament, there have been few reports of potassium thiocyanate ingestion. We report a case of potassium thiocyanate ingestion for the purpose of suicide.

CASE PRESENTATION

A 26-year-old woman visited the emergency department after taking the chemical compound - potassium thiocyanate - with alcohol one hour before the visit. Potassium thiocyanate (powder, 99.0%, 500 g/bottle) was purchased from the internet for the purpose of suicide. She said she took about 50 g of potassium thiocyanate. The patient had vomited before admission and complained of nausea. At the time of arrival to the emergency department, the patient was alert and the vital sign was stable, heart rate 94 beats/min; respiratory rate 17 breaths/min; body temperature 36.9 °C. In laboratory finding, chloride was elevated, which is 148

mEq/L. There was no metabolic acidosis. She admitted to the intensive care unit for 2 days and was treated with forced diuresis. She was discharged without experiencing any other toxic effects, that might have been caused by potassium thiocyanate.

DISCUSSION

Potassium thiocyanate was used as a remedy for hypertension in the early 1900s. However, their use was discontinued due to fatal side effects. Thiocyanate ion acts like iodide ion in the body. When ingested orally, it is distributed at high concentration in extracellular fluid, it affects the colloid in a similar fashion to the action of the iodide ion. It is mainly excreted via kidney. Moderate dose of potassium thiocyanate has a sedative effect, however lethal dose is known to stimulate anterior horn cell 3. Toxic symptoms include muscular fatigue, nausea, vomiting, disorientation, mental confusion, motor aphasia, visual and auditory hallucination. Fetal side effects such as delirium, convulsive twitching, and mortality occurred 2-6. According to the Toxicology data network of U.S. National Library of Medicine, side effects such as hallucinations, distorted perceptions, and convulsions occurred in LDLo 80 mg/kg (human oral). In the case of TDLo 428 mg/kg (human oral), stomach ulceration or bleeding, hallucination, disorientation,

and toxic psychosis have been reported 1,7.

In the case of the above patients, it was estimated that she ingested 785.71 mg/kg. However, no specific finding occurred expect nausea and vomiting. After the admission, she underwent forced diuresis treatment and was discharged after observation.

CONCLUSION

Potassium thiocyanate is not currently used in the clinical field but is still available on the internet. We want to share this case and provide evidence to treat the patient for potassium thiocyanate overdose.

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