CASES OF SELF-POISONING WITH ELEMENTAL MERCURY ADMINISTERED INTRAVENOUSLY: Clinical observations


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OBJECTIVE

Poisoning by injections of metallic mercury is uncommon and considered relatively harmless versus ingestion of mercury salt or inhalation of mercury vapor. This report presents two cases of inadvertent administration of elemental mercury.

CASE REPORTS

Case No. 1: A man aged 31 years was admitted to the Moscow Toxicology Center in January 2013 following suicidal intravenous administration of 4 ml of elemental mercury 4 days before the second time (earlier in 2010 he also administered mercury intravenously and was treated in the other hospital for 20 days). On admission he complained of weakness, nausea, respiratory and sleep disturbances.

Chest X-ray examination demonstrated multiple small-sized calcifications 1-2 mm diameter were noted in both lungs. See picture 3.

X-ray, computer tomography and clinical examination

X-ray examination and computer tomography of the chest and abdomen were made. The examination showed numerous small shadows of metallic density which were noted in both lungs (Picture 2, 4). Liver, right kidney, wall of the right auricle and vena cava.

Laboratory & clinical examination data

Inductively coupled plasma spectrometry detected a blood mercury level of 193 micrograms/l. (norm 0.2-3.8 micrograms/l). The results of clinical and biochemical blood and urine tests of liver and renal functions were in normal range as well as the results of ultrasonic examination.

Renal function was not disturbed. There were no signs of toxic encephalopathy or polyneuropathy.

Mental status of the patient was diagnosed as Psychopathy and Paranoid personality disorder.

Treatment and Results

Treatment course:

Chemotherapy with 2,3-dimercaptopropanol (L-cystine) was started and one procedure of hemodialysis was performed because of extremely high mercury blood level.

Results: In connection with the fact that the patient left the hospital by himself, the results of the therapy were unknown.

Case No. 2

Case History

- A man aged 22 years was admitted to the Tbilisi Toxicology center, Georgia in November 2012 in 4 months after inadvertent injections of elemental mercury from several medical therapists for the suicidal attempt. It was the first episode. In June, 2012, the patient administered intravenously with suicidal intention 20 ml of thallium oxide (thallium oxide). According to the words of the patient and his parents no effect and aftereffects were noticed. In July, 2012 he repeated the suicidal attempt, and administered intravenously 20 ml of homemade grape vodka (chacha). In this case again there were no visible aftereffects.

- One month later, in August, 2012, there was the third suicidal attempt. The patient filled the syringe with quicksilver from 5 or 6 thermometers, mixed it with vodka and administered intravenously. On the next day he repeated injection with no clear volume of quicksilver mixed with water. The last injection was followed by hyperthermia up to 39.4°C during two days and then the patient had no complaints.

- After three months of asymptomatic period, the patient began to complain of pain and tenderness in limbs, weakness, fatigue and skin rash. He also demonstrated insomnia of sleeping, constantly felt anxiety and fear, under fatigability, headache, dizziness, sweating, loss of taste, fingers trembling, numbness of extremities, pain and muscular cramps in the region of crux, dental abscess. During this period the patient did not turn to medical service. For the first time he was admitted to the hospital to toxicological department only in 4 months after i.v. injection of metallic quicksilver.

Chemical and toxicological examination by ICP spectrometry detected mercury blood level up to 134 mcg/l. (normal 4.6-9.5 mcg/l).

Clinical and biochemical laboratory analysis showed that renal, hepatic functions were not disturbed as well as pulmonary functions, despite the presence of rheeomes, pulmonary oedema in lower extremities.

Treatment and Results

The therapy by Unihed was prescribed, which then was continued in the toxicological center of the city of Baku, Azerbaijan where the therapy by Unihed in the dosage of 20mg/kg/day and Sodium Thiosulfate 30% solution was provided.

In 1 month of the therapy the level of mercury in blood dropped from initially 134 mcg/l to 105 mcg/l. The general well-being of the patient improved.

Conclusion

These case reports demonstrate mild acute toxicity following inadvertent administration of elemental mercury. Clinical manifestations of elemental mercury intoxication administrated intravenously may be delayed despite significant increased mercury blood level.

As it was shown in X-ray and CT pictures administered through the median cubital vein mercury was distributed among different organs of the patient’s body but dominated in lungs.