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Lead poisoning in addicted Opium users

Nasim Zamani

Department of Clinical Toxicology, Shahid Beheshti University of Medical Sciences, Iran

Objective: On February 14, 2016, a patient with a reported addiction to oral opium and no history of occupational exposure to lead was admitted to our center in Tehran with abdominal pain, anemia, constipation, and an elevated blood lead level (BLL; 137 µg/dL). During the following 8 months, approximately 3,000 oral opium users were evaluated at our center with BLLs ranging from 47 to 1124 µg/dL. We aim to clarify the cause, epidemiology, signs and symptoms and treatments given to our patients.

Methods: Lead poisoning owing to adulterated opium is a well-known phenomenon in many countries, especially in those with a high prevalence of opium ingestion such as Iran. Illegal laboratories refine opium to a brown paste that can be ingested or smoked. This process results in introduction of impurities such as lead into the product. Lead is also added deliberately to opium by the smugglers to increase its weight. Although little in amount, it can produce clinical toxicity when used repetitively. According to the WHO, tolerable weekly intake of lead is 25µg/kg body weight (approximately 1,750 µg for a 70-kg adult). The samples obtained from our patients contained 3.55 mg lead per gram of opium. An opium user consuming 10 g of opium per day could be ingesting approximately 0.036 g of lead per day. The lead content of the opium recovered from our patients was approximately 1.2 times the amount in Ayurvedic medicines and could cause acute poisoning.

Results: Our patients were safely treated by administration of D-penicillamine (since BAL and EDTA were not available due to sanctions), calcium gluconate (for their abdominal colic) and followed up with abdominal X-rays or CTs as well as BLLs. The current rate of lead toxicity in our center is almost 10 patients per week.

Conclusion: Lead toxicity due to ingestion of opium has caused a great epidemic in Iran and can be detected by abdominal graphy or CT along with the signs and symptoms of toxicity and BLL. Experience of administration of D-penicillamine (although it is only FDA-approved for copper toxicity) was quite successful. The patients showed a mean decrease of 33% in their BLLs after administration of it. Calcium gluconate was a treatment of the abdominal colics in our patients.