

LOSS OF CONSCIOUSNESS SECONDARY TO LEAD POISONING

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- Case Reports -

Abstract

Diagnosis of lead toxicity could be difficult in IC setting because of overlap of signs and symptoms with other diseases. This is a report of two Iranian patients (father and son) with severe level of whole blood lead concentration, developing into unconsciousness.

Introduction

The use of lead and its environmental contamination has increased dramatically since the beginning of the Industrial Revolution. However, environmental and occupational exposure to lead as well as the severity of lead poisoning have decreased due to government regulations and increased public health awareness of the problems associated with lead. New forms of non-occupational poisoning have emerged² and poisoning due to drug addiction has been reported in few studies²⁻⁸.

Inorganic lead affects the central and peripheral NS, hematopoietic systems, kidney, GIT, liver, myocardium and reproductive capacity⁹.

We present two cases (Iranian father and son), with severe level of whole blood lead concentration, developing into unconsciousness,

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Case 1

A 27 year old worker, with a history of colicky abdominal pain for two months accompanied with weakness and constipation, was admitted to the internal medicine ward. Patient was an opium addict. Few days after hospitalization, patient showed signs of icter and a considerable reduction in the level of consciousness, in the form of delirium and hyperirritability. As a result patient was moved to the ICU,

On physical exam. revealed normal vital signs of BP 135/86, HR 68/min and T 37.5 deg. C. Patient manifested generalized abdominal pain without guarding. CV and respiratory examinations were normal. Neurologic exam. revealed tremor, hyperirritability and delirium.. Motor and sensory exam. were normal. ECG, chest and abdominal radiography, abdominal US, upper GI endoscopy, and CT-scan of abdomen and brain, were all normal.

Lab tests revealed anemia of Hb 9g/dl, total bilirubin 6.5 mg/dl with domination of indirect component, and an increase in liver enzymes ALT 138u/l, AST 102 u/l (N = ALT u/l \leq 41, AST \leq 37 u/l). Blood lead level was 154 ug/dl (N \leq 25ug/dl).

Symptoms gradually improved after a five day course of treatment with BAL 75mg/m² IM Q4h and Ca Na² + EDTA 1500 mg/m²/d (continuous infusion) started four hours after BAL injection.

Case 2

A 68 year old worker with a month's history of abdominal pain, icter, insomnia, weight loss and anorexia,, admitted to internal medicine ward. Loss of consciousness, confusion and coma occurred a week after admission.

Patient had a positive history of diabetes mellitus, cigarette smoking and opium addiction.

On physical exam. vital signs were normal with BP 140/85 and HR 65/min. and T 37 deg. C. He manifested abdominal pain without tenderness. The CV and respiratory exam. were normal. He had an altered mental status. Upper and lower extremities were paralyzed, atonic with absent deep tendon reflexes ECG, chest and abdominal radiography, abdominal US, brain and abdominal CT-scan, were normal. Lab

tests revealed anemia of Hb 6.5 g/dl, elevated liver enzymes ALT 40 u/l, AST 88 u/l and total bilirubin 6.5 mg/dl, with indirect component dominancy. HBSAg, HCV Ab and HIV tests were normal. Lead level in whole blood was 180 mg/dl.

Patient did not respond to a five day treatment with BAL and CaNa² + EDTA, and died due to CV collapse

Discussion

Up till the present, few cases of lead poisoning due to usage of lead contaminated opium have been reported. We report on two patients (Iranian father and son) who had been hospitalized manifesting common symptoms of; icter, abdominal pain, impaired consciousness and anemia. Patient's relatives hypothesized the possibility of lead poisoning due to usage of opium processed in a lead-based bowl.

The older patient (Case 2) had shown rare occurrence of neuropathy¹¹ and encephalopathy¹² symptoms in the form of paralysis with absent deep tendon reflexes and decreased level of consciousness.

In the accurate determination of lead content, blood samples must be collected with lead-free equipment. For reliable results, tests should be done in Labs. experienced in lead analysis, with intra laboratory quality control and atomic absorption spectrometry. The diagnosis of lead poisoning is based on elevated blood levels (defined as equal or greater than 25 ug/dl)⁸. Chelation therapy is needed in severe cases to decrease blood lead levels faster, thereby facilitating clinical improvement¹⁰.

The patients' blood samples (arterial and venous), were sent to the reference lab,, and in parallel chelation therapy was started.

Test results indicated a high level of lead in the blood samples (\geq 100ug/dl). Further questioning of patients' relatives, hypothesized that patients used to add lead to opium in order to increase its weight, and that it was probable that they had used their own product by mistake. This hypothesis was confirmed by sending the opium sample to the reference lab. who reported that the lead content was higher than the normal standard recognized by the FDA.

The younger patient had responded positively

to the treatment and left the hospital with informed consent before completion of the normal term of treatment. The older patient, however, who is diabetic, died due to CV collapse in four days after start of chelation therapy.

Sources of lead, other than occupational exposures, such as lead contaminated opium should

be considered, in the differential diagnosis of loss consciousness of opium addicted patients.

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