Acute iron poisoning: a case report

Abstract

In adults, the common cause of iron poisoning is iron overload caused by large excess of iron supplement intake at suicidal attempts. When serum iron level exceeds the iron binding capacity of the body, free radicals occur, leading to lipid peroxidation and cellular membrane damage. In iron poisoning, most affected organs are liver, heart, kidney and lungs. Also hematologic system is affected negatively. Acute iron poisoning can cause serious complications resulting in death. The treatment scheme is determined by the type of iron preparation, time of intake, and the onset of symptoms. Initial treatment approaches mostly consist of supportive care and removal of iron with bowel irrigation. Early treatment and close follow-up in intensive care unit are important for acute iron poisoning. In this case report, we examined the approach to a case of acute iron poisoning with moderated oseiron intake for suicide attempt.

Keywords: acute iron poisoning, suicide, intensive care unit

Introduction

In adults, the common cause of iron poisoning is iron overload caused by large excess of iron supplement intake at suicidal attempts. Excessive oral iron-induced caustic effect affects the gastrointestinal (GI) tract. This causes massive iron absorption. When serum iron level exceeds their on binding capacity of the body, free radicals occur, leads to lipid peroxidation and cellular membrane damage. In iron poisoning, most affected organs are liver, heart, kidney and lungs. Also hematologic system is affected negatively. Acute iron poisoning can cause serious complications resulting in death. The severity of poisoning depends on the amount of iron intake. If intake of elemental iron is below 20mg/kg, the risk of toxicity is low, decontamination and at least 6 hours observation is recommended. There is a moderate risk of toxicity between 20 and 40mg/kg. Decontamination and chelation therapy should be considered. Doses above 60mg/kg are at high risk and decontamination with chelation therapy should be started. In this case report, we examined the approach to acute iron poisoning with moderated oseiron intake for suicide attempt.

Case report

A 22 years old female-weigh 60kg-consumed 20 tablets of ferrosanolodupalenal at home with suicidal attempt. (100mg Fe+3 or 567,7mg iron (II)-glycine-sulfate in each tablet). She applied to emergency service after 15-20minutes. Gastric lavage was performed and arterial blood gas (ABG) resulted as pH: 7,14 pO2: 33,4mm Hg pCO2: 46,9mmHg HCO3: 19mmol/L BE: -10mmol/L SO2: %98 after 24 hours. Serum iron level was 180μg/dL (normal), iron binding capacity was 9μg/dL (low), and ferritin was 39,7ng/mL (normal) 24 hours later. ABG was pH: 7,45 pO2: 102mmHgCO2: 36,3mmHgHCO3: 24mmol/L BE: -1,5mmol/L SO2: %98 at 48 hours. Serum iron level was 69μg/dl (normal), iron binding capacity was 265μg/dl (normal), ferritin was 44,6mg/ml (normal) 48 hours later. The patient was discharged in good general condition.
Clinically, iron toxicity manifests in five stages. Stage 1/stage of GI toxicity (0-6h since ingestion) causes vomiting, hematemesis, abdominal pain and lethargy; Stage 2/stage of apparent stabilization (12-24h since ingestion) when symptoms subside; Stage 3/stage of mitochondrial toxicity (24-48 h since ingestion) where patients may develop, coagulopathy, acute tubular necrosis, metabolic acidosis and shock. Stage 4 of hepatotoxicity (after 48hours since ingestion) patients who survive this phase go in to Stage 5/stage of gastric carring (2-4weeks since ingestion) characterized by gastrics caring and pyloric stricture. Iron poisoning can lead to cardiovascular collapse, mental status changes, gastro intestinal bleeding, liver and kidney failure. For this reason, it should be diagnosed early, closely followed and treated in intensive care unit.

Treatment modalities includede contamination gastric lavage or whole-bowel irrigation. There are several presentations that may necessitate immediate initiation of deferoxamine therapy. They are: presence of metabolic acidosis, repetitive vomiting, lethargy, hypotension, orsigns of shock. If the serum iron concentration is greater than 500mcg/dL, defroxamine therapy should be initiated. In our case deferrioxamine treatment was not given because serum iron level of the patient was not higher than 500μg/dL. The patient whom vital findings were stable was discharged after 48hours.

**Conclusion**

The physicians should have the knowledge of the signs, symptoms, treatment and prognosis of iron poisoning. Acute iron poisoning may lead to serious complications that may result in death. Therefore, early treatment and closely follow-up in intensive care unit can reduce mortality.

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**Conflict of interest**

The author declares no conflict of interest.

**References**


