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### Encephalopathy following ingestion of lead-contaminated opium; magnetic resonance imaging findings

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**Objective:** Encephalopathy is an uncommon but serious presentation of lead toxicity. We aimed to determine the brain magnetic resonance imaging (MRI) abnormalities in the patients with lead encephalopathy due to ingestion of lead contaminated opium [1-3]. We also performed a follow-up MRI after treatment in these patients to see if treatment affected their MRI abnormalities.

**Methods:** In a cross-sectional study during a lead toxicity outbreak (due to lead-contaminated opium), all lead-poisoned patients with any signs/symptoms of encephalopathy including loss of consciousness or seizure were included and considered to have lead encephalopathy.

**Results:** Of 19 patients with lead encephalopathy, five died early and another five could not be sent to MRI during their hospitalization period. Mean age was 51±11 years and males were dominant (89%). Median [IQR] blood lead level was 101 [81, 108] µg/dL (range; 50 to 200 µg/dL). There was no correlation between MRI findings and signs/symptoms, where baseline MRI was normal in six and abnormal in three patients. Bilateral symmetric involvement of all lobes was observed. Gray matter, gray-white matter junction, and subcortical white matter were affected. Follow-up MRI was performed in two with abnormal MRI which showed complete and near-complete resolution of the abnormalities after cessation of opium use and treatment.

**Conclusion:** One-third of the patients who could be retrieved for follow-up MRI had reversible abnormalities in their brain MRIs. There was no correlation between MRI findings and blood lead level. Complete recovery of brain MRI lesions was detected after cessation of opium use.

#### References:

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