

Acute inhalational tobacco poisoning in children

Sir,

We report here an 11-year-old girl admitted with sudden alteration of sensorium with nausea, vomiting, headache, and muscle weakness. On examination, she was afebrile, pulse rate was 90/min, respiratory rate was 20/min, blood pressure was 130/80 mm Hg, and capillary blood glucose was 141 mg/dL. She had no skin ulcer. Neurological examination revealed normal pupil, Glasgow Coma Score (GCS) of eight without meningeal irritation, cranial nerve involvement, or neuro deficit. She had diffused pain abdomen with passage of stool with altered blood. Detailed history revealed that the child used to work in a tobacco industry for packing chewing tobacco or Khaini. She belonged to low socioeconomic strata. She was compelled to work on part-time basis to support her family. She worked in small premises lacking proper ventilation and sanitation, wearing gloves without face mask. Her father had a monthly income of INR 3400. For every 100 packing, she was given INR 10.

Investigation revealed hemoglobin of 11.8 g/dL, total leukocyte count of 14,400/mm³, polymorphs 80%, lymphocytes 18%, platelet counts 2.4 lakhs/mm³, and erythrocyte sedimentation rate (ESR) 23 at the end of first hour. Biochemistry showed serum sodium 136 meq/L, potassium 5.0 meq/L, calcium 8.6 mg/dL, and blood glucose 96 g/dL. Renal and liver function tests were normal. Chest X-ray and sonography of abdomen were normal. Provisional diagnosis of unknown poisoning was made at emergency. Surgical consultation ruled out surgical etiology. GI endoscopy was deferred as gastrointestinal manifestations became passive soon. Serum nicotine level was elevated (92 µg/L). Urine nicotine level was not measured due to financial constraint.

Gastric lavage was given and supportive management initiated with gastro-protective agents, anti-spasmodics, and empirical antibiotics. GCS improved after 2 h, but sensorium returned to normalcy the next day. She was discharged later with an advice to attend school and abstain from working in tobacco industries.

The child from a tobacco industry had sudden reversible altered sensorium with diffuse abdominal pain and elevated blood nicotine level, which confirmed it to be a case of acute tobacco inhalational poisoning in the absence of evidence of dermal or oral exposure. Acute nicotine poisoning is characterized by nausea, vomiting, headache, muscle weakness, and dizziness. It occurs mainly due to green tobacco sickness (GTS), where nicotine absorbs through skin of the workers who cultivate and harvest tobacco.^[1] It occurs rarely in children due to exposure through other routes like enema, inhalation, etc.,. Some cases of acute tobacco poisoning in children have been reported due to GTS,^[1] tobacco enema,^[2] or topical application for eczema.^[3]

Nicotine is the active ingredient of tobacco. It can be absorbed through lungs, skin, gastrointestinal tract, buccal and nasal mucosa. It acts on noncholinergic presynaptic and postsynaptic receptors. Nicotine and its metabolic product can be detected in urine, serum, and saliva.^[4] Acute nicotine poisoning is diagnosed by elevated blood nicotine level. Nicotine inhalation toxicity data are scarce.^[5] To the best of our knowledge, acute tobacco inhalational poisoning has not been reported in children earlier. The child labor involved in such a hazardous job may be responsible for serious poisoning as well as tobacco addiction in the long run.

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