

Carbon monoxide poisoning: An overlooked diagnosis!

On August 28, 1999, twenty females who had attended a wedding party sought medical care at two hospitals in Asir Region. They were complaining of vague symptoms comprising headache, dizziness, nausea, vomiting, drowsiness, lethargy, abdominal pain, loss of consciousness, dyspnoea, chest pain and palpitations. The diagnosis of food poisoning was made. Specimens of blood, urine, stools, and throat and rectal swabs were negative for pathogens. Carbon monoxide (CO) poisoning was not suspected and carboxy-hemoglobin was not measured. All patients recovered and were discharged within 24 hours.

An epidemiological investigation was started and a case-control study conducted to determine the cause of illness. Odds Ratios (OR) along with 95 % confidence intervals (CI) were calculated for the association between the illness and potential risk factors. A case was defined as any person who had attended the wedding party on August 28, 1999, between 9.00 a.m. and 3.00 p.m., and who had developed one or two of the following symptoms: headache, dizziness, nausea, vomiting, weakness, abdominal pain, loss of consciousness, dyspnoea, and chest pain. Twenty cases and 39 controls were identified, all were interviewed using a standardized questionnaire.

The total number of wedding attendees was 60 females. They were divided into two groups; one group was seated inside the house, and the other in a tent built within the vicinity of the house. Investigation revealed that a fire was ignited at 9:00 a.m. using wood, and it was placed about 2 meters away from the tent outlet. At 10:00 a.m. a large bag of charcoal was added to the fire at once. It was a windy day and the wind was driving the smoke into the tent, which was about 15 x 10 meters, was closed from all sides, and had no opening except the outlet

which was about 1.5 x 1.00 meters.

Cases developed symptoms after two to three hours of attending the wedding. The most common symptoms were vomiting 65%, headache 60%, drowsiness 55%, and nausea 35%, in addition to unconsciousness in one case. The median age of the victims was 28 years and all them were found to have sat in the tent. Non of those who had sat in the house became sick. Fifty-five percent of the victims had not consumed any food before onset of symptoms. However, all the non-affected attendees had eaten food. There was a strong association between the disease and the following risk factors: duration of exposure within the tent of over 1 hour (OR= 4.0), dancing (OR= undetermined), and young age group of 1 to 19 years (OR= 2.06).

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Editorial Note: Carbon Monoxide is a colorless, odourless gas produced by incomplete combustion of carbon-based fuels. It has a higher affinity than oxygen to hemoglobin, forming carboxy-hemoglobin which reduces the oxygen carrying capacity of hemoglobin thus depriving the tissue from oxygen and interfering with cellular respiration (1). Severe manifestations include coma, convulsions, myocardial infarction and death. Mild symptoms include vomiting, headache, nausea, and dizziness. The addition of charcoal to an already existing fire resulted in production of a large amount of CO.

The simultaneous demonstration of symptoms by all twenty cases who were inside the tent, absence of symptoms in those who were in the house, presence of a carbon monoxide source, and the strong association between risk factors and the disease suggests that this outbreak was due to carbon monoxide poisoning. Carbon Monoxide poisoning presents with vague signs and symptoms mimicking other diseases (2).

Misdiagnosis of CO poisoning as food

poisoning is well known (3). This report should alert physicians to have a high index of suspicion of CO poisoning when dealing with patient(s) who present with a compatible clinical picture in the presence of risk factors.

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3. Barret L, Danel V, Faure J. Carbon monoxide poisoning: a diagnosis frequently overlooked. *Clin toxicol.* 1985; 23: 309-313.

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