CARBON MONOXIDE POISONING IN YAMAGATA PREFECTUR AFTER THE GREAT EAST JAPAN EARTHQUAKE

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Objectives: In the aftermath of the Great East Japan Earthquake, the area around Yamagata prefecture experienced the largest power failure lasting about 24 hours. In addition, it was degree below zero and snowing all over the night. Therefore, some of people turned to the use of alternate fuel sources to get power supply and warm. In this report, we carried out a survey of carbon monoxide (CO) poisoning in this disaster.
Methods: A questionnaire was sent to 37 emergency hospitals in Yamagata prefecture. We asked questions about CO poisoning associated with the diseaster.
Results: A total of 51 patients were treated for unintentional CO poisoning in seven hospitals (three with hyperbaric oxygen chambers). The patients (18 males, 33 females) ranged in age from 0 to 90 years. The source of CO exposure was coal briquettes (23 cases; 45%), gasoline-powered electric generators (17 cases; 33%), electric generators with and oil stove (8 cases; 16%), oil stove (2 cases; 4%), and automobile exhaust (1 case; 4%). Blood carboxyhemoglobin levels ranged from 0.5% to 41.6% in 49 cases. Of them, 41 patients were treated by normobaric oxygen therapy and one was intubated for artificial respiration. On the other hands, 5 patients were treated by hyperbaric oxygen therapy in 3 hospitals equipped with hyperbaric oxygen chambers. Three patients (6%) went to delayed neuropsychiatric sequelae.
Conclusions: After the Great East Japan Earthquake, a number of households were poisoned with CO in this area. CO exposure sources included gasoline-powered electric generators and coal briquette. Similar to Yamagata prefecture, 77 patients were affected with CO poisoning during the first three days of the disaster in United States, although it has not been well recognised none predicted in Japan until the disaster. In most of the incidents, responders suspected CO poisoning only after he or she became ill. When admitted to the hospital, the diagnosis was confirmed by the blood gas analysis. In our experience, pulse CO-oximeter was an useful tool for screening and detection of CO poisoning in this disaster, We emphasize that public education is needed regarding the danger of CO poisonings after a disaster. In addition, pulse CO-oximeter should be set up in the hospital.