Neurologic recovery following cardiac arrest due to carbon monoxide poisoning.

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Letter to the Editor

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Sir,

We present an interesting case of a patient who received therapeutic hypothermia (TH) following cardiac arrest due to carbon monoxide (CO) poisoning and achieved good neurologic recovery.

A 93-year-old man was exposed to CO at home after attempting to repair his furnace. His carboxyhemoglobin level at presentation to the outlying hospital was 35%. Following intubation for airway protection, 100% inspired oxygen therapy was initiated, and the patient was transferred to this facility. Upon arrival, the patient had a Glasgow Coma Score of six (Eyes – 1; Verbal – 1; Motor – 4). Corneal, gag, cough, and pupillary responses were preserved. He suffered a witnessed pulseless electrical activity (PEA) arrest in this facility's emergency department. He received cardiopulmonary resuscitation as well as one ampule each of intravenous adrenaline (epinephrine), atropine, calcium chloride and sodium bicarbonate. Return of spontaneous circulation was achieved after 5 min. Protocolized post-cardiac arrest care utilizing intravenous cold saline and external cooling was initiated to lower the patient's core temperature to 34 °C.[1] Goal temperature (34 °C) was achieved at hour 7 post-arrest. After 13 h at this temperature, he was re-warmed gradually (0.25–0.5 °C/h). He showed neurologic improvement on hospital day 2, and "excellent" neurologic recovery was noted on hospital day 6. At that time, he was oriented to person and recalled the events that led to his illness; his mini-mental status exam score was 24. His course was later complicated by large bowel obstruction. He understood the risks, benefits, and alternatives of surgical management of this condition, and he himself refused surgical intervention. He was discharged on hospital day 19 to hospice care.

Review of the literature shows that cardiac arrest following CO exposure has a very poor prognosis.[2] While a handful of patients appear to have survived cardiac arrest following CO exposure, there are no reported cases of patient survival with good neurological recovery. Mild TH improves neurologic outcome following cardiac arrest.[1,3] The American Heart Association recommends this therapy in unresponsive patients with return of spontaneous circulation following out-of-hospital ventricular fibrillation or ventricular tachycardia arrests.[4] However, it does not address the use of TH following PEA arrests or CO-mediated arrests. This patient with CO-related PEA cardiac arrest improved neurologically, suggesting TH may benefit certain patients who arrest due to CO poisoning.

Conflict of interest statement

The authors have no conflicts of interest to report.

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