

Hydrogen sulphide: report of an unusual accident during olfactometry

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Defined low concentrations of hydrogen sulphide are used to check the sensitivity to smells. Probably almost pure hydrogen sulphide instead was delivered as test gas in a recruitment session for olfactometry in Erfurt last year. The first subject then was knocked down by inhalation of such an erroneous concentrated sample, dragging the test apparatus down with him. Thereby a remarkable amount of hydrogen sulphide gas was released. A second person became unconscious immediately too. Others of those present could yet open windows, remove the seriously injured victims out of the small temporary laboratory room used and escape. Patient 1 and 2 developed serious pulmonary and circulatory insufficiency, the first one pulmonary oedema. They had to be artificially ventilated with 100% oxygen and PEEP by the emergency ambulance staff and they were given catecholamines, bronchodilators, diuretics, antiarrhythmics and glucocorticoids. Besides ongoing symptomatic therapy at the medical ICU both patients got 4-dimethylaminophenol (4-DMAP), patient 2 about 1.5 hours after the accident, patient 1 half an hour later. After preceding deterioration patient 2 improved without complications then, apart from transient tachycardia that ceased after substitution of potassium. Patient 1 needed further artificial respiration for 24 hours and then haemodialysis for 20 days because of renal failure related to shock and myoglobinaemia. Three months later only some signs of respiratory insufficiency after effort left, no renal or neurological residuals. In total 11 further persons, including one emergency physician and some of the office staff working one floor down underwent slight to moderate intoxication and had to be treated as outpatients or under short time hospitalization for some upper respiratory tract irritations and breathing difficulties, conjunctivitis, headache, nausea and dizziness.

Serious inhalation accidents by hydrogen sulphide usually implicate sudden group intoxication of primary victims and persons trying to help. Circumstances in the event reported are not yet fully cleared until today. However, situation was complicated by inadequate preventional measures and insufficient information of handling persons as well as emergency ambulance staff. In part this was due to an unexpected string of failure. Besides established symptomatic therapy the usefulness and risks of 4-DMAP as antidote in poisonings with hydrogen sulphide are to be further discussed.