

Case report: An accidental exposure to the chlorine gas in swimming pool of a Spa Hotel in Tallinn

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Objective: To describe an accidental exposure to the chlorine gas in a spa. **Case report:** On the 1st of July, 2008 a chemical leak in the basement of a Spa Hotel in Tallinn caused remarkable air pollution in the area. Following a spill of approximately 1 liter of 40% sulphuric acid and 15 liters of 12% natriumhypochlorit, chlorine gas was formed. The emergency service received first call concerning the accident at 18:05. Fifteen minutes later the cause of the accident was identified and all the guests were evacuated. 18:46 a chemical pollution rescue group covered the spill with adsorbent. 19:04 the ventilation system was turned off. The chlorine concentration in the air was measured several times: at 20:30 30 cm above the covered spill area - 2.3ppm; at 24:00 10 cm above the cleaned pollution area – 2 ppm, and 1 meter above the spill area after the pollution was cleaned – 0,5 ppm. By 00:30 the whole hotel area was inspected, the visitors were allowed to return to their facilities. The swimming pool area remained closed until next day. Altogether 39 persons required medical attention. Three of the patients were not transported to the hospital – 2 refused hospitalization and one 7 month old baby had no symptoms. 28 patients were transported to hospitals by the ambulance, 8 presented to the emergency departments by their own transportation. Median of age was 20 years (7 month - 59 years); male 13, women 26. Symptoms: cough in 21(53,8%), nausea and vomiting 5 (12,8%), dyspnoe 11 (28,2%), auscultatory crepitations 6 (15,4%), irritation of mucosal membranes 17 (43,6), irritation of eyes 5 (12,8%), fatigue and vertigo 1 (2,6%), leucocytosis 2 (5,1%) and no symptoms in 5 (12,8%) cases. Nine patients were hospitalized, 7 of them until the next day and 2 patients (co-morbidity of asthma and aortic valve stenosis) until 3rd of July

Conclusion: The exact concentration at the accident time remains unknown because the first measurement was done after the spill was covered with adsorbent. On the basis of the symptoms the concentration of chlorine at the time of the accident was probably higher than the measured maximum concentration.