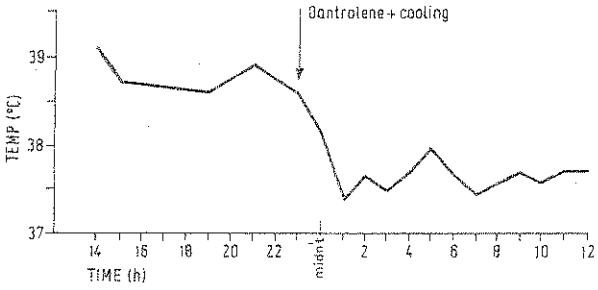
he had done a year before after treatment with haloperidol. Because there was no response on 100 mg orphenadrine, 5 mg bromperidol was substituted for haloperidol on April 1.

During this change of drugs the patient was warned of impending unemployment. Possibly in reaction to this message he became more psychotic again; this time with agitation, paranoid delusions, and thoughts of impending death. On April 5 there was a severe increase of muscle rigidity. The patient was unresponsive and showed profuse perspiration and vasoconstriction, with a temperature between 39·1 and 38·6°C, blood pressure 170/100 mm Hg, heart rate 160/min. He was transferred to an intensive care unit. Laboratory tests included a creatine phosphokinase (CPK) of 14 309 U/l, a urea of 10·3 mmol/l, creatinine 112 μmol/l, bilirubin total 30 and direct 8 μmol/l; enzymes SGPT 87 and LDH 1450 U/l. There was no dehydration or infectious, endocrinological, or neurological explanation for the clinical picture.

NMS was diagnosed and all drugs were stopped. The patient was cooled with packed ice, and he was treated with 80 mg (1·25 mg/kg) intravenous dantrolene sodium and 60 mg frusemide to maintain diuresis. After 2 h the temperature was 37·4°C (see figure) and



Temperature response

after 20 h the CPK was 4900 U/l. By April 19 the CPK was normal at 61 U/l. The generalised muscle rigidity did not respond as quickly as the fever and CPK values did, and after about 4 days it had returned to the intensity experienced before the development of hyperthermia.

Apart from a lung infiltrate there were no complications. Urea, creatinine, and bilirubin decreased to normal in about 2 days; the other values were normal after a week. Because of the psychiatric condition 40 mg diazepam was prescribed.

These disturbances end fatally in 20–30% of cases.[7–9] With cooling only and routine intensive care the temperature may take 1 or 2 days or even longer to return to normal.[7–9] The risk of death or irreversible cerebral damage is thought to be related to the duration of the hyperthermic syndrome,[9] so a recovery time of 1–2 h ought to improve the outlook in NMS.

We have lately found two French reports of oral and intravenous dantrolene treatment resulting in recovery times of 12 and 1 h, respectively.[10,11] Thus there is now evidence for the hypothesis that lethal complications in NMS can be prevented by dantrolene. The intravenous route may be superior to the oral, and 2–3 mg/kg may be used.[12]

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CHEMICALS AND HODGKIN'S DISEASE

SIR,—Some epidemiological surveys have suggested that occupational exposure to chemicals may be an important risk factor for Hodgkin's disease (HD);[1–3] others have not.[4]

We have done a case-referent study based upon an analysis of the charts of 207 males and 180 females (mean age 47·3 years, range 10–70) admitted to the A. Ferrata Clinica of the University of Pavia in the period January, 1972, to December, 1979, and diagnosed as HD. The controls were 441 males and 330 females admitted to an internal medicine unit in Pavia (mean age 48·8, range 11–78) in the period June, 1977, to December, 1979. Occupations were recorded and classified.[5] Housewives and students were excluded from the analysis. The numbers of observed cases and referents and expected cases and the relative risk, significance (chi-square test), and 95% confidence intervals are shown in the table.

DATA FOR CALCULATION OF HODGKIN'S DISEASE FOR VARIOUS OCCUPATIONS

Occupation	Controls	Cases		RR
		E	O	
Agriculture	81	38·4	12	0·3
Industry				
Power	1	0·4	4	10
Metallurgy	7	2·9	6	2·0
Engineering	98	45·6	27	0·4
Chemical, pharmaceutical	21	9·2	2	0·2
Food manufacturing	19	8·1	8	1·0
Textiles, shoes, leather	50	22·1	14	0·6
Paper, printing	6	2·6	2	0·7
Rubber, plastics	18	7·9	1	0·1
Building	67	30·6	14	0·4
Wood	3	1·2	9	7·2*
Services				
Trade, hotels	55	22·4	34	1·5
Transport, communications	34	14·8	11	0·7
Banking, insurance	19	8·3	4	0·5
Teaching	26	10·3	28	2·7†
Other public employments	65	22·6	68	3·0‡

*$p<0·005$ (CI 2·3–22·2); †$p<0·001$ (CI 1·6–4·6); ‡$p<0·001$ (CI 2·1–4·3).

Workers in the chemical, pharmaceutical plastic, and rubber industries, whom we felt to be the most exposed to chemicals, did not seem to be at increased risk of HD, suggesting that exposure to chemicals is not related to an increased incidence of HD.

A significant increase in relative risk was noted for people of higher socioeconomic status, such as teachers, confirming earlier data on the epidemiology of HD.[6] The significantly increased relative risk for woodworkers also confirms earlier associations,[7,8] though the nature of the link with HD remains unclear.

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