corpuscles and excess of reticulum cells. Bone-marrow sections cut from the ilium showed hypoplasia affecting granulopoiesis more than erythropoiesis. The number of mature granulocytes was greatly reduced and very few megakaryocytes were seen. The number of reticulum cells was increased. The lymphocytes appeared to be normal. As regards the red-cell series, there seemed to be a maturation defect at the normoblast stage.

COMMENT

It is known that untreated cases of pernicious anaemia may terminate spontaneously in aplastic anaemia. Blackburn *et al.* (1952) recommended a maintenance dose of at least 50 µg. of vitamin B₁₂ a fortnight for patients with pernicious anaemia uncomplicated by neurological involvement. In the above case the maintenance dose was never less than 100 µg. fortnightly.

Sulphonamides are occasionally responsible for the development of aplastic anaemia (Strauss, 1943). Usually only the white-cell series is affected, and granulopenia develops within a month. However, in the above case the white cells numbered 22,400 per c.mm. (polymorphs 81%) seven weeks after the end of the sulphonamide course, and three weeks later, when the patient left hospital, there was still no evidence of aplastic anaemia. Nevertheless, as Hodgkinson (1954) states, sulphonamides may have an additive effect in cases of aplastic anaemia primarily due to chloramphenicol.

In the above case two courses of chloramphenicol of 19 and 9 g. respectively were given. Judged by the standards of Hodgkinson (1954) the dosage of the individual courses was not heavy, although the total dosage was high.

In conclusion it is submitted that any drug that is known to be able to cause marrow aplasia, such as chloramphenicol, should be used with the greatest caution, if at all, in pernicious anaemia. In this respect Witts (1941) reported a relapse in a case of pernicious anaemia, after a good response to treatment, upon the administration of "allonal." The latter contains amidopyrine, which, like chloramphenicol, belongs to the benzamine group of drugs. It is probable that similar care should be taken in using chloramphenicol in other blood diseases in which the bone marrow already shows a disturbance of its normal function and appearance.

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Accidental Poisoning with Tetrachlorethane

Three cases of accidental poisoning with tetrachlorethane are reported, it having been given in mistake for tetrachlorethylene.

Normally, owing to its cheapness, I treat cases of hookworm disease with carbon tetrachloride, but in children and adults who are underweight tetrachlorethylene is given owing to less risk of toxic effects.

CASE REPORTS

Ancylostoma duodenale ova were isolated from the faeces of all three patients, who were admitted for starvation followed by tetrachlorethylene. The patients were a young African man, weight 102 lb. (46.3 kg.), a young African woman, weight 108 lb. (49 kg.), and an African girl aged about 12 years, weight 60 lb. (27.2 kg.). The doses of tetrachlorethylene were 3 ml., 3 ml., and 2 ml. respec-

tively, and were given at 7.15 a.m. An hour and a half later an orderly noticed that the man appeared to be sleeping, and that he could not be roused. Shortly afterwards a nurse reported that the woman was in exactly the same state.

On examination the man was deeply unconscious and both corneal and pupil reflexes were absent; the pupils were moderately contracted. The limbs were flaccid and the breathing was shallow; the respiratory rate was 12 a minute. Gastric lavage was started immediately and 20 mg. of amphetamine sulphate was left in the stomach. The pulse rate was 90 and the volume poor; blood pressure 60/46 mm. Hg. Nikethamide, 5 ml., was injected intravenously, following which the systolic pressure rose to over 80 and the breathing improved.

The woman was also deeply unconscious, and the findings were essentially the same as in the man; she was treated in a similar way. Meanwhile the child, who seemed unaffected, was given a strong emetic with very good effect, for she did not lose consciousness or suffer any other ill effect.

During the course of the next two hours a close watch was kept on them, and the adults each had to have further doses of nikethamide owing to the falling blood pressure and reduced respiratory excursions. However, the depth of unconsciousness became less and both were able to respond to the spoken word at about 11.15 a.m.—that is, some four hours after the administration of the doses. They seemed euphoric for a few hours but suffered no harm from their experience; however, as a precaution they were kept in hospital for a week on high glucose intake, "casilan," and injections of crude liver extract and vitamin B complex.

A month later the man could not be traced as he had been discharged from his work, but the other two were in excellent health, and microscopical examination revealed that there were no ova in the stools.

At the first indication of trouble I sent for the bottle, which was a new one and seemed to be in order, but it was only when I mentally spelt the word that I saw it was *tetrachlorethanum* and not *tetrachlorethylene* which had been requested from the suppliers.

COMMENT

Tetrachlorethane is a colourless liquid with an odour resembling carbon tetrachloride. It is used in many industrial processes as a solvent for cellulose acetate and nitrate, bitumin, waxes, resins, pitch, tar, sulphur, rubber, and oils. It is the most toxic of the chlorinated hydrocarbons, exerting a narcotic effect and causing profound metabolic injury, especially liver atrophy. It has been the cause of many cases of poisoning when its vapour has been inhaled; in 1914 and 1915 there were at least 70 cases of jaundice, with 12 deaths, among workers using aeroplane "dope" (Willcox *et al.*, 1915).

Only two cases of poisoning following its ingestion have been reported (Hepple, 1927; Elliott, 1933). Both these men became deeply unconscious and cyanosed with loss of reflexes and died. Post-mortem findings were chiefly of congestion of the respiratory and gastric mucosae, although one case also showed marked cloudy swelling of the cells of the liver and convoluted tubules of the kidney.

In Hepple's case 12 ml. was distilled from the stomach contents after death, so the amount must have been much greater, as gastric lavage had been performed. It must have considerably exceeded the lethal dose, which cannot be very much more than 3 ml. Gastric lavage should be thorough and persistent, as tetrachlorethane has a higher specific gravity than water and is not miscible with it, and so may defy efforts to remove it.

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