## CLINICAL ASPECTS OF T.N.T. POISONING.

Comparatively few nurses have had the opportunity of clinical observation of T.N.T. poisoning, owing to the fact that it was comparatively little known until the present time, when the exigencies of war have so largely multiplied the number of people employed in the production of usable explosives.

T.N.T. poisoning is a disease due to the toxic action of trinitrotoluene, a product of coal-tar distillation, to which action the biliary passages seem particularly susceptible.

The poison is absorbed to a marked degree by the skin, and to some extent by the mucous membranes of the nose and mouth; its presence is often detected in the urine in a combined state, and in the fæces it is often present in its original state.

When the skin comes into contact with T.N.T. a yellowish stain is the result, which lasts for some time.

In the early stages of the disease a curious form of change in the nature of the hœmoglobin of the red blood corpuscles is found to take place; unless blood formation can keep pace with the blood destruction which is present in severe cases, the outlook is very gloomy. An equally important and often fatal symptom is toxic jaundice, which is present in all severe cases.

Susceptibility in the case of certain munition workers appears to be the chief predisposing cause. Sex apparently has little import; on the whole, the majority of cases have occurred in persons under twenty years of age.

In fatal cases, a post-mortem examination often reveals complete and extensive destruction of liver tissue, with cloudy swelling and fatty degeneration of the tubules of the kidneys.

The liver, in many cases, is atrophied to about half its normal weight, and ascites is sometimes present.

The clinical symptoms of T.N.T. poisoning include:—

(1) General digestive interference, revealing gastritis, vomiting, constipation (or occasionally diarrhœa), flatulence, and general symptoms of intestinal irritation.

(2) "Toxic jaundice," often showing, in the early stages, signs of gradual absorption, such as extreme pallor, and cyanosis, tenderness and pain about the liver area, some dyspnœa and pyrexia, extreme prostration, and, later, delirium, with lucid intervals, ending in fatal cases in coma.

(3) A form of dermatitis, apparently due to direct irritation of the skin, the degree of susceptibility in this connection varying to a marked extent.

(4) Destructive changes in the blood substance, as already described.

Other symptoms occasionally present are swollen and painful gums, swollen glands of neck, headache, and a fretful irritability.

The treatment resolves itself distinctly into prophylactic and remedial measures.

Of the former, now undertaken by Government and municipal bodies, a great deal might be said. A great deal is being done by the regular inspection of factories, and efforts being made to ensure proper housing and feeding, medical supervision, changing occasionally from direct T.N.T. work, short hours of labour, the cleanliness and general care of the skin, and the regular use of solvents, such as benzol.

Special clothing is provided in many factories, such as overalls, veils, long gloves, and respirators; also mechanical aids to getting rid of fumes and preventing excess of dust.

The "munitions nurse" has a big part to play in prophylactic treatment, in noting the first signs of over-tiredness and failing health, even in small degree; thus, by getting the patient moved early from the seat of danger, she may save the onset of the actual disease.

Where toxic jaundice is absent the outlook is more hopeful. In some cases the patient will respond to treatment almost immediately. The urine should be tested regularly; rest in bed should be secured, a plain, nourishing diet, and a good aperient. An alkaline medicine is usually prescribed as a routine measure to allay the tendency to acid intoxication. For the jaundiced cases, rest in bed, with a light milk diet, given in small quantities, is essential. An alkaline aperient should be given regularly to keep the bowels loose. Citrates and bicarbonates are given somewhat freely; and rectal and intravenous saline infusions are almost always necessary. The skin is very apt to become sore and irritated, and should be sponged frequently. Nourishment must be persevered with, and, in the severe forms, supplemented by rectal feeding; every effort must be made to husband the strength, note and treat symptoms as they arise, and keep the patient comfortable.

The prognosis is always grave, and often disappointing, a short-lived rally occurring in many cases towards the end. A warm, ventilated room, and the general treatment of a condition of nervous shock is usually indicated.

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