Public Health Section

POISONOUS EFFECTS OF D.D.T. ON HUMANS

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Recently the writer received a case of food poisoning from the District Health Officer, Bhamo. In this respect two samples of rice were sent to him for examination.

According to the District Health Officer rice from which the two samples were taken was supplied by the District Supply Officer to a Frontier Force Constabulary at 'Wawang' near Bhamo sometime ago. On 29th July, 1946, the personnel of the unit mentioned above suffered from vomiting and purging about one hour after their evening meal. Some white particles were found mixed with the bags of rice used that day. Doctors and nurses rushed to the camp where they found twenty-seven men who had vomited several times ; the men also complained of giddiness.

On the following morning the District Health Officer went to the camp and found altogether seventy-two men suffering from food poisoning. The typical symptoms were slow pulse, 40 to 50 per minute, giddiness when getting up and dilated pupils.

Of the two samples of rice one was found to contain about 16 per cent of D.D.T. whereas the other samples were free from it.

SOME CLINICAL IMPRESSIONS OF A PLAGUE EPIDEMIC

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An outbreak of plague occurred in the town of Saklaspur, Hassan District (Mysore State), in March 1946. The first case was an imported one, not immediately recognized as plague. While suspicion was lurking in our minds that it might be plague, cases of ratfall occurred in the town and splenic smears of such rats were positive for *B. pestis*. This finding and occurrence of other cases of human plague established beyond doubt the onset of the epidemic which continued till the end of June 1946.

All the 26 cases that came under our observation were of the bubonic type. The majority of these cases did not represent the associated signs and symptoms of plague depicted in textbooks like injected conjunctivæ, mental prostration, gastro-intestinal disturbances, etc. Fever and adenitis were the only two signs in these cases. Perhaps we would have missed diagnosing these cases had we not been in the midst of an epidemic.

It was difficult in the early stages of the epidemic to convince the semi-educated lay patients and their semi-educated relatives that these were plague cases as these men, by their past experience, carried pictures of very severe plague infections in their minds. The cessation of fever on the 3rd or 4th day of sulphathiazole treatment in some cases was a further proof from the lay man's point of view that these were not genuine plague cases. 'Could fever come down on the 3rd or 4th day of plague? Could the buboes of plague subside without suppuration in 10 or 12 days?'—were some of the questions asked of us. In 4 cases, to these doubting Thomases we actually demonstrated the presence of *B. pestis* in the gland punctures of their patients.

We noticed a distinct difference between this epidemic and the previous ones we had handled in different places during different years, prior to the introduction of sulphathiazole, judged either from the course of the disease or the mortality rate. In the previous epidemics the mortality rate was high, while in the present one it was low. As a matter of fact the plague subjects in this epidemic were themselves optimistic of their survival.

The present epidemic itself might have been a mild one. The public health measures instituted, such as inoculations, cyano gassing, etc., might have been prompt and efficient. Still the fact became inescapable that the success we achieved in handling this epidemic was in a large measure due to the prompt and adequate use of sulphathiazole. We had read reports of the use of the drug in plague, but had an opportunity of handling it ourselves for the first time in this epidemic.

All the patients were treated in their own homes. The routine treatment adopted was that recommended by Mathur *et al.* (*Ind. Med. Gaz.*, August 1945). 'The initial dose of sulphathiazole was 2 grammes followed by a maintenance dose of 1 gramme every 4 hours, making a total of 7 grammes in the first 24 hours, on the 2nd and 3rd days the dose was reduced to 4 grammes, 1 gramme every 6 hours. This was further reduced to 3 grammes from the 4th to 6th day, making a total of 24 grammes as the standard dose. Children of 8 to 14 were given half the above dose. For combating toxæmia soluseptasine 10 per cent solution and glucose 15 c.c. of a 25 per cent solution were administered daily by parenteral route.

The sulphathiazole given in most of our cases was in the form of thiazamide tablets. In

every case sulphathiazole was urged continuously for 6 days, whether there were amelioration of signs and symptoms or not. Some patients ceased taking the pills from the 3rd, 4th or 5th day, as was later revealed to us.

In all 26 cases came under our treatment, out of these 7 had been inoculated and 19 uninoculated. Twenty of them had one gland (inguinal, femoral or cervical) enlarged, and 6 had an enlargement of more than one gland. The entire group included 16 males and 10 females. Children below 12 years numbered 7.

By way of complications observed during treatment, one male adult developed aphasia which lasted for 4 weeks, and two women aborted.

All the subjects were seen on the 1st or 2nd day of the onset of fever and immediately all of them were put on sulphathiazole treatment.

Eleven of these subjects took the thiazamide tablets uninterruptedly for 6 days and in them the fever came down to normal within the 5th day, and the buboes gradually subsided without suppuration within the 15th day.

In 6 of the group of 26 cases fever touched normal on the 3rd or 4th day, but reappeared about the 10th day, with increased swelling and tenderness of the glands concerned. It was made known to us that they had ceased taking the drug after the cessation of the first bout of fever. They were put on thiazamide again 1 gramme every 6 hours for another 2 or 3 days till they became afebrile. But even then, their buboes invariably suppurated and had to be incised.

Three of them touched normal temperature on the 4th day of taking the sulpha drug when they stopped taking it. But they continued to be apyrexial till about the 15th day when the buboes suppurated and had to be incised.

Six patients died in spite of the prompt exhibition of sulphathiazole; at any rate we were assured by their relatives that they had been given the drug in proper doses. Of these 5 had not been inoculated. All the six died within the 7th day of the onset of the disease. Amongst the dead 2 were children and 4 adults. The mortality rate among the treated was 23 per cent.

Amongst the survivals, 19 had not been inoculated. Eleven of those that survived, exhibited permanent subsidence of fever within the 5th day, and subsidence of buboes within the 15th day of the institution of treatment. The other 8 cases went on to suppuration of buboes but eventually recovered.

A few of the town folk stricken with plague, sought the aid of Hakims and Vaids, by-passing us. Our advice to them went in vain. Out of sheer humanitarian motives, we even passed a hint to these Hakims and Vaids about the virtues of sulphathiazole and indicated its dosage. To our surprise only one used the drug and that in tiny dosage of one tablet *t.d.s.* for an adult. Needless to mention, the mortality rate in this group of cases was considerably higher. To induce even the poorest of patients to have the benefit of sulphathiazole, the municipal authorities made a distribution of these tablets free of cost to all the patients that needed them. The fact that the Hakims and Vaids did not take advantage of this, but treated their cases on their own indigenous lines, with results none too encouraging, in the face of the good results achieved and preached by us, is rather depressing.

Though the value of sulphathiazole in the treatment of plague has already been well recognized, this communication strengthens its claims as an almost domestic remedy.

Current Topics

The Absorption, Excretion and Toxicity of Streptomycin in Man

(From the *Medical Press and Circular*, Vol. 215, 17th April, 1946, p. 250)

In January 1944, a new antibacterial substance, streptomycin, was isolated from culture filtrates of actinomycosis griseus. *In vitro* this substance has a marked antibacterial action against many gram-negative and positive bacteria. Sufficient success has attended the treatment of experimental infections in animals with various gram-negative bacteria and with mycobacterium tuberculosis to warrant an extended clinical investigation of the value of streptomycin in established infections in man.

The authors now report certain preliminary studies carried out on the absorption and excretion of streptomycin in man. Brief mention is made of three cases in whom the drug was used therapeutically. Finally the toxic reactions observed are described.

The authors drew the following conclusions from the study.

Streptomycin is not absorbed after oral administration in amounts sufficient to produce detectable concentrations of the drug in the serum.

The failure of the drug to be absorbed from the gastro-intestinal tract is not due to inactivation of streptomycin by the gastric juice.

Following the intramuscular or intravenous administration of a single dose of streptomycin, 46 to 87 per cent of the dose injected can be recovered in the urine within twenty-four hours. Streptomycin is excreted more slowly by the kidneys than is penicillin. It appears likely that effective blood levels of streptomycin can be maintained by administering the drug at intervals of six to eight hours.

In patients with meningitis, streptomycin diffuses to a slight extent from the blood into the cerebrospinal fluid. The intrathecal administration of streptomycin in doses up to 20,000 units does not produce signs of meningeal irritation. With doses of 10,000 to 20,000 units an appreciable concentration of the drug can be maintained in the cerebrospinal fluid for at least twenty-four hours.