REACTIONS TO T.A.B. INJECTION

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Although a voluminous literature covers the antigenic properties of the various types of T.A.B. vaccines and the immunity conferred by them, there are very few references to the reactions which occur after inoculation with T.A.B.

With the recent typhoid scare in Johannesburg mass inoculation campaigns were carried out. This report deals with reactions occurring among members of the staff of this hospital who were inoculated. A total number of 264 persons were vaccinated, the scheme of inoculation being to give a dose of 0·5 c.c. of T.A.B. endotoxoid, followed in 10-14 days by a further dose of 1 c.c.: 143 persons received 2 injections, and 121 had only 1 injection and did not return for the second, either because they could not be bothered to do so, or because the first reaction was so severe that they were afraid to have a second one.

A questionnaire setting out a list of possible symptoms was sent out to all persons inoculated, and 129 were returned. The information obtained is contained in the following table:

	1st Injection	*2nd Injection*
Local Signs		
Swelling	92	83
Itching	47	44
Pain	95	87
General Signs		
Headache	57	43
Giddiness	21	20
Nausea	25	18
Vomiting	9	8
Abdominal pain	9	4
Diarrhoea	7	7
Cough	6	10
Tightness of chest	6	5
Redness of eyes	7	7
Running nose	18	16
Skin rash	6	8
Swelling of glands	19	16
Fever	32	24
Drowsiness	25	25
Totals	481	428
No reaction at all	8	12

COMMENTS

Some of the general reactions are worthy of comment. Two individual cases of special interest are described below.

1. Two days after the first inoculation Mrs. L.K. (author's wife) developed right-sided conjunctivitis with muco-purulent exudate and peri-orbital oedema; 2 days later she became pyrexial and generalized adenopathy developed; this lasted 2 more days, when recovery occurred spontaneously.

2. Miss J.M. had what was thought to be her first inoculation at about 7 a.m. on 5 August 1959. At 10.30 a.m. she felt out of sorts and shortly after this had a minor type of seizure. Peculiar episodes, which were of 2 main types viz. (*a*) an almost catatonic stupor and (*b*) bouts of hyperventilation, occurred at 2 - 5 minute intervals during the first day and at longer intervals during the following 2 days. During both types of episode the pupils were dilated, and no contact whatever could be made with the patient. There were no physical signs of note besides low-grade pyrexia. The cerebrospinal fluid analysis was normal. The blood leucocyte count went up to 20,000 per c.mm., with 85% neutrophilia; this figure came back to normal level over the course of 5 days, by which time recovery was complete. At this time a further history was obtained that a similar episode had occurred about 5 years before, when a previous T.A.B. endotoxoid injection was given. Giffin and Rogers[1] state that few lesions of the central nervous system have been reported after inoculation against typhoid; of these all have shown a demyelinating lesion. It is felt that Miss J.M. was a case of organic cerebral reaction to T.A.B. injection.

Although Bamforth[2] states that the reaction following the first injection is usually worse than the one following the second, this has not been fully borne out by this survey, in which there were 481 items of reaction to the 1st injection and 428 to the 2nd.

One of the patients inoculated had a booster dose only, because he had been given T.A.B. vaccine while in the army. This patient had what was probably one of the worst generalized reactions reported. Turner[3] says it is thought that previous inoculation with T.A.B. may produce sensitization of the organism, and this is certainly something to be borne in mind as being responsible for some of the severe reactions.

Of the 7 patients reporting redness of the eyes after the first injection 4 were unilateral, of which 3 were in the right eye. It is tempting to suggest that the patient contaminated the right eye by rubbing the injection site on the left arm and introducing some of the vaccine—a small amount of which was noted to have leaked back along the needle track in a large number of cases—into the right conjunctival sac. On the other hand, T.A.B. injections have been used in ophthalmology as treatment for a variety of inflammatory conditions of the eye, the rationale being to produce local hyperaemia in the eye as part of a general non-specific protein shock;[4] it is possible that some of our cases of redness of the eyes may have had a latent conjunctival or bulbar condition which was made manifest by the T.A.B.

Skin rashes occurred after the first injection in 6 patients; the nature of the rash in 5 of these appeared to be urticarial. One patient developed pityriasis rosea shortly after the inoculation, which was probably coincidental.

Two patients developed what appeared to be generalized sensitization reactions, accompanied in one case with periorbital oedema, generalized itching, vasomotor rhinitis and bronchospasm. Both patients responded well to anti-histaminic therapy. Friedman *et al.*[5] reported an allergic asthmatic reaction caused by silk as a contaminant in T.A.B. vaccine; it is not, however, suggested that this was the case here.

Shih P'eng Tor[6] has reported that the incidence of side-reactions after intradermal inoculation of concentrated typhoid vaccine was much less than those following the usual subcutaneous immunization, and in mass immunization campaigns it may be of value to explore this new method as a way of conserving man-hours and making T.A.B. vaccination, which is, I feel, by far the most unpleasant of routine inoculations, a little more pleasant.

SUMMARY

The reactions of 264 subjects inoculated against typhoid fever are reported and some of the less common reactions are commented upon.

I wish to thank Dr. H. Rompel, Superintendent, South Rand Hospital, Johannesburg, for permission to publish this article.

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