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SHORT COMMUNICATION

OBSERVATION OF BOOSTER INFECTIONS OF MEASLES IN MOTHERS OF CHILDREN WITH MEASLES

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Life long immunity following an attack of measles is a well known phenomenon, though details of the mechanism of this are not clear. Panum (1939) observed in the Faroe Islands that measles immunity persisted for at least 65 years without re-exposure. Bech (1960) and Black and Rosen (1962) reported that measles antibody persisted stably for many years, in Greenland and in Thahiti respectively. Our seroepidemiological survey in Thailand (1967) and that of Enders-Ruckle et al. in West Germany (1965) revealed that nearly 100 per cent of all adults had detectable measles antibody. These data suggest that persistence of measles antibody following a natural attack is life long. A booster infection, however, may be important in maintenance of antibody in areas where measles epidemics occur.

This communication describes booster infections observed in mothers of children with measles during a measles epidemic in Amagasaki city in spring 1966.

Blood specimens: Blood specimens were collected from 39 mothers and from their children when the latter were in the acute and convalescent phases of measles. Serological examinations: Sera were titrated following the overnight neutralizing method described by Toyoshima et al. (1965). All sera were stocked at −20°C before tests, and were titrated simultaneously to permit accurate comparison.

1. *Children's measles*

Thirty nine children showed typical symptoms of measles and the disease was confirmed serologically.

2. *Mothers' measles*

The 39 mothers of these children showed no symptoms. Analysis of measles neutralizing antibody gave the results shown in Fig. 1. The antibody titers of 4 mothers which were low (under $2^{3.5}$) during the acute phase of the disease in their children increased markedly in the convalescent phase. One mother with an antibody titer of $2^{5.0}$ during the acute phase of measles in her child showed 32 fold increase in antibody titer, but the other 34 mothers with

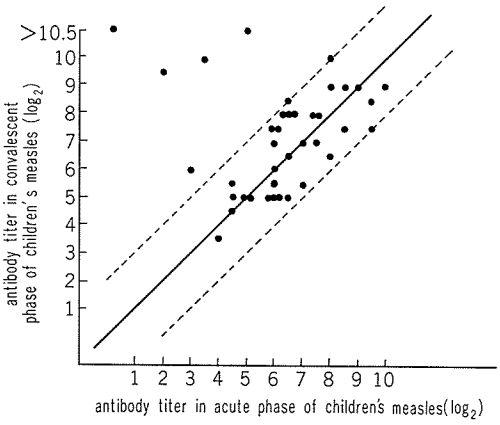

FIGURE 1. *Measles neutralizing antibody responses of 39 Mothers to their children's measles.*

antibody titers over $2^{4.0}$ during the acute phase of measles in their children did not show any change in antibody titer during the convalescent phase.

Krugman et al. (1965) and Stokes et al. (1961) reported similar phenomena in children. Measles immunity following natural infections may persist for many decades without re-infection, even on re-exposure, while on the other hand measles antibody titers may increase on booster infections in areas with epidemics and measles antibodies are detectable in almost every adult.

SUMMARY

Blood specimens were collected from 39 mothers of children with measles. Measles neutralizing antibody analysis revealed that mothers with neutralizing antibody titers of under $2^{3.5}$ responded to children's measles with marked increase in titer, but mothers with titers of over $2^{4.0}$ did not responded. No mothers showed any symptoms.

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