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7. Neave Kingsbury and the serum prophylaxis of measles

Kingsbury AN. J Hyg 1927; **27**: 1–13

AN APPRECIATION BY TIM WREGHITT

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The background

Measles has been known as a highly contagious serious infection in man for centuries. After a prodromal fever, patients often experience coryza, cough and conjunctivitis followed by a blotchy rash. The disease is more severe in infants and adults with death resulting from encephalitis or pneumonia. Malnourished and immunosuppressed people are also more prone to serious complications and death. Subacute sclerosing panencephalitis (SSPE) is a rare complication, occurring as late sequela several years after measles infection at a rate of 1–5 per million cases.

Measles is particularly devastating in populations which have not experienced the infection before. It was introduced into Asia and the Americas by explorers into populations with no immunity and millions of deaths occurred. It had a huge economic impact on developing economies, with epidemics occurring every few years, often after re-introduction with migrant workers. Measles tends to die out in isolated communities of less than 250 000 but is often re-introduced by migrants and visitors.

Prevention

We now know that measles can be prevented by the presence in a person's bloodstream of specific measles antibody either as a result of natural infection, transplacentally transferred maternal antibody, or vaccination.

Attenuated measles vaccine was first licensed in 1963. With the introduction of a safe and effective widespread vaccination programme, there has been a dramatic reduction in the incidence of measles worldwide.

The paper published by Dr Kingsbury in the *Journal of Hygiene* in November 1927 [1] is important because it was the first report of the use of convalescent serum for prophylaxis against measles in plantation workers. The report states that 'the coast districts of Selangor [Malaya] were free from measles until 1910'. The disease was probably introduced from India by immigrant coolies and it spread rapidly through the rubber estates, causing death and debilitation among the plantation workers and their children.

Anderson and Goldberger [2] had shown in 1911 that monkeys experimentally infected with measles virus were immune to subsequent infection. Nicolle and Conseil [3] showed that convalescent serum prevented infection in a young child who had been in contact. Subsequently, other researchers showed that convalescent serum could be used prophylactically and Degkwitz produced a supply of immune serum [4]. Subsequently, other workers throughout the world produced supplies of immune serum for use in measles epidemics.

Kingsbury inoculated 2·5–3·5 ml of concentrated convalescent human serum into children during measles epidemics which had been obtained from adults who had recovered from measles. They demonstrated a significant reduction in the number of subsequent cases and in those children who did develop measles after receiving convalescent human

serum, the disease was much milder. These and other children who were infected will probably have developed long lasting immunity. However, the problem with this approach to outbreak management was that those children in whom measles infection was prevented will have been susceptible again, once the passively acquired serum antibody concentration had waned. Nevertheless, this early work on the prophylaxis of measles played an important role in reducing the impact of measles outbreaks in these plantations.

References

1. **Kingsbury AN.** The serum prophylaxis of measles [with an introductory note by Sir Malcolm Watson]. J Hyg 1927; **27**: 1–13.
2. **Anderson JF, Goldberger JE.** Experimental measles in the monkey: a supplemental note. Public Health Rep 1911; **26**: 887–895.
3. **Nicolle C, Conseil E.** Bull et mem Soc Med des Hop de Paris 1928; **42**: 336.
4. **Degwitz R.** Zur individuellen Masernprophylaxe. Z Kinderheilk 1920; **25**: 134–140.

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