

A study of measles at the Lady Ridgeway Hospital

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Abstract

Objective To study clinical aspects of the 1999 outbreak of measles.

Design A prospective study of suspected cases of measles admitted to 2 paediatric units from October 1999 to January 2000.

Setting Lady Ridgeway Hospital for Children, Colombo.

Method From each suspected case of measles blood was sent to the Medical Research Institute to detect IgM antibodies. The age, sex, clinical features, vaccination status, complications, treatment and duration in hospital was noted in each child. Chest x-rays were taken when there was clinical evidence of pneumonia.

Results 157 children suspected of measles were admitted to the 2 paediatric units during the study period. 7 (4.5%) were under 6 months of age, 37 (23.5%) were 6-9 months of age, 10 (6.4%) were 10-12 months of age, 34 (21.6%) were 13-60 months of age, 48 (30.6%) were 61-108 months of age and 21 (13.4%) were 109-144 months of age. 52 (33%) children received no prior measles vaccination. Of these, 7 (13.5%) were under 6 months of age, 37 (71.2%) were 6-9 months of age, 2 (3.8%) were 10-12 months of age, 4 (7.7%) were 13-60 months of age, 1 (1.9%) was 61-108 months of age and 1 (1.9%) was 109-144 months of age. 2 children developed bronchopneumonia. There were no other complications. IgM antibodies were present in 148 patients.

Conclusions 1. 94% clinically suspected measles patients had positive measles serology. Thus serological confirmation of measles is probably a waste of scarce resources. 2. 28% children who developed measles were under 10 months of age and 23.6% were in the 6-9 month age group. There is a case for bringing forward the recommended age for measles immunisation to 6 months.

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Introduction

In Sri Lanka immunisation against measles commenced in August 1984¹. The immunisation coverage among infants has increased from 20% in 1985² to 91% in 1998³. Measles vaccine protects only about 85% of the children who receive it⁴. It is said that measles outbreaks are more likely to occur once the number of unprotected children in the community is approximately equal to the number of children in one birth cohort (about 350,000 children in Sri Lanka)³. The current epidemic of measles commenced in September 1999 in the Colombo and Gampaha districts. A circular was issued by the Epidemiologist in October 1999 requesting us to send blood for measles antibody in all suspected cases of measles. We decided to carry out a prospective study of suspected cases of measles admitted to 2 paediatric units of the Lady Ridgeway Hospital.

Patients and methods

Suspected cases of measles admitted to 2 paediatric units at the Lady Ridgeway Hospital from October 1999 to January 2000 formed the study population. From each case blood was sent to the Medical Research Institute to detect IgM antibodies. The age, sex, clinical features, vaccination status complications, treatment and duration in hospital was noted in each child. Chest x-rays were taken when there was clinical evidence of pneumonia.

Results

During the study period 157 children suspected of measles were admitted to the 2 paediatric units. 92 were male and 65 were female. The age groups are shown in Table 1.

Table 1
Age groups

Age (months)	No. of children
< 6	7 (4.5%)
6-9	37 (23.5%)
10-12	10 (6.4%)
13-60	34 (21.6%)
61-108	48 (30.6%)
109-144	21 (13.4%)

The clinical features are shown in Table 2

Table 2
Clinical features

<i>Symptom/Sign</i>	<i>No. of children</i>
Fever	157 (100%)
Rash	157 (100%)
Red eyes	80 (51%)
Koplik's spots	46 (29%)

Fifty two children received no prior measles vaccination. The distribution of these children according to age is shown in Table 3.

Table 3
Unvaccinated children

<i>Age (months)</i>	<i>No. of children</i>
< 6	7 (13.5%)
6-9	37 (71.2%)
10-12	2 (3.8%)
13-60	4 (7.7%)
61-108	1 (1.9%)
109-144	1 (1.9%)

A 7 month old infant and an 8 year old child developed bronchopneumonia. There were no other complications. Whilst antibiotics were used in the 2 children with pneumonia, the rest were treated symptomatically. The duration in hospital was short being 4 days or less in 155 children. IgM antibodies were present in 148 patients.

Discussion

The presence of IgM antibodies in a single specimen is evidence of primary measles infection. IgM antibodies are usually detectable shortly after the onset of the rash and peak 7 to 11 days later. IgM falls to undetectable levels about 1 month after appearance of the rash⁵. In our series, 94% clinically suspected measles patients had IgM antibodies. Thus, in Sri Lanka serological confirmation of measles is probably a waste of scarce resources.

A milder form of measles has been reported in previously vaccinated persons who develop measles⁶. In our series 67% children had received prior measles vaccination and only 1.3% children developed complications.

In our series 28% children who developed measles were under 10 months of age and 23.5% were in the 6-9 month age group. A study from India suggests that immunisation with measles vaccine may be effective as early as 6 months of age⁷. There is thus a case for bringing forward the recommended age for measles immunisation to 6 months. On the other hand, several studies have shown that vaccine efficacy is greater in children vaccinated at 15 months or older than in children vaccinated under 1 year of age⁸. Studies have

also shown that twice vaccinated recipients are better protected against epidemic measles than are single dose recipients of measles containing vaccine⁹. Thus we recommend a two-dose schedule of measles vaccination, the first dose being given at 6 or 7 months along with the 3rd dose of triple vaccine and the second dose at 18 months along with the booster dose of triple vaccine. We further recommend that the measles-rubella (MR) vaccine be used as the second dose rather than the more expensive measles-mumps-rubella (MMR) vaccine.

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