

Sero-Epidemiological Studies of Rubella Infection among Children in Lagos

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Fadahunsi, O. (1977). *Nigerian Journal of Paediatrics*, 5(1), 1. **Sero-Epidemiological Studies of Rubella Infection among Children in Lagos.** Thirty specimens of cord blood obtained from neonates, and 174 capillary blood specimens from children aged one month to five years with no stigmata of congenital rubella were tested for rubella HAI antibody. Though the number of subjects in the present study is small, the results suggest that the optimum age of susceptibility to primary rubella infection is after the third year of life. It is concluded that determination of rubella HAI antibody is useful in confirming suspected cases of congenital rubella among Nigerian children in the age group 7 months to 3 years.

A REVIEW of serological studies for rubella haemagglutinin-inhibiting antibodies (HAI) in different countries from the five continents showed that the percentage of adults without rubella antibody was remarkable the same irrespective of race or climate (Cockburn, 1969). In general 20 per cent of adults were found to be seronegative and this compares with a frequency of 15 per cent found among 205 Nigerian females of child-bearing age studied by Ransome-Kuti and Marshall (personal communication). Thus, it appears that the proportion of women of child-bearing age with rubella antibodies in Lagos Nigeria, is similar to that found in London (Rawls,

et al., 1967), and in pregnant women in Uganda (Marshall, 1969).

The observation of a number of children with clinical and serological evidence of congenital rubella in Lagos by one of us (OF) prompted the present serological study which attempts to determine the frequency of postnatal rubella infection in infants and young children in this part of Nigeria.

Subjects and Methods

Capillary blood was collected from 174 children (aged one month to five years) with no clinical stigmata of congenital rubella

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attending the Paediatric Cardiac clinic, Lagos University Teaching Hospital. Cord blood from 30 normal newborn babies delivered at the same hospital was also obtained. Each specimen was collected on to absorbent paper discs and the eluted blood tested for rubella HAI antibodies, according to the method described by Dudgeon, *et al.*, (1973).

Results

The number of children tested and those with rubella HAI antibody are shown in the Table. It will be observed that the percentage of seropositivity declined rapidly after the first 6 months of life corresponding with loss of passively acquired maternal rubella antibody. The percentage remained low up to the third year of life, and thereafter began to rise, presumably due to primary rubella infection.

Discussion

The rubella antibody which is present in cord blood is derived passively from the maternal circulation and may be detected in children up to the age of six to eight months. In the present study the high percentage of rubella HAI antibody in the cord blood specimens as well as in blood obtained from infants under six months of age may be explained by this passive immunity factor.

In children older than 6 months, but under the age of 3 years it is likely that the presence of HAI antibody is due to postnatally acquired rubella in some as well as to intra-uterine infection in others. In London 7 per cent of children, aged 6 months to four years, without clinical evidence of congenital rubella have been found to be seropositive (Brown, Hamburg, and Ansari, 1969; Dudgeon, *et al.*, 1973).

This finding has proved useful in the investigation of children in this age group who are suspected of having congenital rubella, because a high HAI antibody titre in this age group is least likely to be due to postnatal infection. Although the prevalence of HAI antibody in children, aged six months to three years in the present study was approximately three fold higher than in a similar age group examined in London, 80 per cent of them still lacked rubella antibodies and were therefore susceptible to primary rubella infection. Thus, in young children living in Lagos rubella infection seems to behave in a similar manner to that in most other urban centres where the peak incidence of infection occurs after three to four years of age. Serological tests for rubella in the first three years of life therefore seem useful as it is elsewhere, in the investigation of children suspected of having congenital rubella.

TABLE

Age, Number of Children, and Prevalence of Rubella (HAI) Antibody in 204 Lagos Children

<i>Age</i>	<i>No. of Blood Tested</i>	<i>No. of Seropositive Blood</i>
New-born (cord blood)	30	25 (83.3)
6months	21	14 (66.6)
7-11 "	16	4 (25.0)
1+ year	34	3 (8.8)
2+ "	29	9 (27.6)
3+ "	28	9 (28.6)
4+ "	22	11 (50.0)
5+ "	24	9 (37.5)
Total	204	84

NOTE: Figures in parentheses are percentage sero-positive specimens.

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