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RUBELLA ANTIBODIES IN A SAMPLE OF LUSAKA MOTHERS

*Dr. Theresa Watts

Summary

Sera from 50 mothers of still born babies and 50 mothers of live born babies matched for parity were examined for rubella antibodies. There was no difference between the 2 groups. Altogether 88% of the mothers had rubella antibodies indicating that the infection is widespread. There were more young mothers of low parity who were negative for rubella antibodies compared with older women, but this did not reach a statistically significant level.

The difficulty of diagnosing acute rubella, or of recognizing deafness or a mild cardiac malformation is emphasised and further studies need to be done on the effect of rubella in pregnancy in Zambia.

Introduction

Rubella infections during the early months of pregnancy are known to predispose to congenital malformations. In a study in England congenital defects occurred in all infants whose mothers were infected before 11 weeks of pregnancy; deafness occurred in 25% of those infected between 13 and 16 weeks and no defects occurred with infections later than this (Miller et al 1982) Rubella is very difficult to identify in dark-skinned people, and as the disease is usually mild it is seldom diagnosed in Africa. Thus it is not known how many women at child bearing ages are susceptible to rubella and how likely it is that they may be exposed to the illness during pregnancy.

Subjects and Method

This study is part of a larger study undertaken at the Teaching Hospital Lusaka to try to identify causes of still births between July 1979 and May 1980 (Watts and Harris (1982). Two hundred and sixty consecutive mothers of singleton still born infants were matched for parity with the next mother of a live born infant. Blood was taken after delivery using a vacutainer and it was spun down the same day and the sera collected into NUNC tubes, labelled and stored in a deep freezer at -20%C. The sera was transported in ice packs to the Radcliffe Hospital Oxford where 50 sera of cases and 50 matched controls were arbitrarily selected and tested for rubella antibodies. There were 12 still born babies and 2 controls with some obvious congenital abnormally but unfortunately it was not possible to get rubella antibodies on any of these mothers and their corresponding control except for 3 of the cases only.

The sera were tested by single radial haemolysis test which measures 1g anti gG rubella antibodies only. The zone sizes were measured single radial haemolysis test (SRH) and converted to haemagglutination antibodies titres (H AI).

Results

There was no difference in rubella antibody titres between cases and controls. (Figure 1) Only 12% of the population were negative for rubella antibodies (under 10) and the highest titres were 320. HAI equivalent titre.

Nineteen per cent of 47 mothers under 25 were sera negative compared with 5.6% of 53 mothers above this age (Table 1). There was a similar pattern noted in relation to parity with 20% of 40 mothers of parity 0 or 1 (before the present delivery) being negative compared with 6.7% of 60 mothers of higher parity. The difference is not statistically significant for either parameter (x^2 = 3.12 for one degree of freedom p = more than .05).

Discussion

Rubella is a common disease in Zambia despite the lack of recognition of it clinically. The majority of women are infected before their first pregnancy although in this group 31% were still negative at the end of their first pregnancy. Of the three mothers who had still born babies with some congenital abnormality, one was negative for rubella, one had a titre of 20 indicating a possible old infection and the remaining women of parity 4 had a titre of 160. During an acute rubella infection both 1gM and 1gG rise, but 1gM tends to become negative in about 60 days. The 1gG titre will

* Senior Lecturer and Head

Department of Community Health, University Teaching Hospital, LUSAKA, Zambia.

persist at lower levels and will be boosted by further exposure to rubella although this presents no threat to the foetus. Thus it is difficult at the end of a pregnancy to determine which mothers have had a primary infection in the early weeks of the pregnancy. Rubella classically causes deafness and cardiac malformations in babies infected before the 16th week in utero. Those malformations are difficult to identify in a new born child and impossible in a still born baby without an autopsy. Thus it is not possible to determine how much effect rubella has on a foetus in Zambia. In Britain and other countries there has been a policy of immunising all girls against rubella at the onset of adolescence. At the start of this campaign in the early 1970s there were 11.7 per 100,000 live births of congenital rubella reported. The rate dropped to 4 per 100,000 in 1977 and later years show falling rates. (National Congenital Rubella Surveillance Programme 1979). Many of the congenital defects were detected during routine screening often between the ages of 5 months and 4 years. In Zambia few children attend young child clinics after the age of a year and many problems may be missed. Rubella is widespread in Zambia and 12% of women are still vulnerable to an attack during pregnancy. The problem needs further study to determine whether there are many children who have been handicapped by rubella contracted in utero.

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TABLE 1

RUBELLA ANTIBODIES BY AGE GROUP

AGE (YRS)	ANTIBODY TITRE							
	Neg.	10	20	40	80	160	320	Total
20	3	1	5	4	4	2	1	20
20-24	6	6	3	3	8	—	1	27
25-29	2	2	8	4	7	3	3	29
30-34	1	—	1	4	1	2	2	11
35-39		5	2	1	1	1	—	10
40		1	1	—	—		1	3
Total	12	15	20	16	21	8	8	100

TABLE 2

RUBELLA ANTIBODIES BY PARITY

PARITY	ANTIBODY TITRE								
	Neg.	10	20	40	80	160	320		Total
0	5	1	3	2	2	2	1		16
1	3	4	4	4	8	—	1		24
2	1	2	1	3	2	1	2		12
3	—	1	2	2	5	—	—		12
4	2	—	3	1	2	2	—		10
⩾5	1	7	7	4	2	3	4		28
Total	12	15	20	16	21	8	8		100

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