

RUBELLA IMMUNITY AMONG HOSPITAL PERSONNEL*

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Rubella in childhood is a mild disease, but during the first trimester of pregnancy, it produces the severe defects of the congenital rubella syndrome in up to 10 or 20 percent¹ of cases. Even after the first trimester there is an adverse fetal outcome, often with deafness or communicative disorders, in the majority of pregnancies. The goal of reducing the frequency of the congenital rubella syndrome has been approached in two ways. Direct protection is achieved by giving the vaccine to women who are susceptible, according to serologic testing, provided precautions are taken to avoid pregnancy. Indirect protection of women of childbearing age is approached by mass immunization of young children¹.

Rubella susceptibility among adolescents and young adults is high, and the relatively high proportion of non-immune persons is probably the major reason why outbreaks of rubella still occur in secondary schools and colleges².

In many urban hospitals, a large proportion of the employees are non-immunized young adults. Therefore, it is not surprising that many outbreaks among medical personnel have been reported in recent years and some of these have resulted in the exposure of large numbers of pregnant women to employees with rubella³.

In this study, immunity to rubella is investigated in 48 medical personnel with a view to preventing congenital rubella.

Material and Methods

Forty-eight women (doctors, nurses and laboratory technicians) of childbearing age (mean age 26.3, range 20-40 years) working in the Children's Hospital of the Istanbul University Faculty of Medicine were included in this study. None of them had received rubella vaccine, but a history of rubella was taken into consideration.

Immunity to rubella is determined by the hemagglutination inhibition technique that detects IgG antibodies to the rubella virus⁴. The Rub-IHA-Kit 50 from Bio-Mérieux,

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France, was used. We regarded a titer of above 1/10 for passive hemagglutination as an indication of immunity to rubella⁴.

Results

The results are given in Table I (personnel with positive rubella history) and Table II (personnel with negative rubella history). Protective antibody levels were found in 8 (80%) of the 10 women with a positive history but in only 6 (15.7%) in the 30 women with a negative rubella history. Out of the whole group 14 (29.2%) of the women were found to be immune to rubella. The study indicates the unreliability of the information given by the patient since no history of rubella was given in six of the immune cases (subclinical rubella), while two of those who were not immune claimed that they had had the infection.

TABLE I
Rubella Hemagglutination — Inhibition Titer in Hospital Personnel with
Positive Rubella History

Case no.	Name	Age (years)	Rubella HI antibody titer
9	S.D.	20	1/40 (+)
11	R.S.	26	1.40 (+)
14	Y.Ö.	26	1.160 (+)
18	N.Y.	24	< 1/10
19	M.G.	23	1/20 (+)
22	Z.A.	27	1/20 (+)
24	S.E.	32	1/80 (+)
29	P.Ç.	22	1/320 (+)
43	F.Ü.	23	< 1/10
46	G.M.	25	1/40 (+)
Mean		24.8	
S.D.		± 3.29	

Discussion

Because the rubella vaccine is not available in Turkey, it cannot be included in the routine vaccination program, with the result that rubella is often a problem among young adults. Congenital and postnatally acquired rubella are still common problems in Turkey⁵⁻⁹. On the other hand, rubella outbreaks are still being reported in developed countries¹⁰. As a prophylactic measure for congenital rubella, it is

TABLE II
**Rubella Hemagglutination-Inhibition Titer in Hospital Personnel with
 Negative Rubella History**

<u>Case</u>	<u>Name</u>	<u>Age (years)</u>	<u>Rubella HI antibody titer</u>
1	C.S.	26	<1/10
2	R.Y.	26	<1/10
3	N.U.	38	1/20 (+)
4	D.Ç.	27	<1/10
5	A.E.	24	1/640 (+)
6	N.Ö.	21	1/40 (+)
7	Z.K.	36	<1/10
8	F.E.	30	<1/10
10	C.T.	30	<1/10
12	L.B.	26	<1/10
13	N.K.	30	<1/10
15	T.Ö.	20	<1/10
16	S.Ö.	23	<1/10
17	N.B.	23	<1/10
20	G.P.	25	<1/10
21	A.G.	27	1/80 (+)
23	G.A.	24	<1/10
25	M.Ö.	29	1/20 (+)
26	N.S.	32	<1/10
27	Z.A.	25	<1/10
28	S.U.	28	1/160 (+)
30	N.Y.	26	<1/10
31	A.C.	26	<1/10
32	F.D.	27	<1/10
33	F.T.	26	<1/10
34	S.A.	24	<1/10
35	H.Y.	27	<1/10
36	N.A.	28	<1/10
37	S.A.	23	<1/10
38	Z.A.	20	<1/10
39	Ş.A.	23	<1/10
40	İ.A.	23	<1/10
41	M.Ö.	30	<1/10
42	S.K.	40	<1/10
44	A.D.	26	<1/10
45	A.Y.	21	<1/10
47	Y.K.	31	<1/10
48	M.Ö.	22	<1/10
Mean		26.65	
S.D.		± 4.55	

important that young women, particularly those working in children's hospitals, be screened for rubella antibodies and vaccinated as necessary.

Our results revealed a protective level in only 29.2% of the total medical personnel included in this study. Seronegative persons are strongly urged to receive the vaccine. But in Turkey, a developing country, the rubella vaccine is not readily available, this being largely due to the fact that it is very expensive. All children must be taken into account from the epidemiological point of view, but outbreaks of rubella that occur in hospitals with pediatric clinics are of special concern. The testing of all employees for rubella antibodies and the immunization of those determined to be seronegative is a measure that should be seriously considered.

Summary

Rubella antibodies were investigated in 48 women of childbearing age working in the Children's Hospital of the Istanbul University Faculty of Medicine. In Turkey rubella vaccine is not available, and a protective level of antibody was found in 29.2% of the total cases. Outbreaks of rubella that occur in hospitals are of special concern, and the testing of all employees for the rubella antibody and the procurement of vaccine for immunization of those determined to be seronegative is recommended.

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