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INVESTIGATION OF PREVALENCE OF RUBELLA AMONG WOMEN OF PREMARITAL AND PRECONCEPTIONAL AGE

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Abstract

An evaluation of the prevalence of immune status to rubella was made among 1151 premarital and preconceptional counselled females (17-40 years old) visiting the Genetic Clinic in Tehran. Population of Tehran , like any other large city , consists of mixtures of various communities and ethnic groups in the country. The method of analysis was rubella haemagglutination inhibition (Hl.) test.

Immunity to rubella was observed in 97.14% of the population and most were immune before the age of 29. This high prevalence of positive cases shows a change in the community orientation by more social participation and mixing such as attendance of kindergarten.

Bacause of the high prevalence obtained for rubella immunity , instead of general vaccination programs , measurement of rubella titre is recommended for each premarital or preconceptional female individual.

Introduction

Rubella is a systemic and acute but mild viral infection of children and adults , transmitted by inhalaion of infective dropiets (6). The diseases is caused by a rubivirus from togaviridae family. One attack usually confers permanent immunity. The clinical symptoms are characterised by rash , fever

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and lymphadenopathy , and in most cases not easily distinguished from other viral illnesses or harmless dermal , food and drug atopies. Isolation of the virus or serologic methods can produce the definite diagnosis.

The teratogenic effect of the virus , during the pregnancy , specially the first trimester , is well reconized and described as Embriopathica Rubeolica Gregg (4). The fetus is at high risk to develop severe and continuous rubella infection with a high mortality rate or with long lasting sequel infected transplacenlally during maternal rubella in early pregnancy, called congenital rubella syndrome , CRS , (5,6).

Several reports exist on seroepidemiology of rubella from different geographical regions. In both developing and developed countries is one of the health hazards. In developing countries , even in the presence of health surveillance , rubella outbreaks occur with little or no clinical recognition (5).

Previous investigations have been made on children or specific age groups , but this descriptive study was made to collect information on prevalence of immune status to rubella among women of premrital proconceptional age (17-40) visiting the Genetic Clinic in Tehran , for counselling.

Since rubella immunization is recommended before marriage , the results of this study can be used to determine whether or not a general vaccination program is recommendable.

Material and methods

A total of 1151 females (17-40 years old) visiting the Geneic Clinic in Tehran for premarital and preconceptional counselling , were studied in different age categories. The cases were closen among those who were certain of not having had prior active immunization nor can remember having had rubella.

The method of analysis used , was Rubella Hemagglutination Inhibition (HI.) test (8,9) , with antibody titer of 1/8 , 1/16 , 1/32 and 1/64. The titer of 1/8 was repeated for the second time.

Results and discussions

Table 1 shows the distribution of the cases under study in different age groups. It can be observed that most of the population has become immune until the age of 29. The highest frequency has been observed in 20-24 years old category.

Table 2 shows that only 2.86% of all cases do not have immunity to rubella. No acute case was observed , since the least titration showing immunity was 1/32.

Table 3 shows that the highest frequency for negative immunity was in 20-24 years old category , but no negative case was observed in 30 years old or above. As observed in other studies , with increasing the age , the percentage of negative cases decreased (3).

Table 4 shows the numbers and percentages of negative cases in comparison with positive ones , in each age category.

The high values obtained for positive cases (overall= 97.14%) , is suggestive of changes in community orientations , particularly by the more affluent communities , such as attendance of kindergarten , as compared to the more traditional communities in smaller localities , such as Minab city , Hormozgan province , where the prevalence in girls above 15 years old was 95%; and in east Azarbaijan province the prevalence in 18-25 age group was 95%. Also in Minab city , the prevalences of immunity in urban , rural and rural without health facilities are 91.6% , 88% and 85.7% respectively (1).

However , the relationship between prevalence of immunity and economic well being is not always so direct and clear. For example , seroepidemiological studies in 1986 shows that in Ethiopia. Upper Volta and Gambia , with weak economic status , women have the highest prevalence of immunity, whereas in Nigeria , Ghana and Togo , with similar economic levels , 25-50% of women do not have immunity to rubella (7). Factors like population densiy , regional isolation , number of children , order of children in the family and previous vaccination programs can make some differences (2).

The overall conclusion is that because of high prevalance of natural immunity , the general vaccination program is not recommended. This program has disadvantages of being economically unwise , ie. not cost effective , and may cause infections in early unrecognized pregnancies or in some pregnancies occuring early after the vaccination. In addition , the negative cases in this

study faced serious obstacles in finding the vaccin. Therefore , measurement of rubella titre is suggested for each premarital or preconceptional counselling female individual. Howere , further research with different age categories and larger samples is recommended.

Table 1 - Distribution of examined cases for rubella in different age groups.

Age group	No.	%
17-19	158	13.72
20-24	592	51.43
25-29	343	29.80
30-34	52	4.51
35-39	3	0.26
40<	3	0.26
Total	1151	99.98

Table 2 - Distribution of examined cases for rubella in different titrations.

Age group	No.	%
0	33	2.86
1/8	551	47.87
1/16	512	44.48
1/32	55	4.77
1/64	0	0.00
Total	1151	99.98

Table 3 - Distribution of cases without natural immunity for rubella in different age groups.

Age group	No.	%
17-19	3	9.09
20-24	21	63/63
25-29	9	27/27
30-34	0	0.00
35-39	0	0.00
40<	0	0.00
Total	33	99.99

Table 4 - Comparison of the number and percetages of cases without natural immunity vs. cases with positive reaction , in each age group.

Age group	No.tested	Positive		Negative	
		No.	%	No.	%
17-19	158	155	98.11	3	1.89
20-24	592	571	96.46	21	3.54
25-29	343	334	97.38	9	2.62
30-34	52	52	100.00	0	0.00
35-39	3	3	100.00	0	0.00
40<	3	3	100.00	0	0.00

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