Need To Protect Childbearing Age Girls against Rubella

[1]CHETNA SAVITA, [2]Dr. HEMLATA JHARBADE, [3]Dr. G.D SHARMA

[1,3]Asst. Prof, department of Zoology, P.M.B. Gujarati science college Indore (M.P.), India
[2]Asst. Prof, department of Obstetrics and gynecology M.G.M Medical college and M.Y. hospital Indore, (M.P.), India

Abstract: **Rubella, though a mild skin infection but show disastrous effects during pregnancy and causes damage to fetus. The disease is vaccine- preventable diseases can manifest with severe Teratogenic effects in fetus known as congenital rubella syndrome (CRS) due to primary maternal infection such as heart disorders, blindness, deafness or other life threatening organ disorders. During pregnancy, explore to disease can lead to disastrous results such as bad obstetric history (BOH), repeated pregnancy loss (RPL) or may cause deformities in fetuses whereas it also responsible for infertility and maternal mortality. In the study124 teenage girls and 176 women of different background were selected, out of them 3.23% girls and 11.36 % women were found susceptible and were at risk to have Rubella infection. In the study it was detected that immunity against Rubella was decreasing with increasing age, i.e. the vaccination in childbearing age should be included in schedule.**

*Keywords***: Teratogenic, disastrous, deformities, immunity, susceptible.**

I.   INTRODUCTION

Rubella infection is usually clinically manifested as a mild self-limited infection. During pregnancy, however, the virus can have potentially devastating effects on the developing fetus. It has been directly responsible for inestimable wastage and for severe congenital malformations. Rubella disease generally has two symptoms, primary or mild effect and secondary, i.e. CRS (Congenital Rubella Syndrome). While in about 50% of the cases the infection is silent, but the individual still has the potential to transmit the disease. Generally, the disease manifests itself with mild symptoms such as fever, rashes, respiratory disorder, joint pain, swollen glands, headache, conjunctivitis etc., which rarely causes complication in some cases such as arthritis or encephalitis.

Secondary effect (1) of the disease is the disastrous one which follows the intrauterine infection by the Rubella virus and comprises of malformation and complication in the fetus and also shows a bad obstetric history (BOH), repeated pregnancy loss (RPL) in women whereas it is also responsible for maternal mortality. This is generally caused due to maternal infection during pregnancy. Due to this fetal infection prematurity, low birth weight and neonatal thrombocytopenia, anemia and hepatitis can occur. The risk of major defect organogenesis (deformation of organs) is highest from infection in the first trimester. Mothers who infected by Rubella within the first trimester either have a miscarriage or a stillborn baby. Even if the baby survives it can be born with severe heart disorders, blindness, deafness or other life threatening organ disorders. The skin manifestations are called "Blue Berry Muffin Lesions".

II.   METHODOLOGY

The present study was conducted on 124 Girls (13-20 years) and 176 women (21-40 years) of different age group. All were selected randomly and belong to different geographical areas and having different socioeconomic conditions. A detail history with special reference to past Rubella virus like infection and also medical history of their family from both groups and obstetric history was noted by the questionnaire for girls and married women. Also the previous immunization history of MMR vaccine in childhood was noted.

Group I - Teenage girls, age 13-20 years (N=124).
Group II - Adult women, age 21-40 year (N=176).

The blood sample (up to 2ml), were collected from these girls and women, after proper counseling and concern. These samples were tested serologically for Rubella. In the laboratory each sample was centrifuged for separating serum and processed by ELISA KIT (Enzyme-Linked Immunosorbent Assay) technique for detecting IgM immunoglobins for Rubella.

III. RESULTS

Table1 - Percentage of susceptibility between teenage and adult women, according to IgM antibody.

	Age	N	IgM+ve	IgM-ve	Susceptibility %	P-value
I	Teenage (13-20)	124	4	120	3.23	0.01*
II	Women (21-40)	176	20	156	11.36	
Total		300	24	276	8.00	

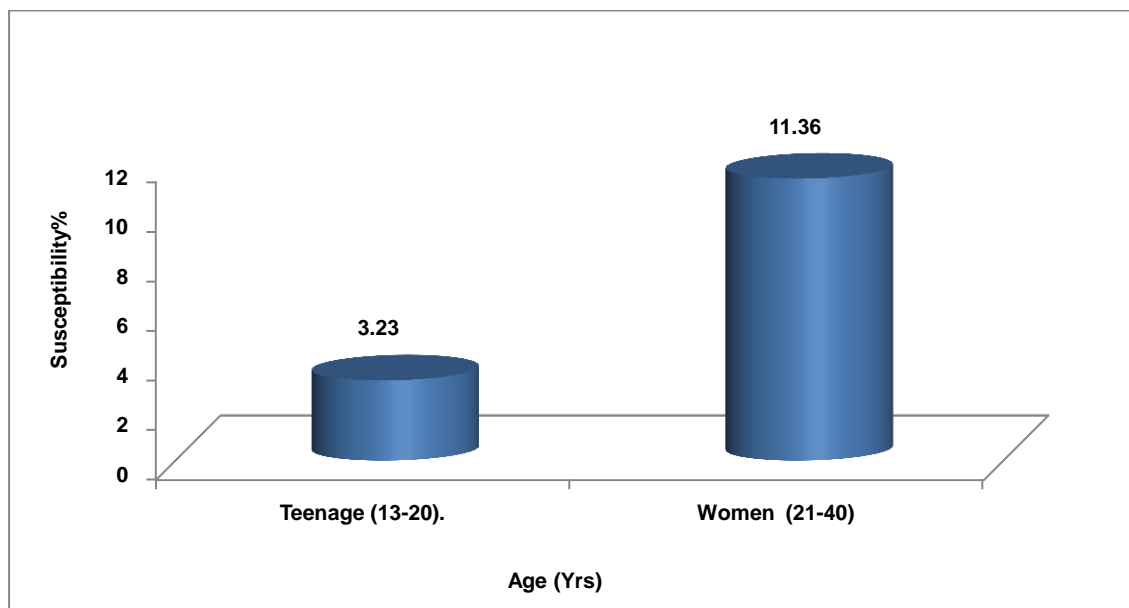**P-value<0.001 is highly significant, <0.05 is significant and >0.05 is not significant.**

Figure 1 - Comparison of susceptibility percentage between teenage and married women for IgM antibody.

IV. DISCUSSION

The present study was conducted in 300 females. Out of them124 were teenage girls and 176 were adult women were examined against Rubella, On comparing teenage group with adult women for IgM antibody it was found that the susceptibility percentage of adult women (11.36%) was higher in comparison to teenage girls (3.23%) and statistical difference between them was found highly significant as p=0.01 (p<0.001). [Table -1]

The seroprevalence for Rubella in Kashmiri pregnant woman was found94.7%, IgG +ve & 9.69%, IgM +ve. [2] Due to this fetal infection prematurely, low birth weight and neonatal thrombocytopenia, anemia and hepatitis can occur. The risk of major defect organogenesis (deformation of organs) is highest for infection in the first trimester.

Similarly, many studies assessing the seroprevalence to Rubella among adult Indian females aged 16-45 years were done [3-14] and range of susceptibility varies between 9.5%- 46.8%. The susceptibility rates among 346 women 10- 34 years between 1968-1969 was evaluated by Seth in Delhi for Rubella antibodies by hemaggulutination test. About 30% of girls, aged 10-14 years were found susceptible and susceptibility among women aged 15-19years, 20-24years, and 25-34 was 25.4%, 22.45 and 18.5% respectively.

A study assessed Rubella Serology from Vellore [14] 770 women aged above 18years attending departments of Obstetrics and gynecology and reproductive medicine unit, were examined. 12.5% of women in the reproductive age groups were seronegative for rubella. In study better level of immunity was seen in women 19-23years (91%) and below 35year than those in the 24-34 year age groups (85.5%). In a recent study, the serological status of 1,329 healthy adolescent school girls, aged 12-15year, from 12 districts of Maharashtra, namely, Ahmednagar, Beed, Dhule, Jalna, Kolhapur, Latur, Nasik, Nandurbar, Pune, Satra, Solapur, and Osmanabad, was assessed.[15] Overall Rubella seropositivity was 76.4% in total girls (GMT: 36.08 IU/mL). From all districts Solapur and Latur showed the lowest percentage seroprotection (around 68%).

In a study, it was found that 87.9% seropositivity and 12% women were susceptible to Rubella infection. 6.5% were positive for Rubella specific IgM antibodies [16]. Percentage of seropositivity was seen to be increasing with age. The percentages of IgG negatives were higher among the cases with a bad obstetric history. All the cases that had previously immunization record were positive for Rubella specific IgG antibodies and concluded that an action of revising the national immunization policy should be considered along with sero-surveillance of Rubella among adolescent girls and women of childbearing age.

V.   CONCLUSION

Childhood vaccination policy is presently used by maximum countries, but in spite of that rubella epidemics have been seen and detected by many studies so now many countries were proceeding towards adult rubella vaccination plan in women of childbearing age. Developed countries were preferring second dose of rubella in teenage and it has been evaluated with outcome of different researches that second dose of Rubella vaccine gave effective result. Thus, it was recommended to all countries to apply child bearing age, vaccination policy for controlling Rubella and CRS.

VI.   ACKNOWLEDGEMENT

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