



Assessment of Knowledge Regarding Rubella Infection amongst the Medical Students in a Government Medical College of Southern Rajasthan

Poornima Sharma^{1*}, Keerti¹ and Hariom Sharma²

¹Department of Community Medicine, RNT Medical College, Udaipur, Rajasthan, India

²PHC Bharja, Sirohi, Rajasthan, India

DOI: 10.24896/jrmds.2017547

ABSTRACT

Rubella (German measles) is a mild viral disease characterized by mild fever and rashes and is contagious by sneezing and coughing. Though it commonly affects the children but if it infects a pregnant woman, it leads to serious birth defects known as Congenital Rubella Syndrome. According to WHO, before the introduction of the vaccine, up to 4 babies in every 1000 live births were born with CRS. Thus a timely vaccination is highly important to prevent the disease. To assess the knowledge of medical students regarding Rubella infection in a Government medical college of Udaipur and to assess the felt need regarding the vaccination of Rubella in these medical students. A Cross sectional hospital based survey was done on 120 students in the Dept of PSM, MB Hospital, RNT Medical College, Udaipur from 1st dec to 31st dec 2016 using a self-made, pre designed questionnaire pretested by the faculty members of the department. 60 students were randomly selected from prefinal and intern batches during their rotatory posting in the Community Medicine department. 100% students had heard of Rubella disease and knew that it is a viral infection. But 3.33% students had not heard of Congenital Rubella Syndrome. Half of them were intern males and half were prefinal females. 46.6% students correctly answered the First trimester of the pregnancy as the most common to be affected. 41.6% students were unaware about their vaccination status against MMR while 10% were totally unimmunized. The most common attributions pointed were like unavailability of vaccine, unawareness about the need or availability etc. Though the prevalence of Rubella and CRS seems quite high in our country, the medical students still lack the adequate knowledge regarding the infection and vaccination. Moreover their practice was also not appropriate as 42% students were not aware of their vaccination status and 10% students accepted that they were not vaccinated that too because of the unavailability of the vaccine. Unfortunately 23% denied to get vaccinated in future. Thus efforts should be made to make them aware of this health problem.

Key words: Rubella, German Measles, Congenital Rubella Syndrome, MMR, Vaccination

HOW TO CITE THIS ARTICLE: Poornima Sharma, Keerti, Hariom Sharma, Assessment of Knowledge Regarding Rubella Infection amongst the Medical Students in a Government Medical College of Southern Rajasthan, J Res Med Dent Sci, 2017, 5 (4):30-34, DOI: 10.24896/jrmds.2017547

Corresponding author: Poornima Sharma

e-mail: sharma.panna@gmail.com

Received: 03/07/2017

Accepted: 29/09/2017

INTRODUCTION

Rubella also known as German measles is a mild viral disease characterized by mild fever and maculopapular rash. In the majority of cases, rubella is a mild, self-limiting illness that resolves without sequelae. In pregnant women, however, infection with rubella virus can cause serious harm to the developing fetus, especially when the

infection occurs during the first trimester of pregnancy. Rubella infection of the fetus may lead to deafness, blindness, heart defects, mental retardation, and other birth defects referred to collectively as congenital rubella syndrome (CRS). Infection may also result in fetal death and spontaneous abortion [1]. The clinical spectrum of CRS includes ophthalmic, auditory, cardiac, and craniofacial defects. Worldwide, it is estimated that more than 100 000 infants are born with congenital rubella syndrome (CRS) each year. According to the estimates based on a statistical model derived from the seroprevalence data from

SEAR during 2000-2009, 46,621 infants with CRS are born annually in South East Asian Region (SEAR) alone [2]. The highest risk of CRS is in countries where women of childbearing age do not have immunity to the disease (either through vaccination or from having had rubella). Before the introduction of the vaccine, up to 4 babies in every 1000 live births were born with CRS [3]. Acquired (i.e. not congenital) rubella is transmitted via airborne droplet emission from the upper respiratory tract of active cases (can be passed along by the breath of people sick from Rubella). The virus may also be present in the urine, feces and on the skin [4]. Rubella is endemic in India. However, no nationwide data is available regarding the prevalence of acquired and congenital rubella infection. Serosurveys in different parts of India have found that 6-47% of school girls aged 11-18 years are susceptible for Rubella infection [5]. Rubella is a 100% vaccine preventable disease. The rubella vaccine is a live attenuated strain that has been in use for more than 40 years. A single dose gives more than 95% long-lasting immunity, which is similar to that induced by natural infection. Rubella vaccines are available either in monovalent formulation (vaccine directed at only one pathogen) or more commonly in combinations with other vaccines such as with vaccines against measles (MR), measles and mumps (MMR), or measles, mumps and varicella (MMRV). Global vaccination status is 46% [3]. According to IAP, Routine vaccination can be done minimum age of 9 months or 270 completed days. The schedule says to administer the first dose of MMR vaccine at age 9 through 12 months, the second dose at age 15 through 18 months, and final (the 3rd) dose at age 4 through 6 years. Catch-up vaccination against Rubella includes ensuring that all school-aged children and adolescents have had at least 2 doses of MMR vaccine (3 doses if the 1st dose is received before 12 months); The minimum interval between the 2 doses is 4 weeks; One dose if previously vaccinated with one dose (2 doses if the 1st dose is received before 12 months) ; 'Stand alone' measles/any measles-containing vaccine or MMR can be administered to infants aged 6 through 8 months during outbreaks which should not be counted [6]. Having stated all the above facts, National Immunization Schedule in our country still awaits the inclusion of Rubella vaccine for even remotely considering the elimination of the disease.

MATERIAL AND METHODS

A cross sectional hospital based survey was planned and executed on 120 medical students from Prefinal (3rd) year and Intern batches who were posted in the Dept of PSM, MB Hospital, RNT Medical College, Udaipur as a part of their schedules rotatory postings from 1st dec to 31st dec 2016. The sample size was calculated using the results of the study done in Brazil by Juliana Costa Vieria *et al*. A minimum sample of 108 students is required to assess the knowledge regarding Rubella infection amongst the medical students at a Confidence Interval of 99.9% calculated using Epiinfo6. For the purpose of easy division and considering the drop-outs, we took a sample size of 120; 60 students were selected from each batch. The students present in Immunization Clinic on every Monday were interviewed personally till the sample reached a maximum of 60 from each batch using a self-made, semi-structured questionnaire pretested by the faculty members of the department enquiring about their knowledge regarding Rubella infection, Congenital Rubella Syndrome, its transmission, its prevention and vaccine, and also about their vaccination status and their willingness to get vaccinated against Rubella. The data was the entered and analyzed using Microsoft excel 2007.

RESULTS

Total 120 students were questioned, 60 from each batch. Out of 60 prefinal students, 32 were females and 28 were males. Out of 60 Interns, 28 were females and 32 were males. [Fig1]

32 Prefinal females	28 Prefinal males
120 students	
28 Intern females	32 Intern males

Figure 1: Showing the gender wise and batch-wise distribution of students.

On asking if they had heard about Rubella, 100% students answered affirmatively and said that they knew that it is a viral infection. But 3.33% (4 out of 120) students had not heard of Congenital Rubella Syndrome. Half of them were intern males (2 out of 60) and half were prefinal females (2 out of 60).

Table 1: Showing the responses of different batches when asked which trimester when affected causes CRS. Percentage in parenthesis

	PFF	PFM	IF	IM	Total
1 st	12(10.0)	18(15.0)	14(11.6)	12(10.0)	56(46.6)
2 nd	4(3.4)	4(3.3)	0	4(3.3)	12(10.0)
3 rd	2(1.6)	2(1.6)	0	2(1.6)	6(5.0)
All	14(11.6)	4(3.3)	14(11.6)	14(11.6)	46(38.3)

Having questioned about the most important trimester of pregnancy responsible for transmission of virus, 56 out of 120 (46.6%) students (12 prefinal females, 18 prefinal males, 14 intern females and 12 intern males) correctly answered the first trimester of the pregnancy as the most common to be affected while 46 students (38.3%) responded that all the trimesters are equally important. Rest reported either 2nd or 3rd trimester. [Table1]

On asking about the particular vaccine against rubella infection, 104 (86.6%) responded as MMR (28 prefinal females, 24 prefinal males, 24 intern females and 28 intern males) while 8 (6.66%) students answered RA 27/3. Rest answered either Pentavalent vaccine or didn't know about it. [Fig 2]

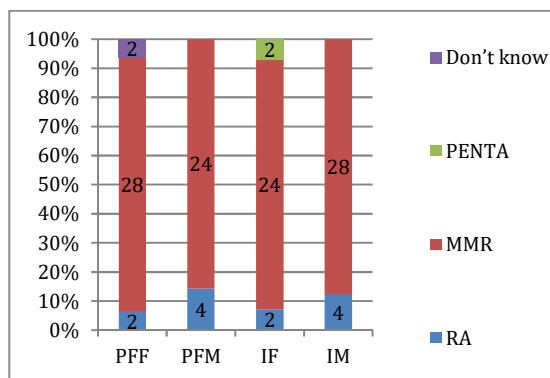


Figure 2: responses on naming the particular vaccine against rubella

When asked about the population groups based on age who all can be vaccinated against Rubella, 31.6% students (8 prefinal females, 14 prefinal males, 10 intern females, 6 intern males) reported 1-15 years age group, 11.6% (2 Prefinal males, 6 intern females, 6 intern males) responded <1 year, 8.33% (8 prefinal females, 2 prefinal males) told 15-45 years and 45% (14 prefinal females, 10 prefinal males, 12 intern females, 18 intern males) affirmed that all the age groups can be vaccinated. [Fig 3]

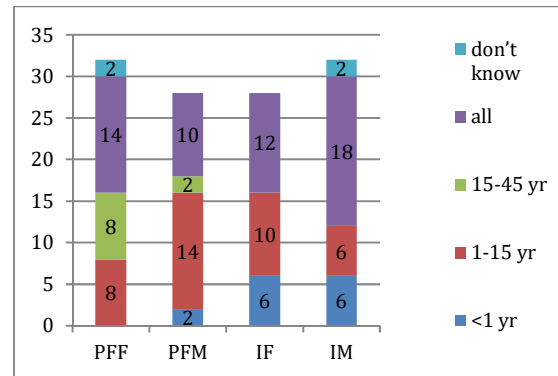


Figure 3: showing responses on what all age-groups can be vaccinated

A total of 50 students (41.6%) were unaware about their vaccination status against MMR while 12 students (10%) were totally unimmunized. Rests all were immunized. [Fig 4]

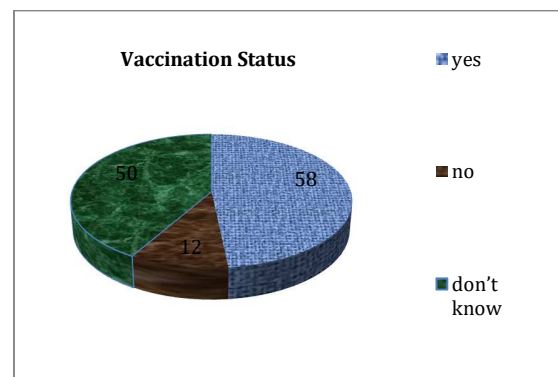


Figure 4: Showing if they are vaccinated against Rubella.

Amongst those who were not immunized, the most common attributions pointed were like unavailability of vaccine (50%), unawareness about the need (3.33%) or unawareness about the availability (1.66%). [Fig5]

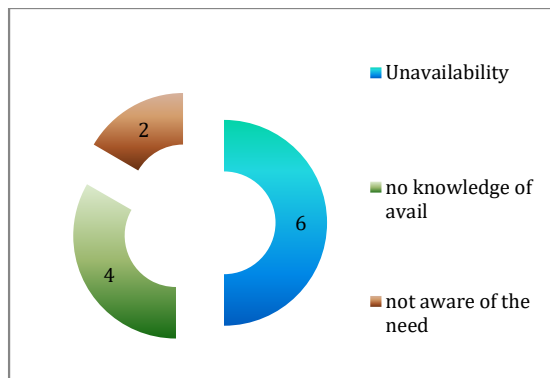


Figure 5: Showing the reasons of not getting vaccinated.

When asked if after having explained about vaccine, are they willing to get vaccinated, 28 out of 120 (23.3%) students denied to get vaccinated. Rest all accepted that they are willing.

DISCUSSION

Rubella has so far been neglected in India despite the fact that MMR vaccine has been initiated in children at 13-18 months of age in some states of India [10]. The extent of neglect to this disease is so high that even a section of medical students and professionals also lack the fundamental knowledge and miss on the practices helpful enough in the prevention and containment of the infection and its consequences. Out of the total who were 120 students were questioned, 100% students knew Rubella infection but still 3.33% students had not heard of Congenital Rubella Syndrome. a similar study conducted by Juliana Costa Vieira *et al* among Brazilian adults in 2011 gave a much lesser satisfactory results where a total of 715 respondents (69.9%) answered affirmatively when asked if they knew what rubella was. The remaining 30.1% included 13.1% who were unsure and 17.0% who had no knowledge of the disease or did not answer the question. Respondents 18 to 25 years of age had the lowest frequency of affirmative responses to the question, with only 56.3% of female and 61.3% of male respondents in that age group reporting knowledge of rubella. Frequency of positive responses to the question was higher among women aged 26 to 35 years (75.0%) versus men (62.9%) and was higher among older adults for both sexes[1]. the study subjects in our study also could not satisfactorily respond about the congenital rubella syndrome and the trimester most commonly affected to cause the disease as only 46.6% students correctly answered the first trimester of the pregnancy as the most common to

be affected while 38.3% responded that all the trimesters are equally important. The knowledge about this trimester is particularly important because proper prevention of the pregnant ladies leads to much lesser prevalence of newborns with congenital rubella syndrome or cases of abortion and stillbirths.

Assessing their knowledge regarding the particular vaccine against rubella infection, 86.6% responded as MMR which is indeed the most common combination to be used worldwide while only 6.66% students specifically answered RA 27/3 vaccine. This figure can be attributed to the over-generalised usage of the term MMR against Rubella infection. Though their knowledge regarding the vaccine was adequate, their practice was not in unison with it. On enquiring about their vaccination status, 41.6% were unaware about their vaccination status against MMR while 10% were totally unimmunized which according to us was unacceptable, particularly amongst the medical students who are in the constant contact with the virus in the premises. A study done by Muhammad Awais Khan *et al* in April, 2017 reported the poor vaccination statuses in the medical students as well as the students in other courses. They said that overall 12% students were vaccinated against rubella while remaining 88% were not vaccinated. . Among the students of IUB, only 8% were vaccinated against rubella while remaining 92% were non-vaccinated. However among the students of QAMC, only 16% were vaccinated and 84% were non-vaccinated [7]. Also regarding the number of doses received by the vaccinated students of QAMC, only 62.5% of them had completed the course of 2 doses against rubella while remaining 37.5% of them had received only a single dose. Regarding the number of doses received by vaccinated students of IUB, 100% of the vaccinated students had received only a single dose of rubella vaccine. 0% had completed the recommended course of vaccination [7].

In our study, the most common attributions for the non-vaccination status pointed were like unavailability of vaccine (50%), unawareness about the need (3.33%) or unawareness about the availability (1.66%).

Talking about the attitude of the medical students towards MMR vaccination, when we asked about the population groups based on age who all can be vaccinated against Rubella from them, 31.6% students reported 1-15 years age group, 11.6% responded <1 year, 8.33% told 15-45 years and

45% told that all the age groups can be vaccinated. A study done by C. Pulcini *et al* in Southeastern France in 2012 on the General Practitioners of the city reported that of 106 randomly selected GPs, 71 (66.8%) stated that MMR vaccination should be mandatory for children <2 years old and 97.2% stated that they recommend MMR vaccination for that population[8]. Another study which supports the vaccination at all ages will cause a containment of the disease is one done by Thanapal Amala Rajasundari *et al* in Madurai in 2006 which reported that nearly 11.4 per cent of the health care workers were found to be seronegative for rubella virus and after vaccination, these volunteers developed a good protective immunity, thereby reducing the risk of contracting the hospital based rubella infection. Therefore, rubella vaccination may be instituted in hospitals for the benefit of health care workers [9]. Though a long path has been covered in propagating the knowledge regarding Rubella infection, still miles to go before the disease ceases to be a public health problem.

CONCLUSION

Though the prevalence of Rubella and CRS seems quite high in our country, the students from the medical fraternity lack the most fundamental knowledge regarding the infection and vaccination. Looking at this, the attitude of the general population towards this infection can be imagined. Moreover we found that their practice was also not appropriate as 42% students were not aware of their vaccination status and 10% students accepted that they were not vaccinated that too because of the unavailability of the vaccine. Unfortunately 23% denied to get vaccinated in future.

This study shows a basic gap between getting the knowledge and assimilation of the knowledge and bringing it out in the practice in the Medical students. Rubella and CRS are no doubt public health problems and we, the medical professionals along with the responsible Government officials need to take up the challenge to eliminate this health menace. And the process might as well require an incorporation of Rubella vaccine in the National Immunisation Schedule along with expansion of the spectrum of age- groups to be administered the vaccine. More efforts should be made to make the general population aware of this health problem. And this can be brought about by the help and inclusion and support of

grass-root level health professionals and private practitioners.

REFERENCES

1. Vieira JC, Carvalho MT, Checchia RL, Trombiere M, Flannery B. Survey of rubella knowledge and acceptability of rubella vaccination among Brazilian adults prior to mass vaccination. *Revista Panamericana de Salud Pública.* 2011;30(4):335-41.
2. Dewan P, Gupta P. Burden of congenital rubella syndrome (CRS) in India: a systematic review. *Indian Pediatrics.* 2012;49(5):377-99.
3. World Health Organisation; Rubella; Fact sheet Updated March 2017.
4. National health Portal (NHP), India; Rubella; LAST UPDATED ON : Feb 04, 2016.
5. Sharma H, Chowdhari S, Raina TR, Bhardwaj S, Namjoshi G, Parekh S. Sero-Surveillance to assess immunity to rubella and assessment of immunogenicity and safety of a single dose of rubella vaccine in school girls. *Indian Journal of Community Medicine.* 2010;35(1):134-7.
6. Measles, Mumps and Rubella; Advisory Committee on Vaccines & Immunization Practices; Indian Association of Paediatrics Immunisation Schedule 2016.
7. Coverage of Tetanus Toxoid and Rubella Vaccination among female students of QAMC and IUB, Bahawalpur. Dr.Muhammad Awais Khan, Dr.Noor Akbar, Dr.Adil Jalil Leghari; *International Journal of Research; Volume 04 Issue 05 April 2017.*
8. Knowledge, attitudes, beliefs and practices of general practitioners towards measles and MMR vaccination in southeastern France in 2012;C. Pulcini^{1,2,3}, et al, Paris, France
9. Rajasundari TA, Chandrasekar K, Vijayalakshmi P, Muthukkaruppan V. Immune status of health care personnel & post vaccination analysis of immunity against rubella in an eye hospital. *Indian Journal of Medical Research.* 2006;124:553-8.
10. Mudur G. India to introduce rubella and rotavirus vaccines and inactivated polio vaccine. *British Medical Journal.* 2014;349.