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Assessment of Knowledge, Attitude and Practice regarding Rubella vaccination and Congenital Rubella Syndrome among medical students of a Tertiary care hospital in Chennai, Tamil Nadu

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ABSTRACT

Introduction: Rubella infection in pregnant women contracted during the first trimester of pregnancy carries high risk of transmitting the virus to the fetus and can cause a spectrum of birth defects referred to collectively as congenital rubella syndrome (CRS). But nowadays after the introduction of rubella vaccine CRS can be prevented.
Objectives: This study aims in assessing the level of knowledge, attitude and practice regarding rubella vaccination and congenital rubella syndrome among medical students and to evaluate the relationship between their socio- demographic details and their knowledge regarding Rubella vaccination.
Materials and method: This hospital based cross sectional study was conducted with appropriately 250 individuals selected through convenience sampling. Data were collected using a structured questionnaire given to the participants who were willing to participate.
Results: In our study based on the response the basic knowledge of the students was high(100%) but lacked accurate knowledge about the vaccine and CRS. The attitude towards vaccination and their practice was relatively less when compared to their knowledge.
Conclusion: Our result propose that medical students should not only have thorough knowledge but also positive attitude towards vaccination and 100% percent vaccination coverage.
keywords: Rubella vaccine, Congenital Rubella Syndrome, Medical students, Knowledge.

INTRODUCTION

Rubella is a mild viral disease characterized by mild fever and maculopapular rash.It is also known as German measles. In the majority of the affected people, it is a mild, self-limiting illness that resolves without any post infection sequelae. Whereas in pregnant women, infection with rubella virus during the first trimester of pregnancy carries high risk (>90%) of transmitting the virus to the fetus[1]. Rubella infection of the fetus may lead to blindness, deafness, heart defects, mental retardation, and other birth defects referred to collectively as congenital rubella syndrome (CRS). Infection may also result in foetal death and spontaneous abortion[2]. According to the World Health Organization (WHO) more than 1,00,000 children are born with CRS annually, with most of them in developing countries[3]. Of the 1,00,000 children born with CRS every year globally, an estimated 40,000 cases occur in India alone[4][5][6]. Up to 4 babies in every 1000 live births were born with CRS before the introduction of vaccine. Rubella is a 100%

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vaccine preventable disease. The rubella vaccine is a live attenuated strain that has been in use for more than 40 years. The RA 27/3 strain is most widely used for vaccination, and is administered subcutaneously[7]. A single dose of rubella vaccine will result in immunity that persist for at least 18 years in more than 90% of the vaccine recipients[8]. 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). According to IAP, Routine vaccination can be done minimum age of 9 months or 270 completed days. The schedule says the first dose of MMR vaccine is administered around 9 to 12 months, the second dose around 15 to 18 months, and final (the 3rd) dose around 4 to 6 years.

According to the Global measles and rubella strategic plan (2012–2020), eliminating rubella and measles requires achieving and maintaining high levels of population vaccination coverage. To achieve high vaccination coverage health care workers need excellent knowledge and skills for promoting vaccination[9][10][11][12]. Studies in developed and developing countries have reported there is a lack of knowledge about vaccinations among health care providers. These gaps in vaccine knowledge among health care workers (HCW's), limits communication and interaction with parents, resulting in poor vaccine uptake. The healthcare worker's knowledge on vaccination is influenced by several factors, including awareness and attitude towards vaccines, continuous medical education, personal experience, specialty type, knowledge base and training[1]. This study therefore aimed to assess health care worker's knowledge, attitude and practice regarding rubella vaccine and CRS. The study explores the existing knowledge gaps and provides evidence for planning interventions.

MATERIALS AND METHODS

This hospital based descriptive cross sectional study was conducted in tertiary care fertility hospital in Tamilnadu for a period of 3 months between January to March 2020. The study participants comprised of students from final year, pre final year and second year. The sample size was calculated considering the awareness regarding the preventable nature of CRS in a study done by Gupta et al., to be 84.1% using the formula $n= 4pq/l\ d^2$ where P=84, and considering 5% allowable error the sample size was calculated as 215[8]. To facilitate the subgroup analysis and to account for refusal to participate, it was decided to include approximately 250 individuals in the final study. The students were selected through convenience sampling method with maximum variation, including different age group, different area of residence and different year of study. The eligibility criteria of the sample group were those willing to participate in the study were included in the study. The exclusion criteria of the sample group was those not willing to give written consent.

Data were collected by using a structured questionnaire which comprised of two parts. Part I consisted of socio demographic details of the respondents such as age, sex, year of study, place of residence, family income and number of family members. Part II consisted of questions regarding knowledge, attitude and practice about rubella vaccine and CRS.After obtaining ethical clearance from Institution Ethics Committee, the study was commenced. Informed and written consent was taken from each student before starting the data collection.

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Obtained data were entered in MS Excel and analyzed by using IBM SPSS Statistics for Windows, version XXIV (IBM Corp., Armonk, N.Y., USA). Variables in categorical/dichotomous were presented as frequencies along with their percentages. A Spearman correlation analysis was used to find the direction and magnitude of association between the various dimensions
The p-value of less than 0.05 was considered statistically significant.

RESULTS

A total of 215 students were included in the study. As per sex, female students (59.7%) were more than male students (40.3). A proportion of 70.4% were final year students and only few students were from 2nd year (12.5%) and 3rd year (17.1%). Most of them were from urban area (80.1%) and very few from rural area (19.9%). There was a strong, positive correlation between most of the responses and the socio demographic details which was statistically significant.

On asking if they have heard about rubella and rubella vaccine everyone (100%) answered affirmatively and they knew it was caused by virus. But some students (26.1%) did not know that rubella infection contracted during pregnancy can harm the fetus. On asking is CRS preventable 74.1% answered correctly 25.9% of the students lacked the knowledge that it is preventable. On asking the number of doses 72.2% of the students answered correctly and the remaining students (27.8%) either answered incorrectly or did not have the knowledge about the number of doses. Among the students who answered correctly most of them (86.6%) were unaware of the route of administration and did not know that pregnant women should not be given rubella vaccine.

The students had a positive attitude towards vaccination against rubella and most of them (88.9%) were willing to get vaccinated against regardless of what others say about vaccination. When asked if they would vaccinate their children against rubella most (89.9%) of them were willing to vaccinate their children in the future. A total of 20 students did not receive MMR vaccine and were unimmunised against rubella and 26 student were unaware of their vaccination status. The other 184 students were immunized against rubella.

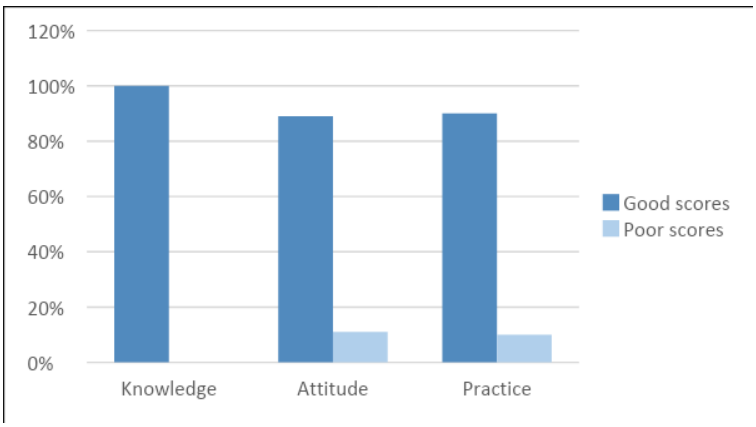

Figure 1: Knowledge, Attitude and Practice scores of the participants

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Table 1: Association of Independent variables with scores of the participants

Variables	Good score (n=205, 95.34%) n(%)	Poor score (n=10, 4.66%) n(%)	Total (n=215, 100%) n(%)	P value
Age:				0.000
19	23 (10.69%)	2 (0.93%)	25 (11.62%)	
20	46 (21.39%)	8 (3.72%)	54 (25.11%)	
21	104 (48.37%)		104 (48.37%)	
22	32 (14.88%)		32 (14.88%)	
Gender:				0.000
Male	78 (36.27%)	8 (3.72%)	86 (40%)	
Female	127 (59.06%)	2 (0.93%)	129 (60%)	
Year of study:				0.000
2nd year				
3rd year	25 (11.62%)	2 (0.93%)	27 (12.55%)	
4th year	27 (12.55%)	8 (3.72%)	36 (16.74%)	
	153 (71.16%)		153 (71.16%)	
Area of residence:				0.000
Urban				
Rural	169 (78.60%)	4 (1.86%)	173 (80.46%)	
	36 (16.74%)	6 (2.79%)	42 (19.53%)	

p-value of less than 0.05 is statistically significant.

DISCUSSION

This study scrutinized the awareness about rubella vaccine and CRS among the medical students of different years with previous knowledge about rubella infection to which they was exposed during their course of study.

In brief, from our study the level of basic knowledge about rubella vaccine and CRS was high (100%) among the participants but they lacked detailed knowledge about the vaccine. In some studies conducted in different part of the world the results were contrary where the participants lacked even the basic knowledge about rubella vaccine and CRS[13][14]. Whereas in other similar studies the responses were similar to that of the current study[8][15]. The level of awareness was more among the final year students compared with the participants from second and third year. This was expected as per the fact that they are exposed to information on rubella vaccine and CRS in their regular course books and their interaction with gynecologist. In a akin study relatively similar results was seen where the level of awareness regarding the vaccine and the disease was high (92.1%) among study subjects and it was increasing significantly with their year of study[15]. The objective of achieving high vaccination coverage depends on the role of health care workers. Since they need to promote and motivate the parents to vaccinate their

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children. This solely depends upon the knowledge about the vaccine and disease among the students who are the future health care workers.

Moreover, the findings from this study showed that around 75% of the participants were aware of the common signs and symptoms of CRS and around 25% of them were unaware or unsure about the findings in CRS. Whereas in a study conducted by Al-abd et al., only half of the participants were aware of the signs and symptoms and in a relatively similar study that was carried out in Brazil the results were significantly very low[14][16]. However in a study conducted by Gupta H et al.,92.1% of the participants were aware of the potential damage caused by CRS to the fetus which is higher than that of the current study.

Examining the results of our study it reveals that most of the participants have a positive attitude about rubella vaccine and were willing to vaccinate themselves and their children in the future. Kodali et al., reported that in their study the attitude towards vaccination was positive among 63% of the college students and towards child immunization it was even more (77.6%). The attitude of the respondents in our study towards rubella showed that almost 90% of the respondents viewed rubella as a problematic disease. In a related study two-third of the respondents viewed rubella as a problematic disease[14].

In our study 78.7% of our participants were vaccinated against rubella whereas 9.3% of them were unimmunised and 12% of them were not sure of their vaccination status. In a similar study only 42.07% of the participants were immunized but their awareness was very high (92.1%) which shows their non seriousness about the issue[8]. But in a study conducted by Sharma et al., only 10% were unimmunised which is similar to our study and 41.6% were unaware about their vaccination status[15]. In a study recently conducted in Yemen the vaccination status of the participants was only 10% which is markedly low[14].

In our study there was a significant association between knowledge and other sociodemographic factors such as age, gender, year of study and area of residence. In a related study there were no significant association between knowledge and other sociodemographic factors[8]. In a study conducted in Egypt contrary results were observed from our study regarding association between knowledge and other sociodemographic details[17].

CONCLUSION

our study found that knowledge on rubella, rubella vaccine and CRS was significantly high among the participants. The participants also had positive attitude towards vaccination and most of them got vaccinated. However there were few students who were unimmunised. 100% vaccination coverage should be met by the medical students who are the leading examples for the publics to get vaccinated. Educating both physicians and parents is necessary to achieve high vaccination coverage. Awareness alone cannot change peoples attitude and practice. Advanced strategies and fresh initiatives should be made in order to achieve high vaccination coverage.

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