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Original research article

A Cross-Sectional Study on Knowledge and Attitude Regarding Varicella among Medical and Nursing Students in a Tertiary Care Hospital, Kannur, Kerala

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Abstract

In this study, we looked at a cross-sectional study of varicella knowledge and attitudes between many students of the medical and nursing domain in a tertiary care hospital in Kannur. Convenient sample selection methods were used to select 265 students for the research. All undergraduate Medical and Nursing students were studying in Kannur Medical College. A self-administered questionnaire based on English was developed to gather information. The questionnaire comprised 26 questions - 20 questions regarding knowledge, 5 attitude-based questions, and 2 questions regarding practice. SPSS16 was used to analyse the statistical study, entered into Microsoft Office Excel. The objective of the study included evaluating the knowledge, attitude, and immunity status among medical and nursing students and comparing the results between the two students. We found that most of the respondents had good knowledge, attitude, and immunity status regarding varicella with better understanding among medical students than nursing students but showed a lack of interest in taking the vaccine, cost, and fear of getting varicella after taking the vaccine. It is suggested that more knowledge and vaccination programs be held in colleges to teach students and prevent infection. And it also indicates that the institutions can provide vaccines at discount rates to students who are willing to have them. It would be beneficial for our future infrastructures.

Keywords: Knowledge, Attitude, Varicella, Medical, Nursing, Students, Tertiary Care Hospital, Kannur

Introduction

VZV (varicella zoster virus) is a highly infectious condition that causes chickenpox worldwide. Viruses can be spread by direct contact, aerosol inhalation, or through breathing difficulties caused by infected vesicular fluid from severe zoster or varicella skin conditions. Varicella is highly contagious, with secondary infection emerging in 61 percent –100 percent of affected household contacts. Varicella takes fourteen to sixteen days to develop after being exposed to varicella or herpes zoster rash, with a spectrum of ten to twenty-one days. A minor prodrome of malaise & fever in adult people can happen one to two days before the rash appears. The rash is frequently the 1st sign of infection in kids. In children, the rash is often the first sign of disease. Varicella is usually minor in healthy kids, with fever, itchy rash, as well as malaise

lasting two to three days. Healing from a primary varicella disease generally results in lifelong immunity. Varicella recurrence is rare in healthy individuals, but it is possible in immuno-compromised individuals. The duration of transmissibility is thought to be between one to two days before the appearance of a rash and four to five days afterward. When the lesions have crusted, the patient is no longer contagious. Vaccinated people may develop lesions that do not crust. Till no new lesions appear within 24 hrs, such individuals are found infectious [1, 2].
Chickenpox is most common in children under the age of ten years old. Only a few people live to adulthood without becoming infected. Expectant mothers, newborns, teenagers, adults, as well as people with compromised immune systems are all at increased danger for more serious illnesses and more side effects. Bacterial infectious diseases of the skin, as well as soft tissues, Pneumonia, and serious conditions such as haemorrhagic situations, encephalitis, cerebellar ataxia, and viral pneumonia, are the most leading causes of varicella infection. [3]

Varicella syndrome and its treatment protocols

In 0.4 percent to 2.0 percent of babies born to women who contract varicella during their first or second trimester of pregnancy, congenital varicella disease can cause hypoplasia, skin deformities, encephalitis, microcephaly, ocular deformities, mental disabilities, and low birth weight. Babies born to women who contract varicella between five and two days before delivery are at risk of developing severe neonatal varicella. The American Academy of Pediatrics (AAP) recommends oral acyclovir or valacyclovir therapies for higher-risk groups, such as [4-8].

- Persons over the age of twelve who are in good health
- Persons with pulmonary/cutaneous or abnormalities that are long-lasting
- Persons who are on long-term salicylate treatment
- Persons who are taking corticosteroids in short, intermittent, and aerosolized doses.
  For maximum benefit, valacyclovir or oral acyclovir therapy should be given within the first 24 hours after the varicella rash starts
- In India, 2 vaccines are presently accessible, both containing an attenuated live VZV which was derived from Oka strain of VZV was licensed in the United States in 1995[4].
- All adults who've never had chickenpox must get two dosages of 0.5 mL subcutaneously in the deltoid region.
- For children aged 13 years and older, the 1st dosage is given at 12-15 months and the 2nd dosage at 4-6 years.
- For people over the age of thirteen, the two doses are separated by four to eight weeks.
- If titers are sufficient, booster dosages aren't required for those who have already been immunised.
- At this time, the World Health Organization doesn't suggest that developing nations include varicella vaccination in their routine immunisation programs.
- In resource-constrained nations, at least reproductive-age women and individuals at greater risk of varicella exposure, such as healthcare personnel, household contacts, and others, must be vaccinated.
- Vaccine-induced immunity happens to be long-lasting and, in most cases, permanent.
- Infection with the wild-type VZV taking place more than forty-two days after the vaccination of varicella is known as 'breakthrough varicella.' It is significantly less serious than the infection in people who have not been vaccinated.

NEED FOR THE STUDY

Kerala has reported the highest number of chickenpox cases for the past few years. As of AUGUST 2019, 19569 cases and 12 deaths have been reported in Kerala (Source: IDSP). Parents think healthcare professionals to be the most valuable source of information while deciding whether or not to give their kids a vaccine, as shown in various researches. Due to inadequate knowledge about immunization, research findings have shown that medical providers can significantly decrease immunization. Insufficient vaccination knowledge among healthcare professionals can substantially impact vaccination coverage. As a result, the purpose of this research was to identify out how well nursing and medical students knew about varicella and how they felt about it.

OBJECTIVES

- To determine how well medical & nursing students understand varicella.
- To study medical & nursing students' attitudes toward varicella.
- To determine the immunity status of the students against varicella based on medical history /vaccination status.
- To compare the results between the two groups of students.

MATERIALS AND METHOD

- *Study setting*: Tertiary care hospital in Anjarakandy, Kannur district, Kerala.
- *Study design*: Based on Hospital, Cross-sectional study**.**
- *Study period*: 45 days (1st January 2020 to 15th February 2020)**.**
- *Study population*: All undergraduate Medical and Nursing students studying in Kannur Medical College**.**
- *Inclusion criteria*: Students who gave written informed consent and were present on the day of the study.
- *Sample size*: The study included 265 participants.
- *Sampling technique*: Convenient sampling**.**

Data Collection

- Students were contacted during the given timeframe in their lecture halls after receiving ethics approval from the institutional ethical committee.
- A self-administered questionnaire in English was used to gather information. The questionnaire contained 26 questions, with 20 questions about knowledge, 5 questions about attitudes, and two questions about the practice.
- Care was taken to prevent cross-consultation or mobile phone use for referring to the answers.
- Informed written consent was taken from all the students before administering the questionnaire.

Statistical Analysis

SPSS16 was used to analyse the data obtained in Microsoft Office Excel.

Knowledge Scoring

- Total 20 knowledge questions
- Correct answer = 1 mark
- Incorrect answer/don’t know = 0 mark
- Using the median score which was 11 as cut off, the knowledge score was divided into two categories, i.e.
  - <11: Poor knowledge
  - ≥11:Good knowledge

Limitations

The study was confined to only 265 undergraduate medical and nursing students of Kannur Medical College. Hence, this study result cannot be generalized to all college students. Since convenient sampling was used, the results of this study may be biased. Data of medical history and vaccination status was based on questionnaires and not on any medical record. Therefore it was dependent on the recollection of respondents.

RESULTS

Socio-Demographic Profile

- Distribution of students based on the course of the 265 students surveyed, in which 125 (47.2%) were medical students, while 140 (52.8%) were nursing students.
- The majority of medical students (60.48%) are between the ages of 21 and 23, while most nursing students (77.5%) are between the ages of 18 and 20.
- Medical students' mean age was 23.31±1.97yrs, whereas nursing students' mean age was 20.63±2.05yrs.
- The majority of gender distribution 200 (75.5%) of the study participants were females, while only 65(24.5%) were males.
- The majority, 171(64.5%) of the study participants, were hostelites, while only 94(35.5%) were day-scholars.

Socio-Economic Status

Distribution of students based on socio-economic status, in which most of the students belonged to class I, II, III, IV, & V, There were out of 265 students as:

- 167(63%) students of Class I
- 72(27.2%) students of Class II
- 16(6%) students of Class III
- 8(3%) students of Class IV
- 2(0.8%) students of Class V

The majority of medical students (MBBS) in classes I, II, III, IV, and V out of 125 were:

- 79(63.2%) students of Class I
- 37 (29.6%) students of Class II
- 4(3.2%) students of Class III
- 3(2.4%) students of Class IV
- 2 (1.6%) students of Class V

The majority of nursing students in classes I, II, III, IV, and V out of 140 were:

- 88(62.9%) students of Class I
- 35(25%) students of Class II
- 12(8.6%) students of Class III
- 5(3.6%) students of Class IV
- 0(0%0 students of Class V

Knowledge Regarding Varicella

All the study participants have heard about Varicella (Chickenpox). Education, through mass media/internet, personal experience, and families/friends, was a primary source of information about varicella. The majority of medical students (90%) chose the virus as the causative organism, while most nursing students (90%) chose the virus. The remaining 8% is bacteria, 1% is protozoa, and 1% is something else. Most medical students (85.6%) and nursing students (65%) knew that respiratory droplets were the most common way for varicella to spread.

Vesicles/rash is the symptom of chickenpox, according to 112 (97.6%) of medical students and 124 (88.6%) of nursing students who responded. The trunk is the first site of the appearance of vesicles, according to the majority of medical students (84.4%) and nursing students (54.3%). According to 52.1% of nursing students and 50.2% of medical students polled, chickenpox can be spread to others before the rash appears. Chickenpox is transmissible until no new rashes appear. Chickenpox is only transmissible during the febrile period, according to 125 (47.2%) medical students and 140 (32.9%) nursing students. The vast majority of respondents (84% of medical students and 84.3% of nursing students) knew that those who had never been infected before were susceptible to the disease. Reinfection with varicella was only mentioned by 1.5 percent of the respondents (2.4% medical and 0.7% nursing students). Unvaccinated people have a higher risk of getting chickenpox than vaccinated people, according to 75.2% of medical students and 59.3% of nursing students.

Among the respondents, 75.2% of medical students and 67.1% of nursing students believed that skin scar is the main complication for chickenpox. Among the 125 medical students, 68% said there is a chance of infection from mother to baby during pregnancy, while 64% of the 140 nursing students said the same. Among the 94% of the medical students and 88% of the nursing students knew that a vaccine was available for chickenpox. Among the respondents, 64% of the medical students and 60% of the nursing students learned that the vaccine available for chickenpox is live attenuated varicella. Only 44% of medical students and 25% of nursing students thought the minimum age for varicella vaccination was 12–18 months, while 29.8% didn't know. Among the responders, 106(85%) medical and 122(87%) nursing students said there is a treatment for chickenpox. Among the respondents, 88(70.4%) of medical students and 86(61.4%) of nursing students believe pregnancy is a contraindication for varicella vaccination. Among the 61.6% of the medical students, only 40% of the nursing students knew that 2 doses needed to be taken to prevent varicella. Immunity lasts a lifetime, according to 54% of medical students and 33.6% of nursing students. The majority of the medical students (93%) knew that the reactivation of chickenpox is called herpes zoster, while only 59% of the nursing students knew about the same. The most common age group affected in children was 5-9 years, according to 37.6% of medical students and 28.6% of nursing students who responded.

Knowledge Score

- Majority got a score of 11
- Mean score was 11.38 ± 3.11
- Median score =11
- Mean knowledge score of medical students was 12.59
- Mean knowledge score of nursing students was 10.30
- When comparing medical students to nursing students, the mean knowledge score was significantly higher [$t=6.478$, $p<0.05$]

  Using the median score =11 as cut off, the knowledge score was divided into two categories, i.e.
- <11: Poor knowledge
- ≥11: Good knowledge

  167 students (63%) were well-versed in the subject of varicella. Based on their knowledge score, there was a statistically significant difference between medical and nursing students [$p = 0.00001$; $\chi2 = 44.69$ (at $p<0.05$)].
- No significant difference between age groups[$p=0.72$; $\chi2=0.72$ (at $p<0.05$)]
- No significant difference between gender[$p=0.75$; $\chi2=0.09$ (at $p<0.05$)]
- No significant difference between place of residence[$p=0.95$; $\chi2=0.004$ (at $p<0.05$)]

- No significant difference between Socio-economic status[p=0.97; $\chi 2$=0.49 (at p<0.05)]
- No significant difference between Semesters[p=0.92; $\chi 2$=0.06 (at p<0.05)]
- No significant difference in knowledge score amongst those who had chicken pox before and those who did not/don't remember[p=0.23 ; $\chi 2$=1.46 (at p<0.05)]

Only 85(32%) of the responders [43(34.4%) medical and 42(30%) nursing students] said that they had got chickenpox before. Only 29 (35.6%) out of 82 medical students who haven't got /don't know if they had contracted chickenpox in the past have taken the vaccine. 29(29.6%) out of 98 nursing students who haven't got/don't know if they had contracted chickenpox in the past have taken the vaccine. Only 32.2 percent of those who haven't had chickenpox or don't know if they have had chickenpox in the past have taken the vaccine. There was no noticeable difference in knowledge between those who received vaccines and those who did not.

Attitude towards chickenpox and varicella vaccine

Overall only 55% of the medical and 43% of the nursing students did not consider chickenpox a serious illness. The majority of 112 students have not taken the vaccine, and out of them, only 72(64.9%) are interested in taking the vaccine. The majority of 52.8% of the medical students and 63.8% of the nursing students were interested in taking the vaccine. This difference was not found to be significant [$\chi 2$ value=1.4827; p-value=0.2233]. When probed into the reason for not taking the vaccine, the majority 73(40.6%), said that they were not interested in taking the vaccine. The high cost of the vaccine was cited by 29 (16.1 percent), followed by 28 (15.6 percent) who stated that they were afraid of contracting chickenpox after vaccination because it was a live attenuated varicella vaccine. 24(13.3%) were unaware of the vaccine, while 26(14.4%) gave no particular reason. Only 51.2% of medical students and the majority of 62.1% of nursing students were not willing to pay for the varicella vaccine. The majority of the responders (60% medical and 57% of nursing students) are willing to take vaccines if available for free.

DISCUSSION

It was observed that from 265 students surveyed, 125 (47.2%) were medical students, while 140(52.8%) were nursing students. Medical students' mean age was 23.31±1.97yrs while nursing students' mean age was 20.63±2.05yrs. Females made up the majority of the study participants. Chickenpox had infected 34.4 percent of medical students and 30% of nursing students. More than 90% of nursing students believe chickenpox is caused by a virus, which is nearly identical to a study conducted in Kuala Lumpur by Hesham et al. [9] that found that 86% of medical students are medical students were aware of this fact. Chickenpox can cause skin scarring, according to 75.52% of medical students and 67% of nursing students.

In contrast, only a minority, i.e., 26.4% of medical and 15% of nursing students, knew that secondary bacterial infections could be a complication of chickenpox. This is in contrast to Hesham et al. study [9], in which most of the respondents knew about scars on the skin, skin bacterial infection as complications of varicella. 45.6% of medical and 27.9% of nursing students knew that encephalitis is a severe complication of chickenpox. Even fewer students, i.e., 26.4% medical and 15% of nursing students, were aware that pneumonia is a severe complication of chickenpox.

According to our study, 68 percent of medical students and 64 percent of nursing students knew that congenital varicella syndrome (CVS) could occur during pregnancy. In comparison, only 29.1 percent of respondents were aware of the condition from Hesham et al. [9].

Hesham et al. study found that 94% of medical and 88% of nursing students were aware that a vaccine for chickenpox was available. Still, only 64% of medical and 60% of nursing students

were aware that the vaccine was live attenuated varicella. Approximately half of those polled had the correct knowledge about varicella vaccination, according to a study by [9]. There were 70.4% of medical students and 61.4% of nursing students in our study who had previously been educated about the vaccine's contraindications for pregnant women, which is consistent with the findings of Hesham et al. [9]. When asked if there is a risk of transmission from mother to baby during pregnancy, 68% of those polled said yes, while 64% out of the 140 students also agreed. Only 167 (63%) of the students had a solid understanding of varicella.

The mean score of knowledge was significantly higher among medical students than the nursing students [$t=6.478$, $p<0.05$]. No significant difference was seen with age, gender, socio-economic status, and place of residence. No significant difference in knowledge score was also seen amongst those who had chickenpox before, and those who did not/don't remember. A similar study by Hesham et al. found that respondents had adequate knowledge of varicella, with the majority (79%) falling into the intermediate category. The mean score of knowledge was significantly higher among medical field students than non-medical field students. 35.6% of the medical students who haven't got /don't know if they had contracted chickenpox in the past have taken the vaccine compared to 29.6% of the nursing students—those who received vaccines and those who did not show any statistically significant difference in their knowledge scores. Only 40.8 percent of the total respondents in Hesham et al. [9] study were aware that varicella could be fatal, which is similar to the results of the medical and nursing students in Hesham et al. [9].

63.8% of nursing and 52.8% of medical students expressed an interest in taking the vaccine. Still, only 72(64.9%) of the students who had not previously received the vaccine or had chickenpox expressed interest in receiving it. This difference was not found to be statistically significant. The majority (40.6%) said they were not keen to take the vaccine, while 16.1% said it was too expensive, and 15.6% said they were afraid of getting chickenpox after vaccination because it was a live attenuated varicella vaccine. 51.2% of medical students and 62.1% of nursing students were unwilling to pay for the varicella vaccine, whereas 60% of medical and 57% of nursing students would take the vaccine if free.

CONCLUSION

The majority of the respondents were found to have a good understanding of varicella, with medical students having a higher level of knowledge than nursing students. Although most students were unaware of the disease's serious complications, only 32.2% of those who had not had chickenpox in the past or were unsure if they had had it in the past were immunized. It was found that a lack of positivity for vaccination, high costs, concerns about contracting varicella after immunisation, and lack of information about the vaccine were among the most common deterrents to vaccination. Many of them are willing to take the vaccine if provided at no cost.

RECOMMENDATION

- More awareness and vaccination campaigns should be held on college campuses to teach students about the severe complications of chickenpox and the importance of taking effective preventive measures.
- This can reduce the risk of infection on campuses and during students' clinical attachments.
- The institutions can provide vaccines at discount rates to students who are willing.

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