Original Article

Effect of educational intervention measures on knowledge about rabies and its preventive measures among final year nursing students of a tertiary care hospital in central India

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Abstract:

Background: Rabies continues to be a major public health challenge with around 55,000 deaths every year. Amongst the health care providers nursing personnel are often the first point of contact and hence need to be well trained in the management of rabies cases.

Methods: The present study was an educational intervention study conducted among 100 final year nursing students of a Medical College Hospital to assess the knowledge regarding rabies and its transmission, first aid measures undertaken, and pre and post exposure prophylaxis measures employed to prevent the infection.

Results: 66% of the students knew about the signs and symptoms of the disease, post intervention this increased to 87% (p<0.001). Knowledge regarding animal bites which transmit rabies improved by 86% (p<0.001), mode of transmission by 49% (p<0.001) and first aid measures undertaken following an animal bite by 12% (p=0.07). 15% of the students knew about the correct site and route of PEP; post intervention 91% knew about it (p<0.001), 87% increase was observed as regards the dose of vaccine to be administered (p<0.001) and 73% students correctly knew about the PEP schedule post educational intervention (p<0.001). Knowledge regarding groups / individuals who need to receive pre-exposure prophylaxis increased by 33% (p<0.001) and that of the schedule of pre-exposure prophylaxis by 53% (p<0.001). The mean pre-intervention score was 6.95 and mean post-intervention score was 13.51; the results being statistically significant (t= 38.149, p< 0.001).

Conclusion: Substantial improvement in knowledge about the disease was noted amongst the nursing students following the educational intervention session.

Key Words: Impact, Rabies.

Introduction:

In spite of rapid and significant improvements across different public health domains rabies continues to be a major public health challenge in most of the developing countries. According to World Health Organization (WHO) estimates rabies is prevalent in more than 150 countries and territories and around 55,000 people die of the infection every year (1), with India alone accounting for about 20,000 deaths (2). It is well established that immediate post exposure prophylaxis (PEP) measures of wound cleaning and anti-rabies immunization prevent the onset of rabies and death. Every year more than 15 million people receive PEP regimen to avert the disease (1). Health care providers play a key role in the immediate management of persons with animal bites and thereby preventing rabies cases. Amongst the health care providers nursing personnel are often the first point of contact and hence need to be well trained in the management of such cases. In this regard the current study aims to assess the level of awareness and knowledge regarding the transmission and preventive measures undertaken to control rabies and the impact of educational intervention measures on the same amongst final year nursing students of a nursing college attached to a medical college hospital in central India.

Material and methods:

The present study was conducted among final year BSc and General Nursing (GNM) students of Maharaja Yashwantrao (MY) Hospital, Indore which is a major public health care tertiary unit in Madhya Pradesh, India and is attached to Mahatama Gandhi Memorial Medical College (MGMMC). The study design was cross sectional and conducted over a three month period from November 2010 – January 2011. It included all the final year GNM and BSc nursing students who gave consent to participate in the study. Prior permission was obtained from the Head of Department of Community Medicine and the Principal of the nursing college before initiating the study. A predesigned and pretested semi-structured questionnaire was used to evaluate the existing level of knowledge on rabies, transmission of infection and awareness about first aid, pre-exposure prophylaxis and post exposure prophylaxis. Following the initial assessment an educational intervention

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programme was conducted amongst the target audience through a lecture and group discussion by four undergraduate students of the Department of Community Medicine, MGMMC Indore. The intervention sessions focused on aspects of the disease as assessed during the pre-intervention assessment. Post intervention assessment was conducted amongst the study participants using the same questionnaire one month after the educational intervention sessions.

Both the assessments were done on a set of 16 questions and scores were generated individually for each question with a mean score before and after the educational assessment. The data was entered in SPSS version 17 and analyzed using McNemar's chi-square test and student's t-test to assess the change in awareness and knowledge post the educational intervention session.

Results:

A total of 100 students participated in the study, 44 of them were BSc students and 56 GNM students. All the participants were females and most were in the age group of 18-20 years (Table 1). The pre and post intervention assessment focused on four broad components:

- Awareness about rabies
- Awareness about transmission of rabies
- Awareness about first aid and PEP
- Awareness about Pre-exposure prophylaxis

Awareness about rabies

The study participants were assessed on their knowledge regarding general aspects of the infection. 83% of the participants knew that rabies is also known as hydrophobia, post intervention 99% knew about it (p<0.001). 79% of the students knew about the causative agent prior to the intervention, post intervention the awareness increased to 96% (p<0.001), while a 5% increase was noted related to the system affected during the course of the infection. Prior to the educational intervention 66% knew about the signs and symptoms of the disease while 87% knew about it during the post intervention assessment, the difference being statistically significant (p<0.001). (Table 2)

Awareness about transmission of rabies

Knowledge regarding animal bites which transmit rabies increased by 86% (p<0.001), infective material capable of transmitting infection by 13%, awareness about the mode of transmission by 49% (p<0.001) and factors affecting incubation period as place and number of bites, type of wound and the type of animal bite by 20% (p=0.003). (Table 2)

Awareness about first aid and PEP

66% of the study participants were aware of the first aid measures to be undertaken following an animal bite during the pre intervention assessment, post intervention 78% of the study subjects knew about it. Only 6% of the students knew about the types of vaccine available in India, post intervention a 23% increase in awareness was observed, the difference being statistically significant (p<0.001).
15% of the students knew about the correct site and route of PEP, post intervention 91% knew about it (p<0.001), similarly an 87% increase was observed as regards the dose of the vaccine to be administered (p<0.001). 21% knew about the complete schedule of PEP in the pre intervention assessment while 94% correctly knew about the PEP schedule post educational intervention measures (p<0.001). 28% of the study subjects knew about the importance of keeping the animal under observation following the bite while post intervention a 68% increase was observed for the same parameter (p<0.001). (Table 2)

Awareness about Pre-exposure prophylaxis

Knowledge regarding groups/individuals who need to receive pre-exposure prophylaxis increased by 33% (p<0.001), while a 53% increase was noted related to the schedule of the pre-exposure prophylaxis, the difference being statistically significant (p<0.001) (Table 2).

The mean pre-intervention score was 6.95 (S.D= 1.696) while the mean post intervention score was 13.51 (S.D= 1.480), a 94% increase in the mean scoring was observed. Paired t test was applied to the mean pre and post intervention scores and the difference was found to be statistically significant (t= 38.149, p< 0.001).

Table 1: Age distribution of the study subjects

Age group (in years)	Frequency
18-20	45
21-25	51
>25	04

Table 2: Pre and post educational assessment (n=100)

Study variable	Pre-test	Post-test	p value*
Awareness about rabies			
• Known as hydrophobia	83	99	<.001
• Causative agent	79	96	<.001
• System affected	92	97	.227
• Sign & symptoms of disease	66	87	<.001
Awareness about transmission of rabies			
• Animal bites which transmits rabies	11	97	<.001
• Infective material	85	98	<.001
• Mode of transmission	12	61	<.001
• Factors affecting Incubation period	42	62	.003
Awareness about first aid and Post exposure prophylaxis			
• First aid measures	66	78	.073
• Type of vaccine available in India	6	29	<.001
• Schedule of Post exposure prophylaxis	21	94	<.001
• Site and route of Post exposure prophylaxis	15	91	<.001
• Dose of vaccine to be administered	4	91	<.001
• Observation of dog following bite	28	96	<.001
Awareness about Pre-exposure prophylaxis			
• Groups to be given Pre- exposure prophylaxis	54	87	<.001
• Schedule of Pre-exposure prophylaxis	34	87	<.001

*McNemar's chi square test applied

Discussion:

The current study outlines a lack of awareness and knowledge regarding rabies amongst the study subjects. The nursing students had comparatively better knowledge regarding the general aspects of the infection compared to management of animal bite cases. 21% of the students knew about the schedule of PEP, 15% knew about the correct site and route of the vaccine and only 4% knew about the dose of vaccine to be administered. Earlier studies amongst health care providers have put forward similar findings. Bhalla et al[3] in a study amongst general practioners (GPs) in Jamnagar and Hasan et al[4] in a study amongst GPs in Karachi observed that while they had good knowledge regarding the infection, causative agent and system affected awareness regarding components of vaccine, PEP schedule and correct management of cases of animal bites was specifically lacking. A study by Kakkar et al[5] on knowledge regarding zoonoses among 364 medical students in India revealed poor knowledge about zoonoses in the study subjects; specifically only 5.5% respondents correctly stated that rabies is transmitted by animals other than dogs. Above findings reflect poor understanding of the critical issues as regards rabies management. With a heavy burden of animal bite cases in developing countries academic curriculum of all cadres of health workers should have rabies epidemiology and case management lessons incorporated as recommended by previous studies[6]. Also this should not just be restricted to the theoretical aspects but should include hands on training by making students visit anti rabies clinics during the course of their study. Appropriate job aids and training material should be provided to the students and displayed at strategic and key locations in the hospitals so that rabies management issues are appropriately addressed. For health workers in job Continuing Medical Education (CME) sessions should be organized on a regular basis to keep them abreast with the latest findings and developments in the field.

The study revealed poor knowledge regarding pre-exposure prophylaxis amongst the study subjects. A study by Panda et al[7] amongst 150 staff nurses in a medical college hospital showed that only 2% of them had received pre-exposure prophylaxis against rabies infection. Pre exposure prophylaxis is recommended for all health workers at risk of disease[8]. It is imperative that health workers be equipped with correct information about rabies so that they are aware of the precautions necessary while treating rabies cases and also the need for pre exposure prophylaxis.

Conclusion:

The study findings highlight the need and importance of rabies related knowledge amongst nursing students. Nurses play a key role in effective management of persons with animal bites and rabies cases. Equipping them with the adequate knowledge and appropriate practices would indeed have a positive impact on better and proper management of such patients.

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