**Effectiveness of health education on**

**knowledge regarding prophylaxis against rabies among school children**

**Abstract:** Children are the most frequently exposed age group to animal bites, representing 50% of human exposures in canine rabies infected areas. These exposed children should have correct knowledge on post exposure prophylaxis to prevent rabies. The present study assessed the knowledge of school children regarding prophylaxis against rabies and also the effectiveness of health education in improving the knowledge. One hundred and twenty-one high school children from a Government school of urban poor locality were included in the study. The knowledge on prophylaxis against rabies was low in the pre- test with the mean score of 12.02 + 2.16 out of 20. The knowledge on prophylaxis against rabies improved significantly after health education with the mean score of 16.94 + 1.64 out of 20, which was statistically significant with t-value of 29.301 and p < 0.001. In conclusion, health education was effective in improving the knowledge on PEP against rabies among school children.

**Key words:** health education, effectiveness, children, post exposure prophylaxis, rabies.

**Introduction**:

Rabies is a viral zoonosis that occurs in >100 countries in the World. It is transmitted to humans and other animals through close contact with saliva from infected animals i.e. bite, scratches, licks on broken skin and mucous membranes. Although a number of carnivorous animals serve as natural reservoirs, dogs are the main source of human infections and poses a potential threat to > 3.3 billion people Worldwide.1

A combination of large human and dog populations in congested habitable areas combined with widespread poverty has led to more exposures in World Health Organization (WHO)’s South East Asia Region, than in any other part of the World. More than 1.4 billion people in this Region are at risk of rabies infection. Therefore, it continues to be a major public health and economic problem throughout the Region.2 India is also a rabies endemic country, where animal bites to humans are a major public health problem and an estimated 17.4 million animal bites occur annually which accounts to an incidence of 1.7 %. 3

In urban areas, the disease is mainly transmitted by dogs, being responsible for 96% of animal bite cases.4 Children are the most frequently exposed age group, representing 50% of human exposures in canine rabies infected areas.5 Children playing outdoors are particularly vulnerable to dog bites, since unvaccinated community dogs are commonly observed on the streets and on/around public places and school playgrounds. Therefore, they are more likely to be bitten by dogs, and are also likely to be exposed more severely, through multiple bites in high-risk sites on the body. Severe exposures make it more difficult to prevent rabies unless access to good and immediate medical care is available.

The exposed children should have correct knowledge regarding the immediate measures to be taken after the exposure and to seek post exposure prophylaxis (PEP) from the health care facility. Timely and correct PEP, which includes thorough wound wash, full course of anti rabies vaccine (ARV) and local infiltration of rabies immunoglobulin (RIGs) is almost invariably effective in preventing rabies, even after high-risk exposure.6

Knowledge, attitudes and practices (KAP) studies have been widely used, around the World for different applications in public health, based on the principle that increasing knowledge will result in changing attitudes and practices to minimize the disease burden. Therefore, the present study assessed the knowledge of school children regarding prophylaxis against rabies and also the effectiveness of health education in improving the knowledge among these subjects.

**Subjects & Methods:**

The present study was done after getting the Institutional Ethical committee clearance. The school authorities were briefed regarding the purpose of the study and written permission was taken from them before starting the study.

The study was conducted in the Government School of an urban poor locality which comes under the community practice area of the Department of Community Medicine, Kempegowda Institute of Medical Sciences (KIMS), Bangalore, India. It was conducted from September 2014 to December 2014 as a part of World Rabies Day, 2014 activity.

**Subjects:** One hundred and twenty one students of both sexes, aged between 14 and 16 years who had attended the school on the World Rabies Day were enrolled in the study.

**Methods:** All the study subjects were administered pre-test using a pretested, structured, self-administered questionnaire in the local language and the knowledge was assessed. After that, health education session was conducted by showing video on prophylaxis against rabies by Rabies in Asia (RIA) foundation and was explained in detail. Later, any questions from the study subjects regarding the same were answered. Subsequently, 3 months later, post–test was administered to the same students using the same self-administered questionnaire and the knowledge at that point of time was assessed. The overall data was analysed using SPSS version16.0. The descriptive statistics was computed and the Student paired T – test was used to compare pre & post- test score.

**Results:**

**Socio - Demographic profile:** One hundred and twenty one high school children were included in the study. Among them 57 (47%) were boys and 64 (53%) girls. Their mean age was 14.29 years + 1.36 years. Majority of the children, 109 (90%), belonged to class IV socio economic status and were economically poor (Table 1).

**Knowledge before Health education:** The present study showed that the knowledge on prophylaxis against rabies was low in the pre- test with the mean score of 12.02 + 2.16 out of 20. There was relatively low knowledge, on classification of bite wounds (55.9%), type of animals transmitting rabies (66.9%), correct dose of equine rabies immunoglobulin (ERIG) (66.9%) and pre-exposure prophylaxis (PrEP) (68.8%). On the contrary, there was relatively good knowledge about the burden of the disease (75.2%), importance of wound washing (80.7%), number of doses of vaccine (74.4%) and schedule of intra dermal rabies vaccine (IDRV) (75.2%). Similarly, the study subjects had good knowledge regarding the safety of rabies vaccine in pregnancy (85.3%), dose of vaccine for infants (84.4%) and site of administration of intramuscular rabies vaccine (83.5%) (Table 2).

**Knowledge after Health education:** The knowledge on prophylaxis against rabies improved after health education with the mean score of 16.94 + 1.64 out of 20. There was improvement in knowledge regarding classification of bite wounds (75.9%), type of animals transmitting rabies (79.9%), correct dose of equine rabies immunoglobulin (ERIG) (76.9%) and pre- exposure prophylaxis (PrEP) (84.8%), burden of disease (82.8%), importance of wound washing (80.7%), number of doses of vaccine (84.4%) and dose–schedule of intra dermal rabies vaccine (81.2%); which were relatively less in pre-test (Table 2).

Overall, there was a significant improvement in knowledge among the study subjects after the health education; which increased from 12.02 ± 2.16 to16.94 ± 1.64, which was statistically significant with t-value of 29.301 and p < 0.001 (Table 3).

**Discussion:**

Rabies is a neglected zoonotic disease (a disease that is transmitted from animals to humans) caused by the rabies virus of the Lyssavirus genus, within the family Rhabdo viridae. The neglected disease indicates that it is insufficiently addressed by Governments and the International community, and that they are best defined by the people and communities they affect the most (i.e., poor people living in remote rural areas and urban slums of the developing World). The magnitude and epidemiological pattern differs from country to country. It is a disease of poverty, affecting vulnerable populations and children. According to data available, children in the 5-15 year age group represent about 50% of people exposed to dog bites in rabies-endemic areas.6

Rabies is a 100% vaccine-preventable disease. Therefore, it is the first zoonosis on the list of neglected diseases targeted for regional and eventually global elimination and is the disease most amenable to control, as the tools for prevention i.e., post exposure prophylaxis are available.

Therefore, in rabies endemic country like India, where every animal bite is potentially suspected as a rabid animal bite, the treatment should be started immediately. Because of long incubation period, which is typical of most cases of human rabies, it is possible to institute post exposure prophylaxis to ensure that the individual will be immunized before the rabies virus reaches the nervous system. However, people should have the knowledge on PEP and should approach the physician as early as possible.

Children who are playful in nature & playing outdoors are particularly vulnerable to dog bites, since unvaccinated community dogs are commonly observed on the streets and on or around public places and school playgrounds. Therefore, they should have the correct knowledge regarding, where to seek post exposure prophylaxis immediately after exposure.

In the present study, the overall knowledge on correct PEP against rabies was only 61%. Similarly, a study from Mandya on awareness regarding prevention of rabies among medical school entrants showed that the knowledge on post exposure measures was only 56.04%.7 Another study on perception of paramedical students on prevention of rabies also showed that the knowledge was only 51.7%%.8 These results showed that, the knowledge is relatively incomplete among all the students, which demands regular IEC activities.

The present study showed that, there was a significant improvement in the knowledge among the children after health education with t – value of 29.301 and p < 0.001. This improvement in knowledge is important for changing their attitudes and practices regarding the disease prevention.

**Conclusion:**

Health education was effective in improving the knowledge on PEP against rabies among school children. Therefore, health education sessions have to be considered to all schools, which can be done by various means such as including in the school curriculum, audio-visual presentations and lectures by medical personnel. This will help in preventing rabies among the vulnerable group and to minimize the disease burden, which in turn helps in eliminating the disease.

**References**

1. World Health Organization. Rabies vaccines: WHO position paper, Weekly Epidemiological Record, No. 32, 2010, 85: 309 – 20.
2. WHO South East Asia region: Strategic Framework for Elimination of Human Rabies Transmitted by Dogs in the South-East Asia Region: World Health Organization, Regional office for South East Asia; 2012.
3. Sudarshan M K, Madhusudana S N, Mahendra B J, Rao N S, Ashwath Narayana D H, Abdul R S, et al. Assessing the burden of human rabies in India: results of a national multi-center epidemiological survey. Int J Infect Dis 2007; 11:29-35.
4. National guidelines for rabies prophylaxis and intra-dermal administration of cell culture rabies vaccines, National Institute of Communicable Diseases, Ministry of Health & Family welfare, New Delhi, India. 2007.
5. WHO Expert Consultation on Rabies. First report. Technical Report Series No. 931. Geneva: World Health Organization; 2005.
6. WHO Expert Consultation on Rabies. Second report. Technical Report Series No. 982. Geneva: World Health Organization; 2013.
7. Vinay M, Sheethal MP, Mahendra BJ. Awareness regarding rabies and its prevention among first year medical students of Mandya. APCRI Journal 2012;13(2):13-15.
8. Jahnavi, Manjunath M, Mahendra BJ, Ananthachari KR, Vinay M, Harish BR. Paramedical students perception regarding prevention of rabies. International Journal of Current Research and Review 2014;6(5):9-12.

Table 1: Socio- demographic characteristics of the study subjects

|  |  |
| --- | --- |
| **Socio-demographic characteristics**  | **Values** |
| Mean age (± SD)  | 14.29 + 1.36 years |
| Sex | Male  |  57 (47.1%) |
| Female  |  64 (52.9%) |
| Socio Economic Status  | Low income  | 109 (90.1%) |

 Table 2:Comparison of pre-test and post-test score among the study subjects (N =121)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Knowledge** | **Mean** | **N** | **SD** | **SE** (mean) |
| Pre-test knowledge score | 12.02 | 121 | 2.164 | 0.197 |
| Post-test knowledge score | 16.94 | 121 | 1.640 | 0.149 |

Table 3:Improvement in knowledge among the study subjects after health education(N =121)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Sex | Pre-test | Post-test | t-value | P-value |
| Mean ± SD | SE | 95% CI | Mean ± SD | SE | 95% CI |
| Male | 12.74 ± 2.09 | 0.28 | 12.18, 13.29 | 17.46 ± 1.50 | 0.19 | 17.06 17.85 | - | - |
| Female | 11.38 ± 2.03 | 0.25 | 10.87, 11.88 | 16.48 ± 1.63 | 0.20 | 16.08 16.80 | - | - |
| **Total** | **12.02 ± 2.16** | **0.19** | **-** | **16.94 ± 1.64** | **0.14** | **-** | **29.301** | **<0.001** |