Students' Corner

Knowledge and practices among the general practitioners of Karachi regarding dog bite management

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Abstract

Objective: To find out the knowledge and practices among the general practitioners (GPs) of Karachi regarding dog bite management.

Methods: This cross sectional study was carried out in private and public clinics of Karachi using a pre-tested self-administered questionnaire. The study population was composed of 151 GPs with MBBS degree. Data was analyzed on SPSS version 12.0.

Results: Out of total 151 general practitioners, 124 were male and 27 female doctors. The majority (77.5%) of GPs knew the cause of rabies, but only 51.7% knew about the incubation period. Only 19.4% GPs had appropriate knowledge about the first line treatment. Almost all GPs (98%) had no knowledge about the types of anti-rabies vaccine and only 19.2% knew about anti-rabies serum.

Conclusion: There is an apparent lack of awareness among GPs regarding appropriate animal wound management and vaccine administration. Reorientation programmes and continued medical education (CME) for GPs are required to highlight WHO guidelines regarding treatment of animal bite (JPMA 59:861; 2009).

Introduction

Rabies is highly fatal and ends in an extremely painful and torturous death. According to a recent report of World Health Organization (WHO) approximately 55,000 human deaths are reported every year worldwide due to rabies, out of which 32,000 deaths are in Asia.[1,2] As rabies is a non-reportable disease with incidence grossly under reported in Pakistan,[3] it has one of the highest rates; an estimated 2000 to 5000 human cases per year.[4] In Karachi alone, although no population based studies are available, incidence of rabies was estimated at 7 to 9.8 cases per million population annually.[3]

All carnivorous animals (dog, cats, fox, jackal, skunk, mongoose, raccoon) and bats are considered potentially rabid and transmission is usually through bite, by licking abraded skin or mucosa or by scratching of an infected animal.[5] Initial symptoms are malaise, headache and fever while later stages include acute pain, violent movement, uncontrolled excitement, depression and inability to swallow water (hydrophobia). In the final stages, the patient begins to have periods of mania and lethargy followed by coma and death due to respiratory insufficiency.[6] Treatment after exposure, known as post-exposure prophylaxis (PEP) is highly successful in preventing the disease, if administered within six days of infection. Washing the wound with soap and tap water for approximately 5 minutes can reduce rabies incidence by up to 65%.[7]

As general practitioners (GPs) constitute important individuals for providing first-hand treatment, they are also easily approachable by the victim for the treatment of rabies. The objective of this study was to document the knowledge and practices of GPs in Karachi regarding the management of dog bite.

Methodology

It was a cross sectional survey using convenient sampling technique. The study was carried out from July to October 2007 in different areas of Karachi. General Practitioners (GPs) of Karachi were selected as target population for the sample size. One hundred and fifty one GPs practicing in different urban areas of Karachi were included in the study. The areas included are Manghopir, Baloch Colony, Banaras, Malir, Lyari, Lines Area, Federal B Area, PECHS, Saddar, Gulshan-e-Iqbal and Steel Town.

All general practitioners were approached at their clinics by the researchers and a pre-tested questionnaire was given to fill at-the-spot by the GPs after proper briefing. In order to minimize interruption to their practice, the researcher waited until the physicians had seen all or majority of their patients. A letter of permission to carry out the research was shown to them and proper verbal permission was taken before filling out the questionnaire. The doctor had the right to withdraw at any stage of data collection and confidentiality of participation was assured. All participants were also interviewed for any additional information wherever required.

Data was collected on a pre-tested questionnaire comprising 32 questions. The questions were designed keeping in view the objectives of the study, through various literature that includes books, newspapers, articles and current guidelines on rabies. Both open and close-ended type questions were included. The questionnaire was pilot tested and was finalized by the group supervisor. Copies of the questionnaire were provided to all group members who carried out the survey and were assigned different areas of Karachi.

The inclusion criterion of the study includes registered general practitioners of MBBS degree irrespective of age, sex and basic qualification. Only those questionnaires were included which were filled by GPs themselves after proper briefing by the researchers. Only those questionnaires, which were filled at-the-spot without consulting books or electronic media were included in this study. All those GPs, who insisted to keep the questionnaire with them and were collected later, were not included in the data. It was done to exclude the possibility of referring books or electronic media by the GPs for filling up the questionnaire.

Data was entered, stored and analyzed with the help of software SPSS, 12 version. Frequencies were tabulated for demographic variables, associations between variable were tested for statistical significance using Chi-square and differences were regarded to be significant at the 5% level.

Results

Out of the total 151 general practitioners interviewed, 124 were males and 27 were females. All of the doctors had the basic qualification of MBBS degree. Among the total GPs, 74.0% had managed dog bite cases out of which 57% treated dog bite during the last 3 months.

The 'viral' cause for rabies was correctly answered by 77.5% GPs with 33.1% correctly identified it's route of transmission. The incubation period of the disease to be between 3-6 weeks was correctly answered by 51.7% of doctors while the majority (76.2%) correctly identified the involvement of CNS system in rabies. Only 19% GPs were found to wash the wound by soap and water and surprisingly none of them when interviewed, knew its reason and minimum duration for washing (Table-1).

It was alarming to note that 98.6% GPs did not know

Table-1: Knowledge regarding first line management.

Treatment options	Frequency (N=151)*	Percent (%)
Dressing of wound	28	18.5
Washing and cleaning with antiseptic	55	36.4
Wash with soap and water	29	19.2
Suturing	2	1.3
Vaccination in the clinic	6	4.0
Refer to other medical set-up	13	8.6
Combination of above	16	10.6

*Two participants did not answer.

Table-2: Cross tabulation of treatment options, knowledge of anti-rabies vaccine and serum by sex.

	Male n=124	Female n=27	Total N=151 (%)	p-value
First line treatment*				0.6
◆ Correct	23	6	29 (19.4)	
◆ Incorrect	100	20	120 (80.5)	
Knowledge about anti-rabies vaccine**				0.23
◆ Known	1	1	2 (1.3)	
◆ Do not know	122	26	148 (98.6)	
Knowledge about anti-rabies serum***				0.02
◆ Correct	28	1	29 (19.2)	
◆ Incorrect	8	1	9 (5.9)	
◆ Do not know	88	25	113 (74.8)	

*Two participants did not answer.
**One participant did not answer.
***For purposes of statistical testing, 'Incorrect' and 'do not know' have been combined.

about different types of vaccination used against rabies while only 19.2% GPs knew about anti-rabies serum which was found to be statistically significant ($p<0.05$) when compared with sex (Table 2). Only 6.6% GPs has the correct knowledge that second generation tissue culture vaccine (SGTCV) is a recommended vaccine by WHO while barely a few (5.3%) replied correctly that SGTCV is used in both pre and post immunization. However, cell culture vaccine (CCV) was a preferred vaccine by 31.1% of doctors. The correct route of administration of nerve tissue vaccine (NTV) subcutaneously was answered by 25.2% GPs while its administration in anterior abdominal wall was correctly answered by 29.1% GPs. Only 4.0% GPs knew the correct schedule of NTV. Less than one-fourth (11.3%) GPs had the correct knowledge about adverse effects of vaccines and 19.2% of doctors correctly identified the indications of anti-rabies treatment.

Discussion

Although the majority (77.5%) of GPs in our study knew that virus is the cause for rabies, overall they have poor knowledge regarding dog bite management. Conversely, a study conducted in the city of Jamnagar, India reported that 85% doctors gave the correct answers for the cause of rabies while all of them identified that dog is a major source for spread of rabies in human population.[8] Another study done in Amritsar, India also reported similar results.[9] This shows that considerable proportion of doctors knew about the causative agent of rabies.

Regarding the route, site of administration and correct schedule of Cell Culture Vaccine (CCV), our study showed that 43.7% of the totals GPs were aware of the correct route of administration (IM) and 23.8% of total doctors gave correct answer about site of administration (deltoid muscle). However, only 10.6% of the total doctors gave the correct schedule of CCV. These results can be compared to the Indian study where 72% and 44% doctors knew the route and site of administration respectively while only one-fourth of them mentioned the correct schedule of Cell Culture Vaccine.[8] Despite the fact that WHO has recommended to discontinue the use the nerve-tissue-derived sheep brain vaccine (SBV), Pakistan continues to use locally produced vaccine.[4] Furthermore, Pakistan is among five countries that have not yet switched to WHO recommended cell-culture vaccine,[2] hence is not common in use of the health practitioner for post-exposure prophylaxis (PEP) and could be one of the reasons for their deficient knowledge in our study.

It was worth mentioning to note that doctors of our study had a good knowledge about the contraindication of bandage for a dog-bite wound. Only 18% doctors in our study were unable to answer it correctly compared to 36% and 20% doctors in the Indian studies.[8,10] At least knowledge for not covering the wound by GPs in our study highlighted the practical approach of doctors for the wounded patient.

Realizing the fact that even at the dawn of 21st century, the number of human rabies deaths worldwide is greater than that from polio, meningococcal meningitis, Japanese encephalitis, yellow fever, Severe Acute Respiratory Syndrome (SARS), bird flu and other scourges that attracts more public attention,[11,12] family physicians and general practitioners play an important role in reducing the incidence of rabies. A report by a group of rabies experts from seven Asian countries highlighted lack of awareness among general practitioners[13] while countries like Austria and Japan, due to increase international travel to rabies endemic countries showed their concern to increase awareness and knowledge of rabies among doctors.[14,15]

Conclusion

There is apparent lack of knowledge and awareness among GPs regarding different aspects of rabies management. Although most of them knew the cause of rabies, very few knew about the first line treatment. There were deficiencies for appropriate management of animal wound and vaccine administration. Very few GPs understand different types of vaccines. They had very poor knowledge about the awareness of WHO recommended vaccines for rabies treatment and its schedules for post-exposure prophylaxis. Therefore, keeping in view of the results of our study it becomes necessary to update the knowledge among doctors regarding rabies and dog bite management.

Recommendations

Reorientation programmes and Continued Medical Education (CMEs) should be designed to highlight the guidelines given by WHO regarding treatment of animal bite among general practitioners. Vaccination practice should prevail at every set-up and vaccines should be available for ready use. In order to judge the improvement in knowledge of doctors, surveys like the present study should be conducted frequently and on a large scale.

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References

1. Sugiyama M, Ito N. Control of rabies: epidemiology of rabies in Asia and development of new-generation vaccines for rabies. Comp Immunol Microbiol Infect Dis 2007; 30: 273-86.
2. Burki T. The global fight against rabies. Lancet 2008; 372: 1135-6.
3. Wasay M, Khatri IA, Salahuddin N. Tetanus and rabies eradication in Pakistan; a mission not impossible. J Pak Med Assoc 2008; 58: 158-9.
4. Burki T. Pakistan commences national rabies survey. Lancet 2008; 8: 413.

5. CDC. About Rabies. (Online) 2007 (Cited 2008 Dec 25). Available from URL: http://www.cdc.gov/rabies/about.html.
6. Park K. Epidemiology of Communicable Diseases, in Textbook of Preventive and Social Medicine. Jabalpur: Banarsidas Bhanot Publishers, 2005.
7. WHO. Current WHO GUIDE for Rabies Pre and Post-exposure Prophylaxis in Humans. Geneva: WHO 2007.
8. Bhalla S. Knowledge and Practice among General Practitioners of Jamnagar city regarding Animal Bite. Indian J Community Med 2005; 30: 94-6.
9. Jasleen, Padda AS. A study of the assessment of training needs of the doctors, working in various health facilities in Amritsar district regarding the management of animal bite cases. In: APRICON 2001-3rd National Conference on Rabies. Association for Prevention and Control of Rabies in India, Amritsar, Punjab: 2001; pp 68-9.
10. Sudarshan MK. A study of antirabic treatment practice by private medical practitioners in Banglore city. Indian J Prev Soc Med 1995; 26: 45-8.
11. Menezes R. Rabies in India. CMAJ 2008; 178: 564-6.
12. Wilde H, Khawplod P, Khamoltham T, Hemachudha T, Tepsumethanon V, Lumlerdacha B, et al. Rabies control in South and Southeast Asia. Vaccine 2005; 23: 2284-9.
13. Dodet B. Preventing the incurable: Asian rabies experts advocate rabies control. Vaccine 2006; 24: 3045-9.
14. Inoue S. [Rabies contingency plan in Japan]. Nippon Rinsho 2005; 63: 2180-6.
15. Kollaritsch H, Maurer W. [Rabies: epidemiology, pre- and post exposure immunization]. Wien Klin Wochenschr 2006; 118: 312-20.