

Title: KNOWLEDGE OF ANIMAL BITE AND ITS MANAGEMENT
AMONG THE PRIVATE MEDICAL PRACTITIONERS

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Keywords Animal Bite, Private medical practitioner, knowledge and practice

Abstract Rabies is a fatal disease but preventable by proper handling & management of animal bite cases. Most of the time, victims of animal bite don't get proper treatment because of lack of awareness and knowledge about the animal bite treatment. Private General Medical Practitioners constitute an important source of first level of contact for such type of illness in our country

Original Article

**KNOWLEDGE OF ANIMAL BITE AND ITS MANAGEMENT
AMONG THE PRIVATE MEDICAL PRACTITIONERS**Agarwal Anil K¹, Gupta Preeti², Ahirwar G³, Mahore R⁴, Dwivedi S¹, Swami P⁵**ABSTRACT**

Background: Rabies is a fatal disease but preventable by proper handling & management of animal bite cases. Most of the time, victims of animal bite don't get proper treatment because of lack of awareness and knowledge about the animal bite treatment. Private General Medical Practitioners constitute an important source of first level of contact for such type of illness in our country. In this context the present study was carried out with the following objectives.

Objectives: 1. To assess the knowledge of general medical practitioners regarding animal bite and its management.
2. To study the practices of the general medical practitioners for animal bite.

Materials and Methods: This study was a cross sectional study based on the pre tested questionnaire. A total of 114 general medical practitioners from Gwalior city of central India were interviewed about the animal bite features and their management both among urban as well as rural areas. Data was collected in a scientifically designed questionnaire (based on WHO criteria) and analyzed using EPI Info 7 version. Frequencies were tabulated for demographic variables and univariate analysis was tested among MBBS and other group doctors.

Results: Out of the total 114 general practitioners interviewed, 91(79.8%) were male and 23 female doctors. The mean age of GPs was 42.89 years. The mean duration of practice for MBBS doctors was 19 years and for other doctors (BAMS, BHMS, and RMP's) was 11 years. Knowledge about various aspects of rabies was comparatively better among MBBS doctors. The majority 79(69.3%) of GPs knew the cause of rabies, but only 52(45.6%) knew about the Management difference in domestic and wild animal bite. 70.21% GPs had appropriate knowledge about the first line treatment. The knowledge regarding anti-rabies vaccine and RIG was not good among the general practitioners. Almost 36% GPs had no knowledge about the types of anti-rabies vaccine and only 55(48.2%) knew about anti-rabies serum (RIG).

Conclusion: There is an apparent lack of awareness among MBBS private medical practitioners¹ and significantly deficient knowledge in other group doctors regarding appropriate animal bite wound management and vaccine administration.

Key Words: Animal bite, Private medical practitioner, knowledge and practice

INTRODUCTION

Rabies, also known as hydrophobia, is an acute 100% fatal viral disease of the central nervous system. It is transmitted to man usually by bites of rabid animals. Vast majority of the estimated 55,000 deaths due to Rabies, occurring world-wide each year are from Africa and Asia. In India alone, 20,000 deaths (that are from about 2 per lac population at risk) are estimated to occur annually.

Three-quarters of these cases are from rural areas and human deaths from rabies are likely to be grossly underreported.¹

The majority of the cases of rabies (about 97%) are due to bites from rabid dogs, followed by bites from other animals like the cat, cow, monkey, horse, pigs, and camels.²

These deaths can be prevented by timely and adequate treatment of animal bite victims. Most of

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the time, victims of animal bite don't get proper treatment because of lack of awareness about the dangers of animal bite and their poor health seeking behavior. The simultaneous use of immunoglobulin and anti rabies vaccine in category III exposure and anti rabies vaccine in category II exposure are the cornerstone of anti rabies treatment¹.

Private medical practitioner constitutes an important source of first level of contact for health care in our country. Inadequate knowledge on animal bite and its management among private practitioner could be detrimental. In this context the present study was carried out with the following objectives; 1. To assess the knowledge of general medical practitioners regarding animal bite and its management. 2. To study the practices of the general medical practitioners for animal bite

MATERIAL AND METHODS

It was a cross sectional survey using convenient sampling technique. The study was done in Gwalior city in December 2015. The study population composed of 114 GPs comprising of 40 M.B.B.S. doctors & 74 others (B.A.M.S., B.H.M.S & RMP). They were randomly selected from the Gwalior city, having a population of 11.5 lacs. The GPs were approached at their clinics or nursing homes by PG's in Community Medicine during their practice hours after taking prior appointment with proper verbal consent from them. They were provided with a questionnaire to be filled-up after proper briefing; subsequently they were interviewed for some additional information where ever required. The doctor had the right to withdraw at any stage of data collection and confidentiality of participation was assured. Data was collected on a pre-tested questionnaire comprising 28 questions. The questions were designed keeping in view the objectives of the study. Both open and close-ended type questions were included. The first part of the questionnaire requested demographic information, including age, sex, duration of practice, etc. The second part consisted of questions related to epidemiological determinants of rabies and first-

aid measures. The last section of the questionnaire contained questions on pre- and post-exposure prophylaxis. Data was entered, stored and analyzed with the help of software EPIINFO, 7 versions. Frequencies were tabulated for demographic variables; Crude OR with 95% Confidence Interval (CI) and p value was calculated for associations between MBBS and other group doctors. Differences were regarded to be significant at the 5% level.

RESULTS

Out of total 114 General medical practitioners 91 (79.8%) were male physician, 73 (64.1%) physician was belonging to urban area, 40 (35.1%) were MBBS and 74 (64.9%) were of other group including BAMS, BHMS and RMPs [Table 1]. The mean age of GMPs was 45.2 (± 8.9 , range 28-66 years) yrs. Their average duration of practice was 14.6 (± 8.13) years. On an average each of them examined about 2 - 4 cases of animal bites per month.

Total 74 (64.9%) physician and majority 34 (85.0%) of MBBS group correctly classified the degree of bite but 40 (54.1%) in other group gave correct answer. 33 (82.5%) & 31 (77.5%) in MBBS doctors while 46 (62.2%) & 31 (77.5%) in other groups answered correctly on being asked rabies is transmitted by animal bite other than dog and other modes of transmission respectively. That difference was in MBBS and other group was statistically significant (OR=0.34, P<0.025 & 0.36, P<0.020). A total 36 (90.0%) and 51 (68.9%) respondents in MBBS and other group respectively, correctly told that the rabies can be prevented, and not cured (OR=0.24, P<0.011). On being asked about the knowledge about closing (bandaging, suturing) of wounds, 33 (82.5%) in MBBS group and only 42 (56.8%) in other group could correctly answer about wound closing (OR=0.27, p<0.005). A total of 26 (65.0%) and only 26 (35.1%) respondents in MBBS and other group respectively, were able to give correct answer about the management difference in domestic and wild animal bite (OR=0.29, p<0.002).

Ninety Percent of MBBS physicians managed cases of dog bite compared to 59.5% of other groups (OR=0.16, $p<0.007$). Majority of physicians 80 (70.2%) practiced proper first aid treatment. The anti rabies vaccine was used by only 54% of other group compared to 33(82.5%) of MBBS physician, which was statistically significant (OR=0.24, $p<0.002$). Though many of the physicians didn't know about I/D schedule of anti rabies vaccine. The concepts about the type of different anti rabies vaccines available was not known to about 53% of other group doctors compared to 44% MBBS doctors (OR=0.34, $p<0.011$). Among those who had used Rabies immunoglobulin (RIGs) many 32(80%) were aware about the dose and indication of RIGs, in MBBS doctors, compared to only 40(54%) & 45(60%) in other group doctors (OR=0.29, $p<0.006$; OR=0.38, $p<0.037$). It was alarming to note that 65% GMPs in other groups and 40% in MBBS group did not know about the side effects of ARV and RIGs. The correct route of administration of RIGs was answered by 26(65%) of MBBS doctors and 29(39%) in others group and it was statistically significant (OR=0.34, $p<0.008$). Most of the doctors in both groups 93(81.6%) were aware about the TT vaccination. 34(85%) MBBS doctors knew about correct schedule of pre exposure compared to 46(62%) of others group doctors (OR=0.28, $p<0.011$). It was noted that 30% MBBS doctors and about 64% other group doctors did not know the time (duration) upto which RIGs was indicated (OR=0.31, $p<0.005$). Given the fatality of the disease, any lack of knowledge leading to increased risk of human rabies is unacceptable. Gaps have been found in the use of immunoglobulin with MBBS and other group doctors as they were not familiar with the dose and site of immunoglobulin administration. Also knowledge regarding rabies immunisation in re exposure cases was low. 50% MBBS doctors and only 24% other group doctors could correctly explain the therapeutic importance of observation of the biting dog (OR=0.31, $p<0.005$). The GMPs, however, erred on the safer side regarding vaccination in most cases of animal bites.

DISCUSSION

Published evidence from studies suggests biological plausibility of our study findings. In our study, most of the general practitioners were males and of urban area. Around 70% of doctors were aware the source for spread of rabies. Although the overall knowledge about animal bite and its treatment practices by GMPs in Gwalior city was not satisfactory. Knowledge was comparatively better among MBBS doctors. Age range varies from 28 to 66 years. Majority (70%) of GMPs was having professional experience of more than 10 years, 30% had experience below 10 years.

Although the majority (total 70%; MBBS [85%], others [62%]) of GMPs in our study knew that rabies is transmitted by animal bite other than dogs. Similarly, a study⁴ reported that 85% doctors gave the correct answers for rabies transmission while all of them identified that dog is a major source for spread of rabies in human population. Other studies^{4, 5} also reported similar results. This shows that considerable proportion of private physician knew about the rabies transmission.

It was worth mentioning to note that MBBS doctors of our study (82%) had a good knowledge about the contraindication of closing (bandaging, suturing) of animal bite wound. Only 18% MBBS and 43% in other groups practitioners were unable to answer it correctly compared to 36% and 20% doctors in the other studies^{4, 5}.

About 63% of the total doctors in our study were of the view that rabies had other modes of transmission like blood transfusion and raw milk consumption of rabid animal. It was 51% in Belgaum study⁶ and among 58% in another Jamnagar study⁷.

About the first aid treatment of animal bite cases 70% had correct knowledge. Of them 90% of MBBS and 59% of other group doctors opined that bite wound should be washed immediately with or without soap, in their study Sangeeta Das et al⁸ had described that 98% of Ayush doctors advised their patients to properly wash the bite wound with soap

and water⁷ the findings of a study by Vyas Sheetal et al revealed that only by 8% of animal bite cases washed their wound with soap and plenty of water⁷.

Regarding the route, site of administration and correct schedule of Cell Culture vaccine (CCV), our study showed that 64% of the total private medical practitioners were aware of the correct route of administration (IM) and 82% MBBS doctors gave correct answer about the administration while 46% other group doctors did not give correct answer. These results can be compared to other study where 72% and 44% doctors knew the route and site of CCV¹⁸.

As far as pre - exposure prophylaxis was concerned, 85% MBBS doctors and 62% other group doctors in our study knew the correct schedule of vaccination which was better than other studies Haryana (18.8%)¹¹ and Belgaum 21%⁶

The present study shows that 55% the private medical practitioner did not know the strategy by which pre-exposure prophylaxis has to be given. It is indicated for high-risk groups like laboratory staff handling the virus and infected material, clinicians and paramedical attending to hydrophobia cases, veterinarians, animal handlers and catchers, wildlife warden, quarantine officers, and travelers from rabies-free areas to rabies endemic areas¹².

In our study majority of doctors in both group around 82% revealed the importance of TT during dog bite treatment that was similar to previous studies^{18,4}.

Not surprisingly, the majority 80% of MBBS doctors and comparatively less 54% in other group doctors correctly told that rabies immunoglobulin (RIGs) was given 40IU/Kg body weight, 70% MBBS doctors and only 36% other group doctors mentioned that RIGs can be given within 7 days of administration of anti-rabies vaccine (CCV). Beyond the seventh day, RIGs is not indicated since an antibody response to an antirabies vaccine is presumed to have occurred¹³. Majority of MBBS private medical practitioners (80%) while only

60% of other group mentioned correct indication of RIGs. They also knew that RIGs must be used in all class III bites and all wild animal bites. 35% MBBS and 60% other group doctors could not explain the site of RIG administration and also that RIG must be infiltrated around the bite wound and remaining part should be given IM in gluteal region. These findings were better than those compared to other studies. 10% GPs of Jamnagar study⁴ knew about serum administration in class III bites while in another study done by Community medicine dept. Amritsar 38.3% of the total were aware about the serum administration in class III bites⁵.

Regarding knowledge of adverse effects due to anti rabies vaccine a substantial proportion (43%) of private physician were aware about self limiting local reactions and their symptomatic treatment. The cell culture vaccines are widely accepted as the least reactogenic rabies vaccines available today. However, adverse effects can be either general in nature or allergic in origin. The general adverse reactions include sore arm, headache, malaise, nausea, fever and localized oedema at the site of injection¹³.

Only 50% MBBS doctors and 24% other group doctors could correctly explain the therapeutic importance of observation of the biting dog. This finding is similar to the study of Singh et. al.⁷ The remaining could not explain that observation of the biting dog till 10 days helps the doctors in determining the treatment, that is, in modifying the treatment regimen from post-exposure prophylaxis to pre-exposure prophylaxis and avoiding unnecessary more prick to victim.¹⁴

A thorough knowledge regarding the management of animal bites and rabies vaccination is a must for all physicians, in order to prevent the development of human rabies. A group of experts on rabies from seven Asian countries have highlighted a lack of awareness among general practitioners regarding rabies.¹⁵ Studies from India⁷ other countries in South-east Asia¹⁶ have reported high level of knowledge among physicians with regard to vectors, causative organisms, incubation

period, mode of transmission, or the case fatality rates of the disease, but very few studies reported on the knowledge of physicians regarding animal bite management and rabies prophylaxis.

CONCLUSION

The first step in planning any intervention is the assessment of the baseline knowledge regarding the problem. This should be followed by interventions designed to address the deficiencies found. The present questionnaire based study was conducted to identify the gaps in knowledge of MBBS doctors and other group (include BAMS, BHMS & RMP's) doctors.

The findings of the present study clearly indicate the fact that knowledge on various aspects of the disease is limited among general medical practitioners. The attitude and practice still continue to be primitive and therefore, the treatment options presently available are not properly utilised. No doubt, knowledge and practice regarding animal bites are comparatively better amongst M.B.B.S. doctors than others (RMP, BAMS) but there is an apparent lack of awareness among doctors regarding the appropriate management of animal bite wound and vaccine administration. Persistence in following WHO guidelines by the doctors will go a long way in prevention of human rabies. Very few GPs understand different types of vaccines. They had very poor knowledge about the 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 of doctors specially private practitioners who work also as a family physician regarding rabies and dog bite management.

RECOMMENDATIONS

Animal bite cases are frequent at all levels of government and private healthcare delivery in India and a practically oriented teaching of wound management and Pre and Post exposure prophylaxis is necessary at the private health care level. There is a need for intensified education regarding management of dog bite and providing post exposure prophylaxis treatment in all health &

medical practitioners to prevent rabies related morbidity and mortality effectively. This would not only help to bridge the gap between the knowledge and practice and will also contribute in the animal bite victim deaths. 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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