Brief Communication

Prevalence of Dog Bite among Field Workers at a Primary Health Care Level in Goa

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Abstract

This study was undertaken in 121 field workers in a primary health care set up in Goa to estimate the lifetime and annual incidence of dog bite, and to assess their knowledge and practices regarding post-exposure prophylaxis. The annual and lifetime incidence of dog bite was 3.3% and 22.3%, respectively. Based on the comparable figures from studies in general population, Dog-bite seems to be an occupational hazard among these workers. Only 28.9% completed the full course of anti-rabies vaccine with its cost as the major reason for discontinuation. More than 90% consulted traditional healers and wound toilet was done by 70%. The overall knowledge and practices seemed better than those reported in other studies, but continued orientation of the field workers and access to free vaccination at the workplace is of paramount importance.

Keywords: Dog-bite, field workers, primary health care

INTRODUCTION

Dog bite is the commonest encountered animal bite.[1-3] While many studies have revealed the burden of dog bite in the general population, dog bite as a potential occupational hazard for the primary health care workers—the multi-purpose health workers (MPHW: male/female), sanitary inspectors, medico-social workers (MSWs), and anganwadi workers (AWWs) and helpers—is seldom addressed. This study was, therefore, undertaken to estimate the lifetime and annual incidence of dog bite among the field workers at a primary health care level in Goa; to assess the post-exposure measures adopted by the field staff afflicted by dog bite; and to assess their knowledge on the post exposure measures to be followed after a dog bite.

MATERIAL AND METHODS

In June 2017, a cross-sectional survey was carried out among one hundred and twenty one multi-purpose health workers (MPHW) and anganwadi workers (AWW) from the field practice area of Primary Health Centre (PHC) Corlim, Tiswadi (Goa-India), using a self-administered semi-structured questionnaire. The study was approved by the Institutional Ethics Committee of Goa Medical College and Hospitals, Bambolim-Goa. The data was analyzed in Statistical Package for Social Sciences (SPSS, version 22.0).

RESULTS

Table 1 presents the age-sex distribution of the study participants. The duration of experience as a field worker ranged from 1.5 years to 38 years with a mean duration of 22.68 (SD 13.42) years.

The lifetime incidence of being chased by a dog during filed visits was 81.8%, and 22.3% (27/121) reported dog bites. The annual incidence in the preceding one year was 24.8% (30/121) for being chased by a dog and 3.3% (4/121) for a dog bite. Of

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the 27 workers who suffered dog bite, 19 were bitten by a street dog while the others by a pet dog. In the former category, the exact circumstances that led to the bite were unclear in seven cases, seven reported that the dog came from behind and bit while unaware, three reported to have accidentally stamped on the dog, and two reported being bitten while trying to be playful with the street dog. Six, of the eight who were bitten by a pet dog, were bitten while the dog was not tied. Twenty of the ninety nine (20.2%) who reported to have been ever chased by a dog were chased at least once while they were on a two-wheeler, of which 35% (7/20) reported to have lost the control and fell, with consequent injuries. Table 2 presents the actions taken by the field staff in the form of percentages attributed to an individual action.

Anti-rabies vaccination (ARV) was reported to have been recommended in 24 field workers of whom 21 (87.5%) reported to have commenced the schedule and only 6 (28.6%) completed the schedule as per the recommendation of the treating doctor. Of the 15 who did not complete the course, 9 stopped at first dose, 2 after two doses, and 4 after 3 doses. Table 3 presents the reasons given by the field workers for non-compliance with the ARV recommendations, and their knowledge about management of the bite wound is presented in Table 4.

Apart from dog, cat was the only animal cited as a source of rabies by 9 (7.4%) of the study participants. Seventy eight participants (64.5%) agreed on man to man transmission of rabies through the bite from a rabies patient. All the patients stated that bites, scratches, as well as the licks by a dog were potentially dangerous.

**Discussion**

Annual risk of dog bite among these workers was estimated to be 3.3 per 100 field workers per year. While there was no similar study conducted among the primary health care field workers, community-based surveys in Delhi (India) revealed an annual incidence of around 2.55%.[4,5] The lifetime and annual incidence of dog bite in United Kingdom was estimated to be 24.78% and 1.8%, respectively. While the lifetime incidence of 24.78% matches closely to our estimates of 22.3%, the annual incidence in our study is clearly in excess of the annual incidence in Delhi[4,5] as well as in UK,[6] and almost twice as that reported in the WHO multicentric survey[2] on Rabies in India. Thus, the overall risk of a dog bite in field workers at primary health care level is more than that in the general population.

It was reported that 70.3% of the dog bite victims were bitten by a street dog. The finding approximates closely with the figures of 63%[2] and 64%[1] as reported in two multicentric studies in India. Street dogs are a great challenge in prevention and control of rabies. While not being easily accessible for vaccination and pet care, any action toward its extermination invites an attention from animal rights activists. Street dogs are not amenable to observation for a period of 10 days as is frequently advocated following a dog bite. Almost 20% of

| Table 1: Age-Sex Distribution of the Study Subjects |
|--------------------------------------------------|
| Age Group | Male | Female | Total |
|           | n    | Percentage | n    | Percentage | n   |
| 21-30     | 3    | 27.3%      | 8    | 72.7%      | 11  |
| 31-40     | 3    | 9.1%       | 30   | 90.9%      | 33  |
| 41-50     | 1    | 2.9%       | 34   | 97.1%      | 35  |
| 51-60     | 1    | 2.4%       | 41   | 66.7%      | 42  |
| Total     | 8    | 6.6%       | 113  | 93.4%      | 121 |

| Table 2: Actions Taken by the Victims of Dog Bite/Scratch |
|----------------------------------------------------------|
| Actions taken                                           |
| Visited a traditional healer                            | 25 (92.6%) |
| Washed wound with soap and water                        | 19 (70.3%) |
| Visited a qualified doctor                               | 17 (63%)   |
| Washed wound with disinfectants                          | 11 (40.7%) |
| Local dressing                                          | 2 (7.4%)   |

| Table 3: Reasons for noncompliance with the ARV recommendations |
|---------------------------------------------------------------|
| Reasons for noncompliance | n (18) |
| Vaccine cost                                                  | 16 (88.9%) |
| Alternative therapy taken                                     | 12 (66.7%) |
| Fear of injection                                             | 9 (50%)   |
| Traditional healer opined it was unnecessary                  | 8 (44.4%) |
| Forgot                                                        | 4 (22.2%) |

| Table 4: Recommendations for management of the bite wound as suggested by the study subjects |
|-------------------------------------------------------------------------------------------|
| Recommendations | n=121 |
| Consult a traditional healer                                                              | 111 (91.7%) |
| Consult a qualified doctor                                                                | 98 (81%)   |
| Vaccination                                                                                | 87 (71.9%) |
| Wash with soap and water                                                                    | 66 (54.5%) |
| Wash with disinfectant                                                                      | 55 (46.5%) |

those who were ever chased by a dog reported having been chased while on a two wheeler, and 35% of these sustained injuries not due to the dog bite. This emphasizes the role of street dogs as a conditioning influence in the epidemiology of road traffic accidents.

More than 90% of those who suffered a dog bite visited a traditional healer and resorted to the faith-based therapy. This is almost twice the proportion of patients seeking indigenous treatment in the WHO multicentric rabies survey in India.[2] Almost 70% of the victims reported washing their wounds with soap and water—the figure reflects a better awareness compared to almost 40% of general population not indulging in this practice as per the multicentric studies[2,3] on animal bites in India. Less than 30% of the field workers in primary health care completed the recommended schedule of the ARV. Primary
Health Care Workers are the first point of contact for health care at the grass-root level, and their practices have a lasting impact on the health care seeking behavior of the people. More than 90% of the bite victims consulted the faith-based healer, and the parallel treatment could have ushered a confidence in these victims which could also have led them to decide against the completion of vaccination schedule.

The workers seemed to have satisfactory knowledge about transmission of rabies with dog being the universally cited culprit, and transmission possible through licks and scratches as well. This is much better than that reported in a study in Baramati (Maharashtra)[7] where 54% of the paramedical workers believed that rabies was not transmitted through licks and scratches.

Conclusion

Annual as well as the lifetime risk of dog bite among the primary care field workers is higher than that in the general population, thus making dog bite an occupational hazard. Training of the field staff in various aspects of how to sense a vulnerable situation with regards to encountering a dog and how to handle such a situation to avoid being bitten by a dog is need of the hour. Orientation of the field staff in basic aspects of the post exposure management of a dog bite case, ensuring availability of full dose of ARV at the PHCs, and reimbursement of the medical expenses incurred toward management of dog bite for all levels of field staff sustaining a bite while at work would help foster medically sound post exposure management of a dog bite victim. Control of street dogs by sterilization, risk minimization by vaccination of dogs, and issuing notices to pet dog owners on a prominent display of signboards regarding the pet ownership would allow these workers to work without fear toward the goal of universal health care for all.

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Conflicts of interest
There are no conflicts of interest.

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