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Kumar A., Thakur A and Mazta SR



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## Research Article

### MANAGEMENT OF DOG BITE CASES IN THE HEALTH INSTITUTIONS OF HIMACHAL PRADESH, INDIA-A QUALITATIVE STUDY

Kumar A<sup>1</sup>, Thakur A<sup>2</sup> and Mazta SR<sup>3</sup>

<sup>1,2,3</sup>Department of Community Medicine, Indira Gandhi Medical College Shimla, Himachal Pradesh (India)

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#### ABSTRACT

**Background:** Himachal Pradesh is the northern hilly state of India. In Himachal Pradesh 24,000 to 25,000 dog bite cases occur every year. As per the policy of the government of Himachal Pradesh, there should be free anti rabies vaccine for all the dog bite patients of state from the level of primary health centers under the controlled cold chain. There is the gap in the policy framed and existing situation of treatment practices in the health institutions of the state.

**Methods:** A qualitative study was done in the three CHCs of three districts of Himachal Pradesh having the highest average incidence of dog bite cases in previous three years. In-depth interview of the medical officer in-charges and observation checklist used to assess the infrastructure and documents. Thematic and simple proportional analysis of the data was done for interpretation of the results.

**Results:** Treatment to dog bite cases is given by all the selected institutions but is partial as RIGs are not given. There was no supply of the RIGs from the government to the health institutions surveyed. The IEC activities and intersectoral coordination was negligible. Documents were incomplete and infrastructure was inadequate for prevention and control of rabies.

**Conclusion:** There is wide gap in the policies framed and existing management practices in the health institutions. There is need of sensitization training for medical officers and paramedics to treat the dog bite cases.

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## INTRODUCTION

Dog bites occur worldwide and cause the injuries which range from minor to significantly major. In every 2 seconds, a one person is being bitten by the dog [1]. Himachal Pradesh is the northern hilly state of India. In Himachal Pradesh 24,000 to 25,000 dog bite cases occur every year [2]. Once known the best friend of man, the dog became worst enemy due to severe bite injuries caused by it and Rabies which is 100% fatal disease. [3] In India main vector for rabies transmission is dog. Rabies is an infectious, fatal disease characterized by severe dysfunction of the central nervous system, caused by single stranded negative sense RNA virus belonging to the genus Lyssa virus of the family Rhabdoviridae [4]. Many countries in the world got rabies free status which was achieved through the joint efforts and shared resources of local and national government, various sectors of public health, animal health, agriculture, environment, legislation and policy as well as non-government partners [5]. WHO has made a target to eliminate the disease by 2020 in endemic South East Asian countries including India [6]. As per the policy of the government of

Himachal Pradesh, there is free post exposure prophylaxis for all the people of state from the level of primary health centers under the controlled cold chain [7]. Incidences of rabies did not decline even after the existing policies due to general lack of awareness of preventive measures, which translate into insufficient dog vaccination, an uncontrolled canine population, poor knowledge of proper post-exposure prophylaxis on the part of many medical professionals, irregular supply of anti-rabies vaccine and immunoglobulin, particularly in primary health care facilities.

## METHODOLOGY

A qualitative study was done with effect from June 2014 to May 2015 about the management practices of the dog bite patients for prevention of rabies. Only government health institutions were taken because in Himachal 90% of dog bite patients go to these institutions for treatment which was confirmed by the pilot study done in Municipal Corporation Shimla. Data of the dog bite cases of Himachal Pradesh was obtained from the Directorate of health services (HP) with effect from 2011 to 2013[2]. We selected three districts which

\*Corresponding author: Kumar A

Department of Community Medicine, Indira Gandhi Medical College Shimla, Himachal Pradesh (India)

reported higher number of dog bite cases in this period. After that one CHC selected from each district on the basis of highest number of the dog bite cases in year 2013. After taking consent In-depth interview of Medical Officer In-Charges of the selected institutions were taken by using pretested semi structured questionnaire. Observation checklist was used to review the documents and infrastructure. Thematic and simple proportional analysis of the data was done for interpretation of the results.

## RESULTS

The data was gathered from following institutions of the state:

1. CHC Chowari (District Chamba)
2. CHC Sysi (District Solan)
3. CHC Bhavanagar (District Kinnaur)

### Results (In-depth interview)

#### Analysis of the responses of the medical officers

The analysis of the responses done under following themes Table-1:

1. Management of the dog bites cases.
2. Supply of rabies immunoglobulin and anti rabies vaccine
3. Post exposure prophylaxis schedule for rabies
4. Intersectoral coordination for prevention and control of rabies.
5. Information, education and communication activities.

**Table 1** Responses of the Medical Officers

Theme	Responses
Management of the dog bite cases in health institutions	There is 24 hours facility to treat the dog bite cases. All the dog bite cases are treated but the partial treatment given to category 3 bites as RIG is not available in CHCs.
Availability of rabies immunoglobulin and anti rabies vaccine	Rabies immunoglobulin has never been supplied by government in institutions surveyed. According to one Medical Officer In charge "Rabies immunoglobulin is even not purchased through RKS because it is not in the rate contract" For rabies immunoglobulin patients are referred to tertiary health care centers. "Doctor fears the adverse reaction of the immunoglobulin" said other MO/IC. Anti rabies vaccine given free of cost to the BPL patients, having BPL certificate. In one institution vaccine is given free of the cost to all the patients irrespective of their BPL status. "It is also purchased through RKS in emergency" MO I/C.
Post exposure prophylaxis schedule for rabies	Route of the ARV is used by the doctors as per their convenience. "Staff is not trained for intradermal vaccination" said one MO I/C.
Intersectoral coordination for prevention and control of rabies	Intersectoral coordination is not seen the health institutions. "If stray dogs are biting number of people and dog bite cases are coming to us we don't know whom to ask about the containment of these stray dogs" said one MO I/C. ABC-AR programme is not operational in the rural areas.
IEC	IEC activities are not organized in schools and AWC as there are no guidelines from the government "IEC material for prevention and control of rabies is not provided by the department" MO I/C. People are educated some times during prescription writing.

**Table 2** Analysis of prescription pattern

Description of wound	Number (n-51)	Percentage
Site of wound mentioned	18	35.29%
Categorization of wound done	16	31.37%
<b>Description of wound management</b>		
Advice for wound washing given	33	64.70%
Application of Antiseptic	28	54.90%
<b>Prevention of rabies</b>		
Referral for Rabies Immunoglobulin	11	21.56%
Anti rabies Vaccine prescribed	47	92.15%
<b>Adjuvant Treatment</b>		
Injection Tetanus Toxoid	42	82.35%
Antibiotics	23	45.09%
Analgesics	25	49.01%
Other treatment*	7	13.72%

### Results (Observation Checklist)

#### Documents

During the stay, 51 prescription slips collected from the selected institutions. Prescription pattern to treat the dog bite cases is shown in table 2.

Anti rabies vaccine was prescribed to 92.15 percent of the patients followed by injection T.Toxoid to 82.35% of the patients. Other treatment which includes vitamin B complex and antacids etc prescribed to minimum number of the patients (13.72%).

**OPD register:** From the secondary data of dog bite cases in the year 2013.there were total 493 patients of dog bites were registered. Table 3 shows the observation outcome from the OPD register in respect of the entry of identification data and diagnosis and treatment.

#### Infrastructure

**OPD room:** By observation it is seen that the number of the OPD rooms were less and two to three doctors used to sit in one room. Waiting room outside the OPD room was inadequate. Overcrowding seen in some days of the week especially on Monday and Tuesday.IEC material in the form of poster etc was not present in the OPD room except in one institution where one poster of pharmaceutical company showing the schedule of vaccine.

**Table 3** Results of the Observation of the OPD register

Institution	Complete identification data (Name, age, sex and address)	Diagnosis and Treatment
1. (n-325)	41 (12.61%)	115(35.38%)
2. (n-92)	36 (39.13%)	48(52.17%)
3. (n-76)	26 (34.21%)	42(55.26%)
TOTAL (n-493)	103(17.60%)	205(39.11%)

**Injection room:** Injection rooms were lacking adequate light and ventilation. Wash rooms were not attached with injection rooms. Refrigerator was present in injection room of one institution only. Inadequate ventilation in the injection rooms.

**Emergency tray:** Emergency tray was present in the injection rooms but the contents in the emergency tray were less as compared to the standard emergency tray [8]

## DISCUSSION

There is policy in Himachal Pradesh to give the post exposure prophylaxis to all the dog bite cases free of cost in all the public health care institutions [7]. In Sri Lanka the number of rabid dogs has remained relatively unchanged, but the number of suspect human rabies cases is decreasing gradually. These findings indicate successful use of post exposure prophylaxis (PEP) by animal bite victims and increased awareness about rabies prophylaxis [9].

### *Rabies immunoglobulin*

The results found that RIGs has never been supplied by the government to the health institutions. Patients are referred to the tertiary care health centers for RIG. Due to sporadic number of cases it becomes difficult for doctors to recollect the commercial name of rabies immunoglobulin and calculate the appropriate dose, and then the chemist does not understand the RIGs and shows the inability to procure. Lastly doctors and paramedics have the unnecessary fear of severe anaphylactic reaction after the inoculation of equine RIG and think it better to refer the patients to tertiary care centers. Inquiries reveal that there are enough stocks of immunoglobulin at CRI, Kasauli, but no requirement is being sent from peripheral health care institutions. Immunoglobulin is even not available in premier Indira Gandhi Medical College (IGMC) Hospital [10]. There are instances when it is seen that a small delay to inoculate the rabies immunoglobulin has resulted in the death of the dog bite patients [11].

### *Anti rabies vaccine*

There is irregular supply of ARVs, particularly in primary-health-care facilities. In our study we found that the vaccine is not available in primary health care institutions and patients are being referred to the community health centers. The anti rabies vaccine in community health centers is meant to be given free of cost only to the people below poverty line who are having the BPL cards. But many poor patients who do not possess a BPL card have to purchase this costly vaccine. RKSs are formed starting from the level of the primary health centers. There is provision to procure the drugs including ARV through the budget of RKS but it is not seen. ARV vaccine is prescribed as per the convenience of doctors. The Intra dermal anti rabies vaccination was started in October 2008 in Himachal Pradesh. Even department of health and family welfare has given the affidavit in the high court that they are using the intradermal route of the ARV [12]. [Rahim et al.](#) [13] and [Mankeshwar et al.](#) [14] highlighted the economic benefits of the intradermal schedule.

### *Intersectoral coordination and IEC activities*

Lack of intersectoral coordination between health and veterinary department. Mostly the dog bite cases come and receive PEP and in many cases the suspected animal is killed or dies and is unavailable for the observation. A veterinarian services needed to examine the animal and submit it for confirmation of rabies from the reference laboratory. In the results it emerged that IEC activities for the prevention and

control of rabies in the health institutions were negligible. IEC material like posters, wall writing about rabies were not seen in the health centers. There was no activity in schools to increase the awareness of children. These findings corroborate with other studies [15][16].

### *Documents*

Out of the 51 prescription slips, site showed of the wound was written in 35.29 percent of slips which showst their casual approach about the treatment. Site of bite where plexus of nerves is dense and bite which are close to brain, the chances of developing the rabies are more for example on face and hands etc. Categorization of the wound was written in 31.37 percent (Table 2) of the cases. This shows many things, the less knowledge of the doctors about the classification of the bite, casual attitude towards this fatal infection and weakness of the health system, monitoring and technical support. Advice for wound washing was written in 64.70 percent of the patients. Reason to write the wound washing for less number of the patients is that patient had washed the wound and so the doctor had not written it. Since the rabies immunoglobulin was not available in the institutions surveyed. The referral was only for 21.56 percent of the patients (Table 2) the number is very less which shows that either the doctors have not written the immunoglobulin to the patients who require it or they were not having the adequate knowledge of the indication of the immunoglobulin. Anti rabies vaccine was prescribed to most of the patients i.e. 92.15%. Adjuvant treatment injection tetanus toxoid, was written to the 82.35% patients. The saliva of the dogs beside rabies virus contains number of the bacteria and viruses. To prevent this infection in case of dog bites antibiotics cover is mandatory. Simliarl findings were seen in the study of [Mazta et al.](#)[17].

In the OPD register diagnosis and treatment was written in the 39.11 percent (Table 3) of the patients, whereas the complete identification data was written in 17.60 percent of the patients. Any extra effort to follow the treatment was not evident in the register such as to note mobile/telephone/e-mail of the patients. Similar findings were shown in the survey done in Maharashtra in the community health centers [18]

### *Infrastructure*

Due to the shortage of OPD rooms, two to three doctors used to sit in one OPD room. There is overcrowding in the peak hours in OPD rooms. The emergency case such as dog bites is ignored in such situation. Wash room was not attached with the injection room so patients had to wash the wound in common bathroom or the taps in the backyard of the hospitals Vaccines Were kept in the ice lined refrigerators which were lying away from the injection room. This can also affect the cold chain management. Emergency trays were available in the injection room but none of the emergency trays have essential items as compared to standard emergency tray. If anti allergic drugs will not available on the spot and treatment delayed, it will definitely harm the patient.

## CONCLUSION

Himachal Pradesh is predominantly rural and hilly. Villages are near forests, where wild reservoirs of rabies exist. Policy to procure post exposure prophylaxis for dog bite cases is less

understood. RIGs remained outside the ambit of this policy. IEC activities and intersectoral coordination is negligible for prevention and control of rabies in Himachal Pradesh. There is the gap between the policies framed at the government level and existing situation in the health institutions.

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