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## **Profile of Patients Attending an Animal Bite Management Clinic in Rural Pondicherry, India**

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### **Authors' contributions**

*This work was carried out in collaboration between all authors. Authors CP and RPU designed the study. Authors SVN and SAR performed the statistical analysis, wrote the protocol, and wrote the first draft of the manuscript. Authors KV, SVN, SAR managed the analyses of the study and managed the literature search. All authors read and approved the final manuscript.*

**Short Communication**

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### **ABSTRACT**

**Aims:** In India, annual incidence of animal bite is estimated as 1.7 per 100 population and that of human rabies as 1.7 per 1,00,000 population. Since rabies is universally fatal it requires prevention through timely management by wound care, Anti-Rabies Vaccine (ARV) and rabies immunoglobulin.

**Study Design:** Retrospective record review.

**Place and Duration of Study:** Animal Bite Management (ABM) clinic of a Primary Health Centre in rural Pondicherry, south India, between January and December, 2011.

**Methodology:** This study is a secondary analysis of data collected at an Animal Bite Management (ABM) clinic in a primary health centre in rural Pondicherry. The study population was mainly rural and agrarian. All victims of animal bite, who sought treatment from the ABM clinic between January and December, 2011 were included. Wound washing and administration of ARV through intramuscular route was provided for all

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victims. Data on factors like age, gender, place of residence, biting animal was collected. Means and proportions were calculated. Chi square test for categorical and t-test for continuous variables were applied.

**Results:** A total of 767 victims sought treatment from ABM clinic. The mean age was 29 years (1 to 84 years). Mean distance of travel to ABM clinic was 2.1 km. About a third of all cases occurred during summer (March to May). Majority of victims were bitten by dog (85%) followed by cat (9%) and monkey (6%). Only 61.7%, 32.2%, 0.8% and 0% turned up for day 3, day 7, day 14 and day 28 doses of ARV schedule. Of those who came, only 70% came on due day. There was no statistically significant difference in treatment seeking based on gender and distance from ABM clinic.

**Conclusion:** The high dropout rate for Day 3 and subsequent doses of the ARV and the delayed administration of Day 3 and Day 7 are worrying facts because only a full and timely ARV course will provide complete protection against rabies.

*Keywords: Rabies; animal bite; rural; primary care; India.*

## 1. INTRODUCTION

Rabies, a disease described in ancient Hindu scriptures, continues to be a public health problem in India. Globally, more than 55,000 people are estimated to die every year due to rabies, majority of these deaths occurring in Asia and Africa [1]. In India, annual incidence of animal bite is estimated as 1.7 per 100 population and annual incidence of human rabies is estimated to be 1.7 per 1,00,000 population [2,3]. Although 100% fatal, rabies can be prevented if proper and timely measures like wound washing, avoiding dressing and suturing and administration of Anti-Rabies Vaccine (ARV) and Rabies immunoglobulin are taken by the healthcare providers. Treatment seeking behaviour on the part of animal bite victim also plays a crucial part in prevention of rabies.

## 2. MATERIALS AND METHODS

This study is a secondary analysis of data collected at an animal bite management (ABM) clinic in primary health centre (PHC) of rural Pondicherry. This PHC served a population of 26,000 as on March 2011. There are five sub-centers under this PHC. The study population is mainly rural with agriculture and agriculture-related works as the main occupation. All victims of animal bite who sought treatment from the ABM clinic between January and December, 2011 were included in the analysis. Wound washing and administration of ARV through intramuscular route was provided for all victims. Data on factors like age, gender, place of residence, biting animal was collected. Dates of subsequent visit to PHC for immunization were recorded. Means and proportions were calculated. Chi square test for categorical and unpaired t-test for continuous variables was applied. All analysis was done in STATA version 11.

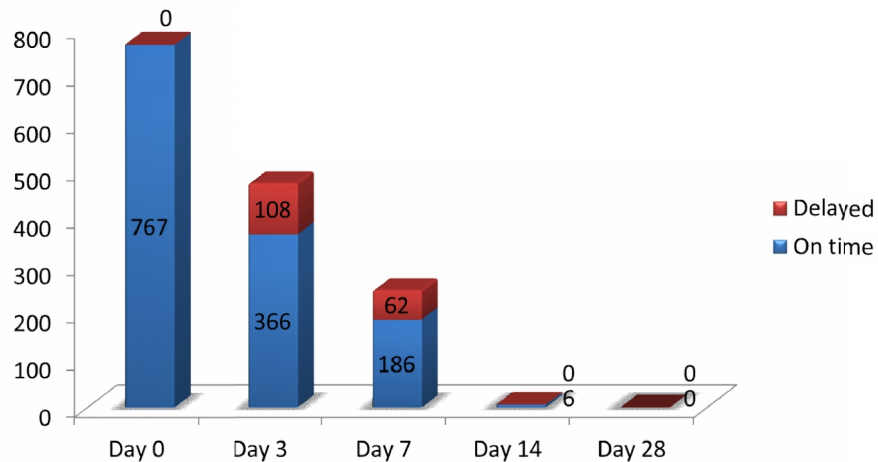
## 3. RESULTS AND DISCUSSION

A total of 767 victims sought treatment from ABM clinic. The mean age of the group was 29 years (median = 27 years, range = 1 to 84 years). One third of the victims were aged less than 18 years. The mean distance to travel to ABM clinic was 2.1 km. Around a third of all cases occurred during summer months of March to May. Majority of the victims were bitten by dog (85%) followed by cat (9%) and monkey (6%). (Table 1) Out of the total 767 victims

only 474 (61.7%), 248 (32.2%) and 6 (0.8%) turned up for day 3, day 7 and day 14 of ARV schedule. None came for the day 28 dose. Only about 70% of patients came on the days mentioned in the schedule. (Fig. 1) The analysis did not reveal any difference in treatment seeking based on the gender and the distance from ABM clinic ( $p > 0.05$ ) (data not shown).

**Table 1. Profile of animal bite victims (N=767)**

Variable		Nos.	%
Age (years)	1-10	130	17.0
	11-20	155	20.2
	21-30	145	18.9
	31-40	123	16.0
	41-50	110	14.3
	>50	104	13.6
Gender	Male	486	61.0
	Female	299	39.0
Biting animal	Dog	654	85.0
	Cat	67	9.0
	Monkey	46	6.0
Distance of residence (Km)	0	298	38.8
	1-5	430	56.1
	>5	39	5.1



**Fig. 1. Punctuality of the animal bite victims receiving ARV on scheduled days**

This study reported the profile of victims of animal bite visiting a PHC in rural Pondicherry. Of the total victims, nearly 61% were males. This was consistent with the studies done by Agarwal et al. [4] in rural Haryana and Sharma et al. [5] in rural Maharashtra. This is explained by the fact that men are more likely to be involved in outdoor activities and thus have higher chances of being bitten by animals compared to females. One third of all victims were aged less than 18 years. Sharma et al. [5] reported that the proportion of victims in the age group of 0 – 15 years was 27.3%. Dog was the most common biting animal as has been reported by several studies. [2,4-6] The interesting fact to note is the high dropout rate for Day 3 and subsequent doses of the ARV and the delayed administration of Day 3

and Day 7 doses. This is worrisome as only full five timely doses of ARV will provide complete protection against rabies. This was observed in spite of the vaccine being given free of cost. It is possible that people do not realize the value of the vaccine since it is given free of cost. It might be possible that the victims might be visiting other private practitioners for the subsequent doses. There is need to improve the data collection format and to include information on practices followed by the victims before seeking treatment. Reported practices like application of chilly, turmeric, cow dung and other substances on the wound are detrimental. There is a need to better understand the knowledge and practice of the community regarding animal bite and rabies. This will help in identifying the gaps and deficiencies, so that the same can be addressed effectively through the information, education and communication campaigns. This would go a long way in attaining the goal of rabies free India.

#### **4. CONCLUSION**

In conclusion it can be stated that a large proportion of animal bite victims did not complete the full course of ARV and there was significant delay in receiving the doses as per schedule. Awareness generation activities should be planned to make the community of the importance of timely and complete administration of ARV to effectively prevent rabies.

#### **CONSENT**

Not applicable.

#### **ETHICAL APPROVAL**

This study was done after obtaining permission from competent authority and the ethical standards laid down in the 1964 Declaration of Helsinki were strictly adhered to.

#### **COMPETING INTERESTS**

Authors have declared that no competing interests exist.

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