

Title: PROFILE OF PATIENTS ATTENDING ANTI RABIES CLINIC IN A GOVERNMENT TERTIARY CARE HOSPITAL IN SOUTH KARNATAKA AND THEIR COMPLIANCE TO 4 DOSE INTRA DERMAL RABIES VACCINE

Author: Dr Jahnavi R1, Dr Vinay M2, Dr Manuja L M3 , Dr Harish B R4

1. Assistant Professor.
2. Associate Professor.
3. Post Graduate student.
Mandya Institute of Medical Sciences, Mandya

Keywords Intra Dermal Rabies Vaccine, Compliance, Profile

Abstract To describe the profile of animal bite victims who reported to ARC-MIMS, To determine their compliance to 4 dose Intra dermal Rabies Vaccine

Original Article

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Dr Jahnavi R*, Dr Vinay M**, Dr Manuja L M***, Dr Harish B R****

ABSTRACT

Objectives : The present study was conducted

1. To describe the profile of animal bite victims who reported to ARC-MIMS
2. To determine their compliance to 4 dose Intra dermal Rabies Vaccine

Type of study : Descriptive study

Study Setting : Anti Rabies clinic, Mandya Institute of Medical Sciences, Mandya

Study period : One year (1st July 2013 to 30th June 2014)

Study Subjects: Animal bite victims reporting to ARC MIMS, Mandya during the study period.

Results: A total of 5327 patients had reported to ARC-MIMS during the study period of 1 year. About a third of the animal bite victims were patients aged less than 15 years and most were males(72%) and rural residents(78%). Majority of the cases were dog bites(93%). Nearly half the patients had per-capita monthly income of less than 5,000/-. Nearly half the bites were on lower limb and 32% on upper limb, chest and abdomen(15%) and Head and neck(7%). Most (82%) were category III exposures. 29% of them had received RIG. 33% of the victims had washed their wound with soap and water before reaching the hospital. 12% had applied irritants over the wound. While all patients received the first dose, about 89% turned up for the second dose, which decreased to about 84% for the third dose. 72% of the patients completed the full course of vaccination.

Key words: Intra Dermal Rabies Vaccine, Compliance, Profile.

Introduction

Rabies is a disease affecting the central nervous system. It is caused by a virus. It is virtually a 100% fatal disease. It is present in more than 150 countries and is responsible for about 55,000 deaths annually in the world. 95% of the cases are from Asia and Africa. About 3 billion people are at risk of getting this disease. Most of the people who die due to rabies acquire it from the bite of infected dogs.¹

Rabies can be easily prevented by appropriate post exposure prophylaxis (PEP). It consists of

- (a) Cleaning the bite wound thoroughly with soap & water
- (b) Applying antiseptics to the bite wound
- (c) Administration of rabies immune-globulin (in case of category III exposure) and

- (d) Administering the complete course of rabies vaccination.

PEP should be done as soon as possible. Globally about 15 million people take rabies PEP every year. Irritants should not be applied to the bite wound. Sutures should be avoided unless absolutely necessary and should be done after the administration of rabies immune-globulin (RIG).²

In India about 20,000 people die each year due to rabies. About 17 million animal bites occur each year and a similar number of PEP is required.² To provide PEP to the people, Anti Rabies Clinics have been established in many places, especially at tertiary care centres. The Anti Rabies Clinic at Mandya Institute of Medical Sciences, Mandya, Karnataka state (ARC-MIMS) is one such centre.

*Assistant Professor, **Associate Professor, ***Post Graduate student, Mandya Institute of Medical Sciences, Mandya

Table : I
Socio-demographic profile of patients
attending ARC-MIMS, 2013-14

AGE GROUP (Years)	No.	%
<15	1822	34.2
15-30	1348	25.3
30-45	1129	21.2
45-60	682	12.8
>60	346	6.5
SEX		
Male	3857	72.4
Female	1470	27.6
RESIDENCE		
Rural	4166	78.2
Urban	1161	21.8
EDUCATION		
Illiterate	964	18.1
Primary	1907	35.8
Secondary	1460	27.4
College	996	18.7
INCOME (Rupees)		
>10,000	671	12.6
5,000 -10,000	2083	39.1
<5,000	2573	48.3
OCCUPATION		
Unskilled	1216	38.5
Semi skilled	828	26.2
Skilled	559	17.7
Professional	259	8.2
Student	297	9.4

*The education of their parents has been considered in case of children aged less than 15 years.

*Income has been calculated in terms of "per capita income per month".

*Occupation has been considered for the age group of 15 to 60 years only

Objectives

1. To describe the profile of animal bite victims who reported to ARC-MIMS
2. To determine their compliance to 4 dose Intradermal Rabies Vaccine

Methodology

In this record based descriptive study, the data of all the patients reporting to ARC-MIMS between 1st July 2013 to 30th June 2014 was entered and analysed using Microsoft excel software after obtaining permission from Institutional Ethics and Scientific Committee. Various socio demographic variables like age, sex, residence, etc., details regarding exposure & first aid, immune-globulin acceptance and compliance to intra dermal rabies vaccine (IDRV) schedule were analysed.

Table : II
Details regarding exposure to the
animal and first aid after the exposure

Biting Animal	No.	%
Dog	4927	92.5
Cat	165	3.1
Cattle/Sheep/Goat	150	2.8
Monkey/ Wild Animal	85	1.6
Type of Animal		
Pet	1940	38.1
Stray	3152	61.9
Site of bite		
Lower limb	2554	47.9
Upper limb	1698	31.9
Chest & Abdomen	798	15.0
Head & Neck	356	6.7
First aid		
Did not wash	1353	25.4
Washed with water only	2221	41.7
Washed with soap & water	1753	32.9
Applied anti septic	405	7.6
Applied irritant	647	12.2

Pet and stray differentiation applies to dogs and cats only. Cow, buffalo, goat, sheep, etc are peri-domestic animals while monkeys and other animals are wild animals. We did not come across monkey or other animal kept as pets.

Descriptive statistics and chi square test were used for analysis.

Results

A total of 5327 patients reported to ARC-MIMS between 1st July 2013 to 30th June 2014. The highest number of patients were those aged less than 15 years. It was observed that, as the age group increased, the number of persons in that age group reporting to ARC-MIMS decreased. Male patients outnumbered female patients by a ratio of almost 3:1. More than three fourth of the patients were rural residents.

Nearly one in three patients had primary education (upto 7th standard) while both illiterates and college educated patients were about 18% each. Education of the parents has been considered in case of children aged less than 15 years. Nearly half the patients had per-capita monthly income of less than 5,000/ and only about 12% had per-capita monthly income of more than 10,000/.

Most of the patients, who were in the working age group of 15 to 60 years (n=3159), were in unskilled and semiskilled occupations like agriculture, manual labour, home maker, small business, etc. (table 1)

While most animal exposures were dog bites, there were exposures to cats, handling cattle which had history of exposure to rabid dog, monkey bites, and the rare instances of exposure to wild boar, mongoose and 1 case of leopard attack.

Stray dog bites clearly outnumbered bites from pet dogs. All cat bites or scratches were from pet cats, usually while handling them.

Nearly half the bites were on leg, which is easily accessible to animals, while 31% had bite wounds on hand which occurred while handling the animal or when trying to get the animal away. Chest, abdomen, head & neck were the most common bite sites in children.

The bite wound was washed with soap & water by 33% of the patients while 41% used only water. Only 8% applied antiseptics. Absence of any first aid and application of irritant was not uncommon. (table II)

Of the 5327 patients, most (82%) were category III exposures. A category III exposure is “single or multiple trans-dermal bites or scratches, licks on broken skin, contamination of mucous membrane with saliva from licks and contact with bats”. 18% were category II exposures, which comprises of patients with complaints of “nibbling of uncovered skin, minor scratches or abrasions without bleeding”.

As per WHO recommendation, all category III patients require rabies immune-globulin (RIG). Though all category III patients were advised RIG, it was received by only 29% of them.

At ARC-MIMS, Intra dermal rabies vaccination is administered as per modified Thai Red cross Regimen which consists of 4 doses given on days 0 – 3 – 7 – 28, where day 0 is the day of the first vaccine. While all patients received the first dose, about 89% turned up for the second dose, which decreased to about 84% for the third dose. 72% of the patients completed the full course of IDRV. (Table III)

Discussion

In our study, 5327 animal bite cases were reported to ARC-MIMS among which the highest number of patients were those aged less than 15 years (34%) and majority were males (72%) compared to females. This may be due to the fact that majority of the males go out for the work than females. It was observed that animal bite cases decreased with increasing age in our study. Similar findings were observed in other studies.^{3,5,6,7}

Dogs are the main host and transmitter of rabies and are the source of infection in almost all the rabies deaths

Table : III
Immune-globulin acceptance and Compliance to the 4 dose IDRV schedule

Category of Exposure	No.	%
Category II	938	17.6
Category III	4389	82.4
RIG acceptance	1291	29.4
Compliance to IDRV		
1 st dose	5327	100
2 nd dose	4762	89.4
3 rd dose	4448	83.5
4 th dose	3825	71.8

annually in Asia and Africa.⁸ Dog as the major biting animal was found in our study (92.5%) of which most were stray dogs (62%). Similar findings were observed in other studies.^{3,4,5,6,7}

Most of the bite victims were the rural residents (78%) in the present study which goes similar to the study conducted by Sudarshan et al where they have reported that 80% were rural residents.^{3,6,7} Whereas Avinash et al in their study has reported that more cases were from urban area (55%) when compared to rural.⁵ It can be attributed to the location of ARC which is surrounded by the rural area in our study.

Most common site of bite in the present study was lower limb (48%) which is consistent with the other studies^{3,5} since it is the most approachable part for the animals. Local wound treatment can reduce the chances of developing rabies by upto 80%.⁸ Only 33% of the patients had washed their wound with soap and water before reaching ARC in our study which is similar to the finding (40%) in the study conducted by Sudarshan et al.³ But Avinash et al reported that it was only 5% in a study conducted in Maharashtra in Tribal area.⁵

12% had applied local irritants in our study as compared to 37% and 34% in studies conducted by Sudarshan et al³ and Avinash et al⁵ respectively. This shows there is increase in awareness regarding wound management practices in patients.

Category III bites constituted major part in our study (82%) as most of the bites were from unprovoked stray dog bites and also in other studies.^{6,7} Though all category III patients were advised RIG, it was taken by only 29% of them in our study most probably due to its cost. It was observed that it was only 2.1% in study

conducted by Sudarshan et al³ and about 14% in other studies.^{6,7}

Compliance to IDRV for 3rd and 4th doses was 83% and 72% respectively in the present study. In a study done by Rizwan et al, it was 32% & 0.8% respectively.⁴ Vinay et al in his study conducted in ARC MIMS, Mandya in 2010 reported that it was 60% & 35%⁷ and in 2012 it was 73% & 53%.⁶ It is a striking finding that compliance to IDRV among patients reported to ARC-MIMS, Mandya has shown dramatic improvement which can be attributed to telephone reminder calls which was started since 2010. At the end of each working day in ARC, the people who had missed their dose which was due on that working day would be called and reminded to receive their dose on the following day.

Conclusion

A total of 5327 patients reported to ARC-MIMS between July 2013 and June 2014. Almost a third of them were aged less than 15 years. The proportion of patients decreased with increase in their age. Significantly more number of patients were male, rural residents, had primary education, had a monthly per capita income of less than 5000/- and were unskilled or semiskilled workers.

Most were bitten by stray dogs to the lower limb, but only about a third washed the wound with soap & water and only 8% applied antiseptic. 12% applied irritants.

Most were category III exposures, of which 29% received RIG. 72% patients completed the full course of the vaccination.

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