



## Epidemiological study of patients attending anti-rabies vaccination clinic of tertiary care hospital

### KEYWORDS

Epidemiology, demographic profile, animal bite, anti-rabies vaccination

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### ABSTRACT

*Background: Epidemiology of animal bite is imperative for policy making, planning and effective implementation of prevention and control programme at local, state and National level.*

*Objectives: To study the epidemiology of patients attending anti-rabies vaccination clinic.*

*Methods: A Hospital based cross-sectional study was conducted in 100 adult patients attending anti-rabies vaccination clinic of Indira Gandhi Government Medical College, Nagpur during January to May 2013. Detail history regarding socio-demographic profile, type of bites including site, duration, category of exposure, wound toilet, treatment, etc was inquired.*

*Results: Out of total 100 patients screened, 76 % were males and 24 % were females. 16 % were illiterate and 23 % were professional. Majority of the patients i.e. 90% were from urban areas. 77 % animal bites were of category III with 81 % bites being unprovoked. 76 % injuries were of superficial type and 24 % were deep wounds. Maximum number i.e. 68 % bites were on lower limb, 24 % were on upper limb and only 5 % on head, neck, face and 3 % on trunk. History of local wound toileting was present in 82 % cases and 45 % gave history of local application of salt, oil and or turmeric. Anti-rabies vaccine was administered to 70 % of cases and rabies immunoglobulin (equirab) to 50 % cases.*

*Conclusion: Our study findings suggests that the majority of the patients were from urban set up inflicted upon by animal bites with poor knowledge regarding wound care and seeking early treatment.*

### Introduction

Rabies is an acute infectious highly fatal viral disease of the central nervous system leading to encephalomyelitis. It is primarily a zoonotic disease of warm blooded animals, particularly carnivorous such as dogs, cats, jackals and wolves. It is mainly transmitted by animal bites, mostly dogs in the Indian context. Although Rabies is 100% fatal disease, it is also 100% preventable. In spite of being a vaccine preventable disease, rabies still poses a significant public health problem in many countries in Asia and Africa. Surprisingly, 95% of 60,000 human deaths occur in developing countries.<sup>1-3</sup>

Worldwide, rabies occurs in more than 150 countries and territories. Although a number of carnivorous and bat species serves as natural reservoir, rabies in dogs is the source of 99 percent of human infection, and poses a potential threat to more than 3.3 billion people. In India alone, 20000 deaths (i.e. about 2 per lakh population at risk) estimated to occur annually; in Africa, the corresponding figure is 24000 (i.e. about 4 lack population at risk).<sup>4-6</sup>

There is significant variation in epidemiology of animal bite cases at different health care settings. The present study was undertaken to understand the local epidemiology of animal bites for the development of an efficient precaution programme at local level.

### Methods:

#### Study design: A hospital based cross-sectional study.

Study area: The study was carried out in anti-rabies vaccination OPD of Indira Gandhi Government Medical College, Nagpur.

Study period: The study was conducted from January to May 2013.

Study subjects: 100 participants for this study were animal bite patients attending anti-rabies vaccination clinic.

After obtaining written informed consent from the patients, all 100 adult patients were interviewed with the aid of pre-formed structured questionnaire. All the patients were subjected to sociodemographic profile and detailed history type of bites including site, duration, category of exposure, wound toilet, treatment including both active and passive immunization. Also history regarding health seeking behaviour of animal bite patients like application of oils, salt, lime, herbs, red chilies and turmeric paste on the wound was inquired. Statistical analysis was done by simple proportions and percentages.

### Results:

Table 1 shows the characteristics of patients attending anti-rabies vaccination (ARV) Out of total 100 adult patients studied who had been bitten by animals, 76 % were male and 24 % were female. As far as the education of patients is concerned, majority i.e. 40 % were educated up to high school, 23 % patients were graduate or post graduate, 11% completed only primary education, 10 % were educated up to middle school whereas 16 % were illiterate. It was observed that majority of patients i.e. 90 % were from urban areas and only 10% were from rural areas.

Distribution of patients according to wound characteristics has been depicted in Table 2. Patients were categorized as per WHO classification of animal bite, it was seen that 77 % animal bites were of category III exposure; 20 % belonged to category II animal exposure and only 3 % belonged to category I exposure. As far as types of injuries are concerned 76 % injuries were of superficial in nature (i.e. licks, abrasion) and 22% were deep wounds (lacerated, contusion) with 81 % being unprovoked and 19% were provoked. In our study, the commonest site of animal bite was found to be lower limb in 68 %, upper limb in 27%, head, neck face (HNF) in 5 % and trunk in only 3 % of cases of animal bites.

Distribution of patients according to wound management is

shown in table 3. Wound toileting was done by 82 % of patients; whereas 26% of the patients had not done any wound toileting. 24 % patients had given history of local application of turmeric. Whereas 21 % had applied salt and oil over the wound. 17 % had given history of application of soap and water and only 6% had applied antiseptic on the wound. 45 % did not apply anything over the wound. Considering treatment received at anti-rabies vaccination (ARV) clinic, out of total patients 95 % had received injection tetanus toxoid (TT). Whereas active immunization (Anti rabies vaccine) was administered to 70 % of cases and passive immunization (Rabies Immunoglobulin (RIG) - equirab) was given to 50 % patients.

### Discussion

The present study highlighted the epidemiology of animal bite cases reported to anti-rabies vaccination (ARV) clinic of tertiary care hospital. 90 % of the patients in our study belonged to urban areas. On the contrary, other studies conducted by Shetty et al,<sup>7</sup> Agrawal et al<sup>8</sup> and Sudarshan et al<sup>9</sup> demonstrated more animal bite cases in rural areas.

We found maximum number of cases (68 %) had been bitten on lower limbs. Our study findings are consistent with the findings of study done by Indu D et al<sup>10</sup> who observed that the most common site of injury was on the legs (50.1%) and hands (36.2%). 37.5 per cent and 57.1 per cent of the bitten patients incurred WHO category II and III potential rabies exposures (moderate and severe). 92.7 per cent had performed wound cleansing on each bite injury site and 7.3 per cent did not.

Moreover majority of people preferred indigenous methods and home remedies (41 %) including application of chilly/turmeric powder, salt and oil rather than washing the wound with soap and water (17 %). This is consistent with the findings reported by Singh J et al who found 22 % of people preferred indigenous methods and home remedies including application of chilly/turmeric powder, jhaadphook rather than seeking medical help.<sup>11</sup>

### Conclusions:

Our study findings suggests that the majority of the patients were from urban set up inflicted upon by animal bites with poor knowledge regarding wound care and seeking early treatment. So the Community should be made aware of their role in immediate reporting of animal bites, importance of proper wound care, and necessity of taking anti-rabies vaccination.

**Table 1 shows the characteristics of patients attending anti-rabies vaccination (ARV) clinic**

Characteristic	Number of Patients (n = 100)
Gender	
Male	76 (76)
Female	24 (24)
Education	
Illiterate	16 (16)

Primary	11 (11)
Middle school	10 (10)
High school	40 (40)
Graduate/ postgraduate	23 (23)
Residential area	
Urban	90 (90)
Rural	10 (10)

Figures in parentheses indicate percentage

**Table 2: Distribution of patients according to wound characteristics**

Wound characteristic	Number of patients (n = 100)
Category of bite	
Category I	3 (3)
Category II	20 (20)
Category III	77 (77)
Type of wound	
Superficial (licks, abrasion)	76 (76)
Deep (lacerated, contusion)	24 (24)
Type of bite	
Provoked	19 (19)
Unprovoked	81 (81)
Site of bite	
Head, neck, face	5 (5)
Trunk	3 (3)
Upper limb	24 (24)
Lower limb	68 (68)

Figures in parentheses indicate percentage

**Table 3: Distribution of patients according to wound management**

Character	Number of patients
Wound toileting done	82 (82)
Local application	
Salt and oil	21 (21)
Turmeric	24 (24)
Soap and water	17 (17)
Antiseptic	6 (6)
None	45 (45)
Treatment given	
Injection TT	95 (95)
Anti-rabies vaccine (ARV)	70 (70)
Rabies Immunoglobulin (RIG)	50 (50)

Figures in parentheses indicate percentage

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