

## Outcome Analysis of Admitted Cases of Hydrophobia at SMS Hospital, Jaipur

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### ABSTRACT :

**Introduction :** Rabies is a highly fatal, zoonotic viral infection of the central nervous system being transmitted by rabid animal bite and licks. Rabies can be prevented by post-exposure prophylaxis (PEP) through local administration of anti-rabies immunoglobulin (ARIG) and active immunisation by anti-rabies vaccine (ARV) along with proper wound management.

Rabid animal bite cases if not treated properly may develop into human rabies which is 100% fatal and very difficult to diagnose by common laboratory investigations. Suspected human rabies cases are usually diagnosed by clinical symptoms of hydrophobia, aerophobia and photophobia along with past history of animal bite.

Moreover, the phobia of 100% mortality and risk of transmission of rabies infection among attendants and medical personnel leads to their apathy and neglect of patient affecting management. Hence, this study was carried out with the objective of evaluation of outcome pattern and socio-demographic profile of hydrophobia cases admitted at isolation ward of S.M.S. hospital, Jaipur (Rajasthan).

**Material And Methods :** A hospital based retrospective record analysis of data of past 11 years i.e. Jan. 2009 to Dec. 2019 of admitted cases of hydrophobia was carried out at SMS Hospital, Jaipur (Rajasthan). Total 653 cases admitted during study

period were included in study. Data was collected from Medical Record Department (MRD) using structured proforma including detail of socio-demographic profile, animal bite and their outcome. Data were analysed by Primer software.

**Results :** Out of study subjects (653), majority of cases (63.7%) under the age of 15 years and males (77.2%) belong to rural area. Canine rabies (87.9%) is main cause of infection with grade 3rd bite (86.7%) on lower extremities (53%) in majority of hydrophobia cases. Only 31.85% hydrophobia patients died at hospital whereas 38.13% absconded and 30.01% were LAMA.

**Conclusions :** Mandatory 100% Post-exposure prophylaxis (PEP) in all animal bite cases is the need of hour. Confirmative and timely diagnosis of human rabies should be made by appropriate lab investigation (RT-PCR, RFFIT etc.). Pre-exposure prophylaxis of attendant and medical personnel should be made mandatory to avoid their apathy and neglect towards patient during management.

**Keywords :** Rabies, Anti rabies vaccines, Hydrophobia, PEP, RT-PCR (Real time polymerase chain reaction), RFFIT (Rapid Fluorescent Focus Inhibition Test).

### INTRODUCTION :

Human rabies is a highly fatal and preventable viral infection of the central nervous system occurring in more than 150 countries. Disease is caused by rabies virus of Genus-Lyssavirus belong to family-

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Rhabdoviridae. It is primarily a zoonotic disease transmitted by bites and licks of rabid animals. Although a number of wild animals serve as natural reservoir<sup>1</sup>. 99% of the human rabies cases are attributed to canine rabies<sup>2</sup>. Rabies is attributed to animal bite which is defined as claw wound or bite due to animal<sup>3</sup>.

Globally it is estimated that around 55000 people die due to rabies. An estimated 12 million people throughout Asia receive treatment after being exposed to suspected rabid animals<sup>4</sup>. Around 21000 - 24000 deaths due to human rabies occur in South - East Asia region<sup>5</sup>. Worldwide India is reported to have highest incidence of rabies<sup>6</sup>. Various socio-cultural taboos (for example, application of soil, chili paste, oil etc.) followed after exposure to a dog bite in rural India<sup>7</sup>. Almost 20565 deaths reported annually, most cases are reported from rural areas.

The availability of PEP has improved but it is not clear how much the rural communities have benefited<sup>8</sup>. Though 100% fatal, rabies can be easily prevented by proper post-exposure prophylaxis thorough washing of wound by soap and water, local administration of anti-rabies immunoglobulin and active immunisation by anti -rabies vaccine (ARV)<sup>9</sup>.

The Global Alliance for Rabies Control (GARC) in collaboration with World Organization for Animal Health, Food and Agriculture Organization and World Health Organization have put forward the global strategic plan “Zero Rabies death by 2030” to reduce

the human deaths from rabies by the year 2030<sup>10,11</sup>.

Human Rabies cases are usually diagnosed on the basis of clinical symptoms of hydrophobia, aerophobia and photophobia along with past history of animal bite. Hydrophobia is extreme fearfulness from water & swallowing liquids due to the spasm of throat muscles.

The phobia of 100% mortality and risk of transmission of rabies infection to attendants and medical personnel leads to their apathy and neglect which affects the management of hydrophobia patients. Hence this study was carried out to evaluate the outcome pattern and socio-demographic profile of hydrophobia cases admitted at Isolation ward of SMS hospital, Jaipur.

**MATERIAL AND METHODS :**

A hospital based retrospective record analysis of admitted cases of hydrophobia was carried out for the last 11 years (Jan. 2009 to Dec. 2019) at SMS Hospital, Jaipur (Rajasthan). Total 653 cases of hydrophobia were included in the study. Data of all cases were collected from clinical records of hydrophobia patients at Medical Record Department (MRD) using structured proforma including detail of socio-demographic profile, type of animal bite and outcome pattern. Data were analysed by Primer software.

**OBSERVATION :**

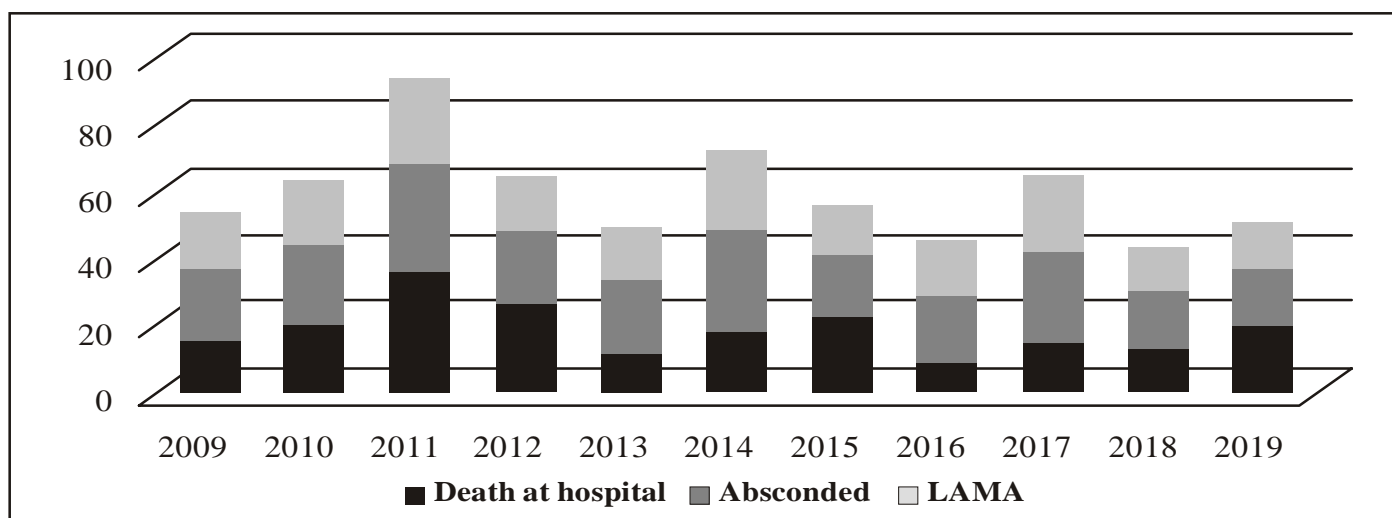
Findings of study are presented in following tables: -

**Table: 1. Socio-Demographic Profile (Age, Gender & Residing Area)**

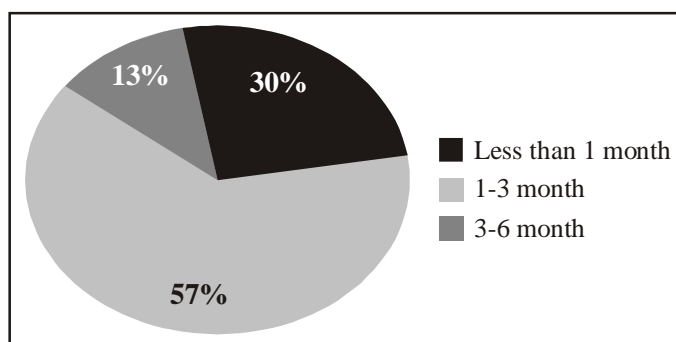
Age (yrs)	Male			Female			Total		Grand Total
	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	
< 15	231(63.1%)	88(63.8%)	319(63.3%)	68(62.4%)	25(62.5%)	93(62.4%)	299(63%)	113(63.5%)	412(63%)
15-445	55(15%)	19(13.7%)	74(14.7%)	16(14.6%)	6(15%)	22(14.8%)	71(14.9%)	25(14%)	96(14.8%)
> 45	80(21.9%)	31(22.5%)	111(22%)	25(23%)	9(22.5%)	34(22.8%)	105(22.1%)	40(22.5%)	145(22.2%)
Total	366(100%)	138(100%)	504(100%)	109(100%)	40(100%)	149(100%)	475(100%)	178(100%)	653(100%)

**Table: 2. Type of animal, Site of bite and Grades of bite**

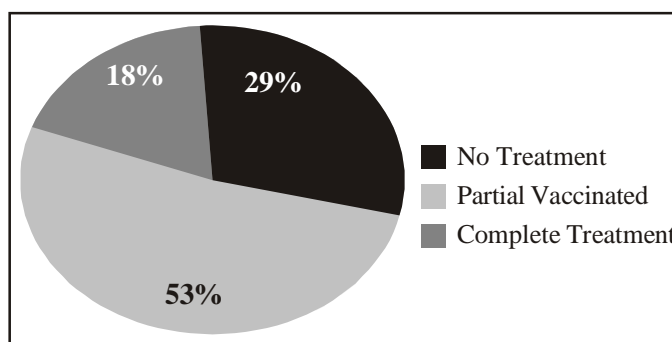
Site of bite	Grade-II				Grade-III				Grand Total (A+B)
	Dog	Cat	Monkey & others	Total (A)	Dog	Cat	Monkey & others	Total (B)	
Head & Neck	11(14.5%)	1(25%)	2(28.6%)	14(16%)	161(32.3%)	4(14.3%)	6(15.4%)	171(30.3%)	185(28.3%)
Upper Extremities	26(34.2%)	1(25%)	2(28.6%)	29(33.3%)	74(14.8%)	9(32.1%)	18(46.2%)	101(17.8%)	130(19.9%)
Lower Extremities	39(51.3%)	2(50%)	3(42.8%)	44(50.6%)	264(52.9%)	15(53.6%)	15(38.4%)	294(51.9%)	338(51.8%)
Total	76(100%)	4(100%)	7(100%)	87(100%)	499(100%)	28(100%)	39(100%)	566(100%)	653(100%)



**Figure 1 : Year wish date of admitted cases of hydrophobia**



**Figure 2 : Time interval between bite & death of hydrophobia patient (at hospital)**



**Figure 3 : Post Exposure Prophylaxis Pattern**

**DISCUSSION :**

Total 653 hydrophobia cases were admitted during last 11 years (w.e.f. Jan.2009 to Dec.2019).

The salient findings of the study are as under: -

Majority (63.7%) of cases were under the age of 15 years and is comparable with studies by Bedi R et

al66.7% and Singh MK et al(40.6%).In the present study 77.2% cases were male similar to studies by Bedi R et al (81.8%) and Singh MK et al(81.6%). Most of patient (72.73%) belongs to rural area, comparable to studies by Bedi R et al(78.57%) and Singh MK et al(84.61%).

Canine rabies (87.9%) is main source of transmission of infection in present study is also similar to studies by Bedi R et al(85.7%), Shingade P et al (95.8%) and Singh MK et al (94.5%).

Most common site of bite were lower extremities (53%) in present study is comparable to studies by Bedi R et al (54.8%) and Singh MK et al (32.4%). Majority of cases had Grade- III bite (86.7%) in present study, also similar to studies by Bedi R et al (90.5%), Shingade P et al (73%) and Singh MK et al (67.5%).

In our study 29% hydrophobia cases had not taken any anti rabies post exposure prophylaxis treatment where as 52.8% cases took incomplete post exposure prophylaxis. Overall 81.9% cases could not complete post exposure prophylaxis treatment in present study, is comparable to the studies by Shingade P et al (91.7%) and Singh MK et al (85%).

56.7% patients of hydrophobia died within 1-3 month after animal bite in our study is similar to study by Bedi R et al (52.4%). Out of total 653 cases in present study only 31.85% died at hospital where as rest were LAMA(30 %) and Absconded(38.13%) is comparable to the study by Shingade P et al (24.56%).

#### **CONCLUSION AND RECOMMENDATION :**

1. Hundred percent post-exposure prophylaxis of animal bite cases and pre-exposure prophylaxis of attendants and dealing medical personnel is the mandate of hour.
2. There should be provision of continue medical education (CME) for medical personnel to raise the awareness and practice for complete management of animal bites cases through PEP, also mass awareness of the community should also be improved.

3. Hydrophobia patients do not deserve apathy & neglect and they should be looked after at the hospital till the final outcome of disease. Discarding the practices of LAMA or abscond will indirectly help us to achieving the goal of “zero rabies death by 2030” at national level.
4. The facility of timely and confirmative ante-mortem laboratory Diagnosis of human rabies (RFFIT, RT-PCR) should be available at state level apex center to avoid the remotest possibility of misdiagnosis only by clinical feature.

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