International Journal of Community Medicine and Public Health
Gaikwad LL et al. Int J Community Med Public Health. 2016 Nov;3(11):3166-3169
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: http://dx.doi.org/10.18203/2394-6040.ijcmph20163930

Original Research Article

Compliance to rabies immunoglobulin in post-exposure prophylaxis of category III animal bite cases attending antirabies clinic of government tertiary care hospital, Solapur, Maharashtra, India

Lagdir L. Gaikwad[1]*, Shivshakti D. Pawar[2]

[1]Department of Community Medicine, Dr. Vaishampayan Memorial Govt. Medical College, Solapur, Maharashtra, India
[2]Medical Officer, District Tuberculosis Center, Zilla Parishad, Nanded, Maharashtra, India

Received: 03 September 2016
Accepted: 28 September 2016

***Correspondence:**
Dr. Lagdir L. Gaikwad,
E-mail: tanajigaikwad20@gmail.com

ABSTRACT

Background: In India since 1985, every year 25000-50000 human rabies deaths have been reported which accounted for 60% of global mortality. The rabies immunoglobulin (RIG) in particular are life-saving in severe (WHO category III) rabies exposures, Hence present study with objectives to assess treatment compliance of rabies immunoglobulin in animal bite cases and to study reason behind not taking RIG is undertaken.
Methods: A cross sectional study was conducted among all 460 WHO category III animal bite cases attending ARV clinic at government tertiary care hospital, Solapur during the month of March 2016. After obtaining verbal informed consent, a predesigned questionnaire was used, the assessment of treatment compliance of RIG was considered by asking and confirming with hospital records, those couldn't traced were contacted by using telephone survey method. Data was analysed by using statistical software SPSS 16.0 version.
Results: A total 460 category III animal bite victims were interviewed from ARV clinic, 80.4% cases were completed rabies immunoglobulin treatment as compared to 19.6% defaulted RIG. The majority of cases were males 68.5%, children ≤15years were 33.5%, 75.0% from urban area, 77% cases belongs to below poverty line category, 35.9% had bite mark on left lower limb. The main animals responsible for bites were dogs (95.2%). The predominant reason behind not taking RIG was lack of money (67.7%).
Conclusions: The present study showed maximum compliance to rabies immunoglobulin in Category III animal bite cases however economic constrain was prime hurdle followed by small injury in not taking RIG.

Keywords: Animal bite, Compliance, Post exposure prophylaxis, Rabies immunoglobulin

INTRODUCTION

Human rabies is endemic in India and annually an estimated 20,000 persons' die of this disease.[1] In India one person is bitten by animal every 2 seconds and one person dies from rabies every 30 minutes.[2] In post exposure prophylaxis against rabies severe (WHO category III) cases along with anti-rabies vaccine rabies immunoglobulin (RIG) administration was decisive. RIG provides passive immunity in the form of ready-made anti-rabies antibodies. RIG has the property of binding with the rabies virus, thereby resulting in neutralization and thus loss of infectivity of the virus and hence it is most logical to infiltrate RIG locally at site of exposure.

Two types of RIGs are available; (1) equine rabies immunoglobulin (ERIG): It is of heterologous origin produced by hyper-immunisation of horses.[3] The dose is

40IU per kg body weight of patient. The ERIG (Inj. Equirab) produced in India contains 300 IU per ml and price of 5 ml ampoule is 433 rupees; (2) human rabies immunoglobulin (HRIG): It is homologous origin and relatively free from side effects. The dose is 20 IU per kg body weight. HRIG (Inj. Berirab-P) preparation is available in concentration of 150 IU per ml and price of 2 ml ampoule is 5400 rupees. Thus The rabies immunoglobulin (RIG) in particular are life-saving in severe (WHO category III) rabies exposures, Hence present study with objective; (i) to assess compliance of rabies immunoglobulin in post exposure prophylaxis of animal bite cases; (ii) to study socio-demographic profile of animal bite cases and reasons behind not taking RIG is undertaken.

METHODS

A cross sectional study was conducted among all 460 WHO category III animal bite cases attending ARV clinic at Dr. Vaishyampayan memorial government tertiary care hospital, Solapur, Maharashtra during the month of March 2016. Institutional Ethical Committee approval was obtained prior to study.

After obtaining verbal informed consent, a predesigned, pretested questionnaire was used; this study instrument included socio-demographic details and the history of animal bite on the first visit. On subsequent visits, the patients were asked about RIG administration and if defaulting RIG reasons behind that then after treatment compliance of RIG was considered by asking and confirming with hospital records, those couldn't traced were contacted by using telephone . In this hospital antirabies vaccine was available to all patients free of cost but RIG was out of stock So that every patient had to purchase RIG. Data was analysed by using statistical software SPSS 16.0 version. The statistical analysis included percentages and Chi square test. The results obtained were considered statistically significant whenever P<0.05.

RESULTS

Majority of severe (WHO category III) animal bite cases taken RIG 80.7% (370) and remaining 19.3% (90) cases defaulted RIG. The majority of cases were males 68.5%, children ≤15years were 33.5%, educated up to high primary were 36.3%,75.0% from urban area, 77% cases belongs to below poverty line category and The main animals responsible for bites were dogs (95.2%). Economic status and type of animal was significantly and highly significantly associated with RIG compliance respectively (Table 1).

Table 1: Socio-demographic characteristics of study participants.

Socio-demographic variable		Taken RIG Number (%) *n*=370	Not taken RIG number (%) *n* = 90	*P* value
Age group (in years)	0- 15	126 (34.1)	28 (31.1)	0.518
	16- 30	79 (21.4)	26 (28.8)	
	31- 45	69 (18.6)	12 (13.4)	
	46- 60	53 (14.3)	14 (15.6)	
	>60	43 (11.6)	10 (11.1)	
Gender	Male	256 (69.2)	59 (65.6)	0.253
	Female	114 (30.8)	31 (34.4)	
Economic status	BPL	278 (75.1)	76 (84.4)	**0.028**
	APL	92 (24.9)	14 (15.6)	
Education	Illiterate	46 (12.4)	13 (14.4)	0.928
	Primary	101 (27.3)	23 (25.6)	
	High primary	136 (36.8)	31 (34.4)	
	Secondary and above	62 (16.8)	15 (16.7)	
	Graduate and above	25 (6.7)	08 (8.9)	
Residence	Urban	283 (76.5)	62 (68.9)	0.071
	Rural	87 (23.5)	28 (31.1)	
Type of animal	Dog	360 (97.3)	78 (86.7)	**0.001**
	Cat	06 (1.6)	11 (12.2)	
	Others (monkey, pig etc.)	04 (1.1)	01 (1.1)	

X^2 test was used and p <0.05 were considered statistically significant.

As lower limbs are more accessible to animals they (68%) were more prone for animal bite than upper limbs (20%) also left lower limb (36%) was more injured than right lower limb (32%). Others include trunk, back, neck, face etc. (Figure 1).

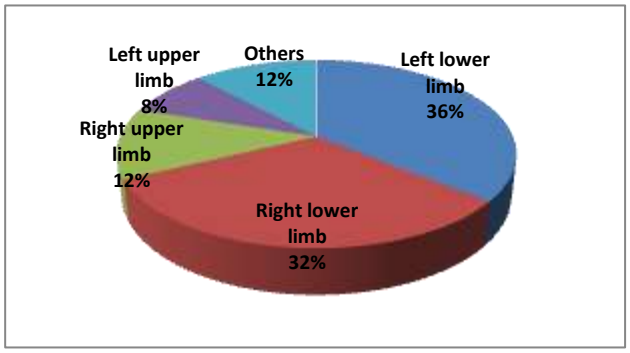

Figure 1: Distribution of cases according to site of bite.

Figure 2 shows patients' perspective for missing Inj. RIG, economical constrain, small injury and patients' forgetfulness were major reason behind not taking RIG whereas not being advised about Inj. RIG was least common reason.

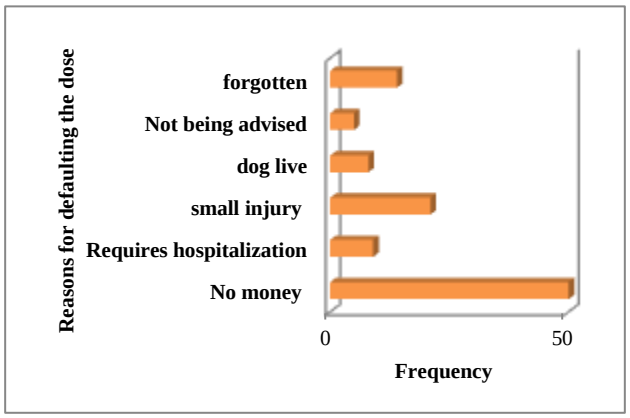

Figure 2: Reasons for de-faulting the Inj RIG.

DISCUSSION

This study was done to identify compliance to RIG in PEP for animal bites and added a note on reason behind missing RIG. In our study we found that 80.7% severe (WHO category III) animal bite cases taken Inj. RIG as compared to 55% in a study conducted at Philippine children medical center, by Ruth Faye Romero-Sengeson and 29.4% at government tertiary hospital, south Karnataka by Jahnvi R et al.[4,5]

Similar findings of demographic characteristics of severe animal exposure cases were observed by Sudarshan MK et al showing 69.6% male, 45% children <15 years, 61.5% from urban area and 79.7% from below poverty line category.[6] On other hand in study conducted at Panvel by Wankhede V et al noticed that 27.8% were children<15 years.[7] Similar results related to site of exposure were found in study conducted by Shrinivas PJ et al lower limb was the most common site exposed to animal bite followed by upper limb.[8] As compared to our 68% lower limb bite 89.8% was found by Venu Shah et al .[9]

As compared to our study reason behind missing ARV dosage by Bariya BR et al was holiday at schedule date of ARV, personal work, forgotten, economical problem and not aware of ARV decendingly.[10]

CONCLUSION

The study showed that the compliance to RIG was good and economical constraints were major reasons for non-compliance of RIG so that RIG should be available to all patients free of cost. Small injury was next reason for non-compliance of RIG for that effective counselling of patients addressing their gaps of knowledge and strengthening of IEC activities of PEP of rabies in community is needed.

ACKNOWLEDGEMENTS

Authors would like to sincerely thanks to Dr. S. K. Mangulikar Professor & Head Department of community medicine Dr. Vaishyampayan Memorial Government Medical College, Solapur , Maharashtra, India for giving his valuable guidance.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Association for Prevention and Control of Rabies in India. Assessing burden of rabies in India: WHO-APCRI National Multi-centric Rabies Survey, A report. KIMS, Bangalore, 2004 (www.apcri.org) . Accessed 5 May 2016.
2. Agarwal N, Reddaiah VP. Knowledge, attitude and practice following dog bite: a community based epidemiological study. Health & population. 2003;26(4):154-61.
3. National guidelines on rabies prophylaxis, NCDC, Delhi; 2015:13-5.
4. Romero-Sengson RF. Factors affecting compliance to rabies post-exposure Prophylaxis among pediatric patients seen at the research Institute for tropical medicine. PIDSP. 2013;14(2):56-62.
5. Jahnavi R, Vinay M, Manuja LM, Harish BR. 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. APCRI. 2015;17:16-9.

6. Sudarshan MK, Kodandaram NS, Venkatesh GM, Mahendra BJ, AshwathNarayana DH, Parasuramalu BG. Evaluation of a New Premedication Protocol for Administration of Equine Rabies Immunoglobulin in Patients with Hypersensitivity. Indian J Public Health. 2007;51: 91-6.
7. Wankhede V, Waingankar P, Anjenaya S, Telang BT. Epidemiological Study of Dog Bite Cases Reported at ARV Clinic of Rural Hospital Panvel in Raigad District of Maharashtra, India. IJRTST. 2013;8(1):52-5.
8. Shrinivas PJ, Prasad KKL, Appalnaidu S. Profile of the dog bite victims attending anti-rabies clinic, King George hospital Visakhapatman, Andhra Pradesh. APCRI. 2015;16:20-2.
9. Shah V, Bala DV, Tkkar J, Shah U, Chauhan S, Gosavi K. Epidemiological determinants of animal bite cases attending the anti-rabies clinic at VS General hospital, Ahmedabad. Healthline. 2012;3(1):66-8.
10. Bariya BR, Patel SV, Shringarpure K. Comparison of Compliance of Animal Bite Patients to Two Different Routes of Post-Exposure Prophylaxis against Rabies. Healthline. 2015;6(1):30-5.

Cite this article as: Gaikwad LL, Pawar SD. Compliance to rabies immunoglobulin in post-exposure prophylaxis of category III animal bite cases attending antirabies clinic of government tertiary care hospital, Solapur, Maharashtra, India. Int J Community Med Public Health 2016;3:3166-9.