

A study on prescription analysis of referral dog bite cases to anti rabies clinic of M.K.C.G. Medical College, Berhampur, India

Tapas Ranjan Behera¹, Gurukrushna Mohapatra², Biswabara Rout³

¹Assistant Professor, Department of Community Medicine, SCB Medical College, Cuttack, Odisha, India. ²Assistant Professor, Department of Community Medicine, KIMS, Bhubaneswar, Odisha, India. ³Assistant Professor, Department of Physiology, SCB Medical College, Cuttack, Odisha, India.

Abstract

Dog bites in human are a serious public health problem and have been well documented worldwide. As rabies is not a notifiable disease in India and most deaths occur in rural areas where surveillance is poor. The objective of this study to assess the drug prescription patterns of referral cases of dog bite attending in the anti-rabies clinic (ARC) of Department of Community Medicine at MKCG Medical College. For this particular study 606 prescriptions were collected over a six months period. Suspected referred dog bite cases to ARC and willing to participate in the study were included as study subjects. Prescriptions Patients' identity (name, age, sex) and date of prescription were present in all cases, address was written correctly in only 30% cases. 88% of the prescriptions were legible. Majority prescriptions (44%) were referred from of primary health centers and community health centers. Nearly one third of referred patients had not received anti rabies vaccine. Only 5% cases were administered with rabies immune globulin and about 30% had taken oral antibiotics which were referred from PHCs/CHCs. Specific treatment to dog bite (i.e. use of vaccine & RIG) was lacking in the prescription whereas Co-prescription of other drugs (i.e. antibiotics, pain killers, vitamins) were mentioned in the prescription. Regular prescription auditing with training of Medical Officers on essential drug availability should be undertaken by the Govt. of Odisha in order to give rationality to all prescriptions.

Keywords: Rabies, Prescriptions, Rabies vaccine, Rabies immunoglobulin, India.

Introduction

Dog bites in human are a serious public health problem and have been well documented worldwide.^{1, 2} In the United States, 4.7 million people were estimated to have been bitten by dogs in 1994 (an incidence rate of 16.1/1000 in adults and 24.5/1000 in children), of whom 800,000 required medical treatment.³ The annual estimated number of dog bites in India is 17.4 million, leading to estimated 18,000-20,000 cases of human rabies per year.⁴ Rabies, which is a 100% fatal and 100% preventable disease, mainly occur by dog bite. As rabies is not a notifiable disease in India and most deaths occur in rural areas where surveillance is poor, it is widely believed that this figure may be an underestimate. In the past, a large proportion of rabies patients did not receive any vaccination, and many did not complete the full course.⁵ In the periphery Primary Health Centres (PHCs) and Community Health Centres (CHCs) of the state, vaccine as well Rabies Immunoglobulin (RIG) is at scarce or even not in supply. The Govt. of Odisha has supplied Anti Rabies Vaccine (ARV) to all District Head Quarter Hospitals (DHH) and designated Anti Rabies Clinic (ARC) at CHC but RIG is available only at Tertiary Care Hospitals. After introduction of IDRV in the state none of the Medical Officers (MOs) were given training on management of animal bite. However a guideline on the same has been prepared and circulated to all DHH which might have not reached to all CHC/PHC. Also the health care professionals are not aware about the correct procedure for the management of dog bite cases. That is why majority dog bite cases are referred to the tertiary care centre.

Practice Points

- Number of dog bites in India is 17.4 million, leading to estimated 18,000-20,000 cases of human rabies per year.
- Approximately 44% prescriptions were referred from of primary health centres and community health centres.
- Rx or superscription was present in 87% cases.
- In 95% prescriptions, site of bite was not mentioned and in 92% prescriptions categorization of bite was not mentioned.
- Basic essential requirements for management of dog bite like vaccines and rabies immunoglobulins should be available at the levels of PHC/CHC.

A prescription (R) is a health-care program implemented by a physician in the form of instructions that govern the plan of care for an individual patient.⁶ A prescription include Superscription or heading, Inscription or main body of the prescription, Subscription or directions to the compounder, Prescriber's signature, seal of the prescriber. To know actual management for a certain disease given in different health care level, prescription act as only the key material in this aspect.⁷ Communication is essential for

Correspondence: Dr Tapas Ranjan Behera, Assistant Professor, Department of Community Medicine, SCB Medical College, Cuttack, Odisha, India. Email: tapas4behera@gmail.com.

the effective delivery of health care, and is one of the most powerful tools in a clinician’s arsenal. Unfortunately, there is often a mismatch between a clinician’s level of communication and a patient’s level of comprehension. In fact, evidence shows that patients often misinterpret or do not understand much of the information given to them by clinicians. This lack of understanding can lead to medication errors, missed appointments, adverse medical outcomes, and even malpractice lawsuits.⁸

‘Information therapy’ (Ix) is an attempt to provide patients with the timely, adequate and evidence-based health information for making informed decision regarding their treatment. The information provided should be relevant, accurate, complete, reliable, easy to understand and practical. Ix is exactly like treatment prescription by a physician but it also includes reference to healthcare information resources to patients following a clinical visit.⁹ On an average 80-100 patients are attended at the Anti-Rabies Clinic (ARC) for the treatment of mainly Category II & III dog bite cases daily in the MKCG Medical College Hospital, Berhampur, Odisha and among them more than 50% were referred cases. Base on this background it was planned to conduct a study with objective to assess the drug prescription patterns of referral cases of dog bite attending in the anti-rabies clinic (ARC) of Department of Community Medicine at MKCG Medical College, Hospital, Berhampur, Odisha.

Materials and methods

Study design & study setting

It was a cross-sectional study carried out in Anti-rabies clinic of Department of Community Medicine, M.K.C.G. Medical College, Berhampur, Odisha, India between January 2015 to June 2015.

Sample size and sampling technique

The WHO document titled: ‘How to investigate drug use in health facilities’ mentioned that at least 600 encounters should be included in a cross-sectional survey to describe the current prescribing practices, with a greater number, if possible.⁹ For this particular study 606 prescriptions were collected over a six months period. Suspected referred dog bite cases to the ARC and willing to participate in the study were included as study subjects. Severely injured patients and those not willing to participate were excluded from the study. All the communications were done in local language that is Odia.

Study instrument

In a pre-designed pre-tested Performa, relevant data were collected from the prescriptions of referred dog bite cases attending the ARC during the study period. This Performa had two parts. Part A consisted of different components of prescription like patient information, date and legibility of prescription, Rx, detailed clinical history, signature. Part B consisted of management of dog bite like washing of wound, taking tetanus toxoid, Anti rabies vaccine and rabies immunoglobulin (RIG).

Data collection

After obtaining the permission from the Superintendent of the MKCG Medical College and hospital, prescriptions of the patients of referred dog bite cases to

ARC were collected every day. Five days per week and 4-5 prescriptions per day were taken for data collection in the Performa. Data was not collected in government holidays. Collected data were entered in SPSS version 16.0 and analysed.

Results

Out of total 606 prescriptions Patients’ identity (name, age, sex) and date of prescription were present in all cases; however, address was written correctly in only 30% cases. About 88% of the prescriptions were legible and 12% prescriptions can be read with some difficulty. Majority prescriptions (44%) were referred from of primary health centers and community health centers followed by private practitioners within the district (18%) and 8% prescriptions referred from other districts. It was also noted that 15% of the prescriptions were referred from causality of the same hospital (Table 1). Rx or superscription was present in 87% cases. 60% had no referral slips. About 79% participants were male and majority 76% dog bite cases were from rural areas. 63% belonged to age group 15-45 yrs age group and only 4% were less than 5 yrs of age.

In 94% cases tetanus toxoid was given and vaccine was administered i.e. purified vero cell rabies vaccine (PVRV) to 71% of cases. Nearly one third of referred patients had not received any type of anti-rabies vaccine (ARV) and in 6% of the referred cases ARV was administered over gluteal region. The vaccine administered to deltoid or thigh region in 65% cases. In 95% prescription site of bite was not mentioned. Similarly in 92% prescription no categorization of bite was mentioned. In 78% cases, wound washing was not advised. Only 5% cases were administered with rabies immune globulin (Table 2).

About 30% had taken oral antibiotics, 10% had injectable antibiotics. Similarly 15% patients had taken injectable pain killer where 50% were prescribed oral pain killer. Only 18% were prescribed with virucidal ointment, i.e. povidone iodine and 11% were prescribed with other ointments. Vitamin and other drugs prescribed in 5% cases (Table 3).

Table 1: Source of references to the ARC

Source of references	Number (%)
<i>Within District</i>	558 (92%)
Causality MKCG MCH	90 (15%)
City Hospital (DHH Berhampur)	54 (9%)
Sub Divisional Hospitals	36 (6%)
PHC/CHC	270 (44%)
Private Practitioners (MO)	108 (18%)
<i>Outside District</i>	48 (8%)
Total	606 (100%)

Table 2: Mention of different aspects of diagnosis and treatment in prescription

Mentioned in prescription	Yes	No
Site of bite	30 (5%)	576 (95%)
Category of bite	48 (8%)	558 (92%)
Advice of wound washing	132 (22%)	474 (78%)
Tetanus toxoid given	574 (94%)	32 (6%)
Vaccine administration	432 (71%)	174 (29%)
RIG	30 (5%)	576 (95%)

Table 3: Co-prescription pattern of referral cases with respect to treatment

Source	Site of bite	Category of bite	Advice of wound washing	Tetanus toxoid given	Vaccine administration	RIG	Antibiotic		Painkiller		Ointment		Others like vitamin
							Inj.	Oral	Inj.	Oral	Virec-dal	Other	
A. Within district													
Casualty MKCG MCH	5	6	16	88	65	1	7	22	11	35	16	11	11
City hospital (DHH Berhampur)	2	4	11	52	37	9	5	24	13	31	11	7	5
Sub divisional hospitals	2	3	8	42	24	0	3	4	2	18	7	4	4
PHC/CHC	14	19	58	235	190	10	31	89	45	140	46	35	5
Private practitioners (MO)	5	8	20	97	78	9	10	28	13	48	20	9	4
B. Outside district													
Total	30 (5%)	48 (8%)	132 (22%)	574 (94%)	432 (71%)	30 (5%)	61 (10%)	180 (30%)	92 (15%)	304 (50%)	110 (18%)	70 (11%)	30 (5%)

Discussion

In the present study, addresses were written correctly in 30% cases where in a study conducted by Pushpender *et al.*¹⁰ on prescribing pattern on rational therapy the correct address were written only in 5% cases. In this study, 79% were male where another study conducted by Das *et al.*¹¹ on pattern of injury by animal bite attending OPD, among the patients, males (69%) were more found to have animal caused injury than females.

Majority of the prescriptions (88%) were legible in this study where in contrast a study done by Bhattacharya *et al.*¹² on prescription pattern in a tertiary hospital, only 37% prescriptions were found to be legible. In this study 30% had taken oral antibiotics, 10% had injectable antibiotics where another study conducted by Desalegn¹³ on assessment of drug use pattern using the WHO prescribing indicators at Hawassa University teaching and referral hospital, oral antibiotics prescribed in 58% cases and injectable in 38% cases.

A study done by vargo *et al.*¹⁴ on incidence of dog bite in American Samoa it was found that Males 5 to 14 years of age and females 5 to 19 years were most likely to be bitten i.e. (23%) and (46%) respectively where as in this study maximum dog bite cases belonged to age group 15-44yrs (63%). In this study washing of wound advised to 22% cases where another study conducted by Ana Mustiana *et al.*¹⁵ washing done by 34% of cases.

Conclusion

Prescription analysis of a health facility not only gives an idea of services available and need of referral for further treatment but also it gives a light on the diagnosis, treatment aspect mentioned in the prescription or not. Despite many of the management facilities available in the PHC/CHC still doctors referred dog bite cases to higher health facility for further treatment with unnecessary co-prescription of antibiotics and pain killers. Hence availability of basic requirements like vaccines and rabies immunoglobulins at the levels of PHC/CHC can decrease the load at tertiary hospitals and also the out of pocket expenditure of patients.

Competing interest

The authors declare that they have no competing interests.

References

1. Overall KL, Love M. Dog bites to humans-demography, epidemiology, injury, and risk. *J Am Vet Med Assoc* 2001; 218(12):1923-34.
2. Ozanne-Smith J, Ashby K, Stathakis VZ. Dog bite and injury prevention-analysis, critical review, and research agenda. *Inj Prev* 2001;7 (4):321-6.
3. Sacks JJ, Kresnow M, Houston B. Dog bites: How big a problem? *Inj Prev* 1996;2(1):52-4.
4. Gongal G, Wright AE. Human rabies in the WHO southeast Asia region: Forward steps for elimination. *Adv Prev Med* 2011; Article ID 383870.
5. Sudarshan MK, Mahendra BJ, Madhusudana SN, Ashwoath Narayana DH, Rahman A, Rao NS, *et al.* An epidemiological study of animal bites in India; results of a WHO sponsored national multi-centric rabies survey. *J Commun Dis* 2006;38:32-9.
6. Belknap SM, Moore H, Lanzotti SA, Yarnold PR, Getz M, Deitrick DL, *et al.* Application of software design principles and debugging methods to an analgesia prescription reduces risk of severe injury from medical use of opioids. *Clin Pharmacol Ther* 2008;84(3):385-92.
7. Basukala S, Mehrotra S. Reducing medication error: A retrospective audit of drug prescriptions in a tertiary care hospital. *IJAPBS* 2015;4(8):26-32.
8. Weiss B. Health literacy and patient safety: Help patients understand. Manual for clinician. 2nd edition. Chicago: American Medical Association, 2009.
9. Sonika R, Sharma, VL Singh A. Information therapy: Bridging gap between doctors and patients. *South East Asia J Public Health* 2014;4(2):47-50.
10. World Health Organization. How to investigate drug use in health facilities: selected drug use indicators. Geneva: WHO, 1993.

11. Sharma P, Kapoor B. Study of Prescribing pattern for rational drug therapy. *JK Science* 2003;5(3):107-9.
12. Das D, Mandal A, Haldar S, Das J, Bandopadhyay B, Naskar S. Pattern of injuries caused by animal and management among patients attending at out-patient department of a rural medical college, West Bengal, India. *IOSR J Dental Med Sci* 2015;14(4):55-9.
13. Bhattacharya A, Gupta H, Dewangan MK. Prescription pattern study of the drugs used in tertiary hospitals of the Bilaspur region. *Asian J Pharm Clin Res* 2012;5(4):73-6.
14. Desalegn A. Assessment of drug use pattern using WHO prescribing indicators at Hawassa University teaching and referral hospital, south Ethiopia: A cross-sectional study. 2013;13:170.
15. Vargo D, Pasquale J, Vargo A. Incidence of dog bite injuries in American Samoa and their impact on society. *Hawaii J Med Public Health* 2012;71(1):6-12.
16. Mustiana A, Toribio J-A, Abdurrahman M, Suadnya IW, Hernandez-Jover M, Putra AAG, *et al.* Owned and unowned dog population estimation, dog management and dog bites to inform rabies prevention and response on Lombok island, Indonesia. *PLoS ONE* 2015;10(5):e0124092.