Profile of Animal Bite Cases at Anti-Rabies Clinic of Tertiary Care Hospital: A Record Based Study

Authors
Sheema Samreen*, Ambrine Ashraf, Muzamil Hassan, S.M. Salim Khan

Department of Community Medicine, Government Medical College, Srinagar

*Corresponding Author
Sheema Samreen
Department of Community Medicine (SPM), Government Medical College, Srinagar, Jammu and Kashmir, 190010, India
Email: shm.samreen@gmail.com, Phone no: 7006433320

Abstract
Rabies is a fatal disease caused by Lyssa virus. Human cases occur due to dog bites in 99% of cases. Data on animal bite cases are very useful for planning for prevention of rabies for the authorities. This record based study was undertaken to study the profile of animal bite cases attending anti rabies clinic of tertiary hospital in one year. A total of 6399 cases were registered in one year with 68.32% male, 63.45% category III, 71.71% belong to urban areas. Animal bite cases are on rise in Kashmir and need to be taken seriously in order to prevent rabies and death associated with it.

Keywords: Animal bite, Kashmir, Rabies, Profile.

Introduction
Rabies is a fatal encephalitis which occurs throughout the world\(^1\). The disease is a zoonotic caused by Lyssa virus with fatality of 100%\(^2\)(\(^3\)). It is transmitted to mammals by bite of rabid animals\(^4\). The virus circulates in the community in two epidemiological patterns urban and sylvatic, transmitted by dogs and wild animals respectively\(^5\). Human cases are caused in 99% cases by dog bites\(^6\). About 40% of cases occur in children less than 15 years of age\(^1\)(\(^7\)). Rabies is still a global health problem resulting in about 60000 deaths annually, with India contributing to 36% of deaths due to rabies\(^7\)(\(^8\)). Moreover, animal bite cases in Kashmir have increased in past decade to a level of serious undermined public health problem\(^9\). The data on animal bites is a very useful for proper planning for prevention of rabies as it will help in estimating the burden of rabies and also need for vaccines and logistics for rabies prevention and as such this study was undertaken.

Methodology
The present descriptive cross-sectional study was done to study the animal bite cases from 1\(^{st}\) April 2018 to 31\(^{st}\) March 2019, registered at the anti-rabies clinic of tertiary hospital (SMHS) of Kashmir valley. All cases registered in the new-case register of clinic in the specified time period were included in the study. At center all cases receive treatment as per standard protocol which includes meticulous wound wash, immunization as per post-exposure prophylaxis intradermal
schedule, immunoglobulins and wound closure whenever needed. The data collected in the register includes name, age, sex, residence, site and time of bite, treatment received and category of bite. The data regarding epidemiological characteristics such as age, sex, area of residence and about animal bite characteristics such as site of bite, biting animal and time of bite were recorded. The data was entered in the Microsoft Excel and expressed as proportions as per age, sex, area and category of bite and site of injury.

Results
The anti-rabies clinic registered 6399 cases of animal bites in one year. Majorities (24.05%) of cases were in the age-group of 21-30 years, 68.32% were male, 63.45% were category III cases and 71.71% cases belonged to urban area. Majority of cases were due to bite of dogs and about 52% were bitten on lower limbs. During the time period 3 deaths due to animal bites were reported at clinic. All of these were referred cases with no record of immunization against rabies. Maximum animal bite cases were recorded in the month of March, followed by month of July, June and May respectively.

Table 1: Distribution of cases as per Age

| Age – group (years) | Number | Percentage (%) |
|---------------------|--------|----------------|
| <10                 | 1043   | 16.30          |
| 11-20               | 739    | 11.55          |
| 21-30               | 1539   | 24.05          |
| 31-40               | 998    | 15.60          |
| 41-50               | 885    | 13.83          |
| >50                 | 1195   | 18.67          |
| Total               | 6399   | 100.00         |

Table 2: Distribution of cases as per Gender

| Gender   | Number | Percentage (%) |
|----------|--------|----------------|
| Male     | 4372   | 68.32          |
| Female   | 2027   | 31.68          |

Table 3: Distribution of cases as per Category of animal bite

| Category  | Number | Percentage (%) |
|-----------|--------|----------------|
| Category II | 2529  | 36.40          |
| Category III | 4060  | 63.45          |
| Total     | 6399   | 100            |

Table 4: Distribution of cases as per Site of animal bite

| Site of bite                  | Number | Percentage (%) |
|-------------------------------|--------|----------------|
| Head & Neck                   | 397    | 6.20           |
| Trunk                         | 512    | 8.00           |
| Upper Limbs including hands   | 2166   | 33.85          |
| Lower Limbs Including Feet    | 3324   | 51.95          |
| Total                         | 6399   | 100.00         |

Table 5: Distribution of cases as per the Residence (District)

| Area           | Number | Percentage (%) |
|----------------|--------|----------------|
| Srinagar       | 4589   | 71.71          |
| Budgam         | 264    | 4.13           |
| Baramullah     | 331    | 5.17           |
| Kupwara        | 126    | 1.97           |
| Bandipora      | 308    | 4.81           |
| Ganderbal      | 219    | 3.42           |
| Pulwama        | 265    | 4.14           |
| Shopian        | 72     | 1.13           |
| Kulgam         | 73     | 1.14           |
| Anantnag       | 93     | 1.45           |
| Others         | 59     | 0.92           |
| Total          | 6399   | 100            |

Discussion
Animal bites are of grave public health concern as it can lead to rabies if not treated on time. The present study reveals that about 6399 cases of animal bite were registered in the anti-rabies clinic. Although animal bite cases were reported across all age-groups however, majority of the cases belonged to young adults i.e. 20-30 years. These findings correlate with the findings of studies done in Hamedan, Tehran and Maharashtra while as are different from the findings of study done by Sreenivas et al in Bengaluru and Ngugi et al in Kenya where
maximum cases of animal bites were reported in age-group less than 15 years (5)(6)(10)(11)(12). The majority of cases in our study were males, the ratio being 2.1:1. These findings are consistent with other studies where male cases dominated the female ones. Our study found that majority of animal bite cases belonged to category III as was reported by studies done in Ahmedabad, Rajasthan, Bhuj, Bengaluru and Pune. However a study done in Bikaner reported that majority of animal bite cases belonged to category II (11)(13)(14)(15)(16). Similarly, the results of our study regarding site of bite and area of residence correlate with other studies where majority of cases were from urban area and were bitten on lower extremity vis−a−vis studies in Bhuj, West Iran, Hamedan and Tehran where maximum cases were reported from rural area and site of bite was upper extremity respectively (5)(10)(15)(18).

Conclusion
Animal bite cases are on rise in Kashmir and need to be addressed promptly. Large number of animal bite attacks has taken place over past 10 years and it not only causes physical injury but has psychological impact on the victim and thus affects quality of life of affected families directly or indirectly. As animal bylaws prevent killing of dogs the main strategy of the hour should focus ensuring preventive measures of vaccination and health education at grass root level along with dog population control.

Conflict of Interest/ Support of Funding: Nil

References
1. Chauhan P, Saini G. STUDY OF PROFILE OF ANIMAL BITE VICTIMS ATTENDING ANTI-RABIES. Int J Med Sci Public Heal. 2013;2(4):4−7.
2. Masiira B, Makumbi I, Matovu JKB, Ario AR, Nabukenya I, Kihembo C, et al. Long term trends and spatial distribution of animal bite injuries and deaths due to human rabies infection in Uganda, 2001-2015. PLoS One. 2018;13(8):1−16.
3. Nacima A, Cuamba L, Gujral L, Amiel O, Salom C, Baltazar C, et al. Epidemiology, clinical features and risk factors for human rabies and animal bites during an outbreak of rabies in Maputo and Matola cities, Mozambique, 2014: Implications for public health interventions for rabies control. PLoS Negl Trop Dis. 2017;11(7):1−16.
4. Babazadeh T, Nikbakhat HA, Daemi A, Yegane-kasgari M, Ghaffari-fam S, Banaye-jeddi M. Epidemiology of acute animal bite and the direct cost of rabies vaccination. J Acute Dis [Internet]. Elsevier B.V.; 2016;5(6):488−92. Available from: http://dx.doi.org/10.1016/j.joad.2016.08.019.
5. Mohammadzadeh A, Mahmoodi P, Sharifi A, Moafi M, Siavashi M. A Three-Year Epidemiological Study of Animal Bites and Rabies in Hamedan Province of Iran. Avicenna J Clin Microbiol Infect. 2017;4(2):1−4.
6. Ngugi JN, Maza AK, Omolo OJ, Obonyo M. Epidemiology and surveillance of human animal-bite injuries and rabies post-exposure prophylaxis, in selected counties in Kenya, 2011 – 2016. BMC Public Health. BMC Public Health; 2018;18(996):1−9.
7. ORGANIZATION WH. Weekly epidemiological record.Rabies vaccines: WHO position paper – April 2018. 2018.
8. Sudarshan MK, Mahendrakumar B, Hameed R, Rao NSN, Narayana DHA, Rahman SA, et al. Assessing the burden of human rabies in India: results of a national multi-center epidemiological survey. Int J Infect Dis. 2007;11:29−35.
9. Sideeq K, Bilquees S, Salimkhan M, Inam-ul-Haq. Analysis of dog bites in Kashmir: an unprovoked threat to population. Natl J Community Med
10. Eslamifar A, Ramezani A, Mehdi R., Fallahian V, Mashayekhi P. Animal Bites in Tehran, Iran. Arch Iran Med. 2008;11(2):200–2.
11. Sreenivas NS, Sakranaik S, Sobagiah RT, Kumar A. An epidemiology of animal bite cases attending tertiary care centre of Bangalore Medical College and Research Institute , Bengaluru: a retrospective study. Int J Community Med Public Heal. 2017;4(7):2538–42.
12. Gosavi S, Deshmukh P. Epidemiology of animal injuries: A community based study from rural area of Maharashtra. J Med Res. 2015;1(1):18–21.
13. Shah V, Bala D V, Thakker J, Dalal A, Shah U, Chauhan S, et al. Epidemiological determinants of animal bite cases attending the anti- rabies clinic at V S General Hospital , Ahmedabad. Healthline. 2012;3(1):66–8.
14. Jain M, Garg K, Jain R, Choudhary ML. Epidemiology of animal bite cases attending anti-rabies clinic of a Tertiary Care Centre in Southern Rajasthan. J Res Med Dent Sci. 2015;3(1):79–82.
15. Bharadva N, Mehta SR, Yerpude P, Jogdand K, Trivedi KN. Epidemiology of Animal Bite Cases Attending Tertiary Health Care Centre of Bhuj City of India: A Cross-Sectional Study. Int J Interdiscip Mulidisciplinary Stud. 2015;2(9):98–102.
16. Ghosh A, Pal R. PROFILE OF DOG BITE CASES IN AN URBAN AREA OF KOLKATA,INDIA. Natl J Community Med. 2014;5(3):321–4.
17. Acharya R, Sethia R, Sharma G, Meena R. An analysis of animal bite cases attending anti-rabies clinic attached to tertiary care centre, Bikaner, Rajasthan, India. Int J Community Med Public Heal. 2016;3(7):1945–8.
18. Kassiri H, Lotfi M, Ebrahimi A. Epidemiological and demographic study of acute animal biting in Abadan County, Ilam Province, Western Iran. J Acute Dis. 2017;6(6):272–7.