SHORT ARTICLE

Rising pattern, Seasonal predisposition and Trend analysis of Animal bite Cases Attending the Anti-rabies Clinic of a Tertiary Care Hospital

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Citation

Article Cycle

Abstract

Background: India is responding to achieve the target of zero human death from dog-mediated rabies by 2030. Objectives: To study the rising pattern, seasonal predisposition and trend analysis of animal bite cases attending the anti-rabies clinic of a tertiary care hospital. **Methodology:** This retrospective cross-sectional study was conducted in the anti-rabies clinic of Department of Community Medicine, Government Medical College, Srinagar, Jammu & Kashmir. Data were collected from the animal bite register maintained at the said clinic. Data were entered into Microsoft Excel spreadsheet and analysed with the application of mean, proportion and trend analysis. **Results:** Total number of animal bite cases were 49508 in last 14 years (2004-2017). The rising case pattern has been observed since the year 2009.The maximum number of cases being 7324 in the year 2016 followed by 6548 in the year 2017 respectively. The seasonal predisposition of animal bite cases was seen in the month of March and June. On-trend analysis, forecasting for 2018, 2019 and 2020 showed 7570, 8108 and 8645 cases respectively. **Conclusion:** We conclude that the animal bite cases are on an increase in the future years and applicable management measures with intersectoral coordination ought to be started vigorously in endemic areas.

Keywords

Introduction

The wound caused by the claw or animal bite contributes significantly to large number of human mortalities and morbidities including rabies (1). Most of the animal bite cases occur in urban areas and are caused by dog bite. Rabies which is mostly caused by dog bites is primarily a terrestrial and airborne mammalian diseases which includes dogs, wild animals like lions, wolves, foxes and jackals. It has also been found in cats, mongooses, bats, monkeys and humans. It has been documented in various studies that dogs are still the main reservoir of rabies in Asian continent especially India (2). The disease itself is caused by a fatal neurotropic virus which belongs to the genus Lysa virus from the family Rhabdoviridae. Rabies virus is transmitted into the wounds or cuts into the skin and mucous membrane most commonly via bites of rabid animals (3). The Rabies virus is usually present in the saliva of the rabid animal and is transmitted through saliva from animal to human or animal to other animal (4). The

data in India shows that 20,000 deaths are attributed to rabies with 17.4 million exposure to animal bites occurring every year (5). It has been estimated that in absence of the recommended post exposure prophylaxis, about 327,000 people would die from rabies each year in Asia and Africa alone (6). Apart from the threat to live and pain caused by animal bite, it may also lead to wound infections, disfigurement of body parts, incapacitation and even post-traumatic stress disorder (7).World health organization has recommended post exposure treatment following animal bites and scratches, which includes treatment of the local wound followed by active and passive immunization which should be initiated immediately after categorizing the type of wound as per classification (8). As there are effective rabies prevention guidelines available to health care officials and policy makers, it is still very important to understand the seasonal and time trends in animal bite cases to improve the management of the same.

Aims & Objectives

To assess the epidemiological pattern, seasonal variations and time trend analysis of animal bite cases attending anti-rabies clinic of a tertiary care hospital in Kashmir Division.

Material & Methods

Study Type: Retrospective cross-sectional study.
Study Population: Animal bite cases attending Anti-Rabies clinic of Department of Community Medicine, Government Medical College and Associated Hospital, Srinagar. **Study Duration:** March 2018-April 2018. **Inclusion criteria:** All the available data with the Anti-rabies Clinic was included in the study and analysed. **Exclusion criteria:** Data on seasonal predisposition of animal bite cases was not available or was incomplete for the year 2004-2012 so was excluded from the analysis. **Strategy for collection:** The study was conducted in the anti-rabies clinic of Department of Community Medicine, Government Medical College, Srinagar, Jammu & Kashmir. The clinic became functional in the year 2004 and is under the administrative control of the Department of Community Medicine, Government medical college and associated Hospital, Srinagar. It caters to the needs of the adjoining areas and often patients from all the districts of Kashmir division visit the said clinic whenever required for expert opinions related to animal bite cases. The clinic has a specific animal bite register in which all the records related

to patients are entered by healthcare officials. The Data for this study were collected from the animal bite register of the anti-rabies clinic after putting a proper proposal for the study to the Departmental Head. **Ethical Clearance:** The study was approved by the Institutional ethics committee via order no: 126/ETH/GMC Dated: 20/10/2018. **Data Analysis software:** The data was entered into Microsoft Excel spreadsheet and analysed with the application of proportion and trend analysis using Microsoft Excel 2016.

Results

The data for seasonal variation of animal bite cases were available for last 5 years only i.e. (2013-2017). After interpretation of the data, it was estimated that the frequency of animal bite cases were less in winter season viz November, December, January and February. Moreover, the frequency increases with the arrival of spring i.e. month of March. Furthermore, there is further reduction of animal bite cases in rainy season i.e. Month of April. The frequency of animal bite cases again increases in the month of June, then there slow decline in the animal cases over rest of the months [Figure 1].

The trend analysis of animal bite cases attending anti-rabies clinic of Department of community medicine is shown in [Figure 2]. The data from 2004 till 2017 was analysed and trend for the upcoming three years were derived using trend analysis in Microsoft excel 2013. On trend analysis, forecasting for 2018, 2019 and 2020 showed 7570, 8108 and 8645 cases respectively

Discussion

A total of 49508 animal bite cases attended anti-rabies clinic of department of community medicine, Government Medical College, Srinagar from the year 2004 till 2017. This cross-sectional study estimated the seasonal variations and trend analysis of animal bite cases attending the anti-rabies clinic. The data for seasonal variation of animal bite cases was available for last 5 years only i.e. (2013-2017). It was observed that the frequency of animal bite cases were less in winter months viz November, December, January and February. These four months are usually the coldest months of the year in Kashmir valley. The cause behind decreased frequency of the animal bite cases in these months may be attributed to decreased outdoor activities of the people especially during morning hours and a long winter

break of children who usually are confined to indoors during winter months. It's a known fact that animals especially dogs attack people who are out for walks during morning hours and children especially. People in Kashmir valley usually prefer evening walks in winter months to prevent themselves from extreme cold in the early hours of the day. This change has also brought down animal bite especially dog bite cases in these months. Similar finding were reported (9,10,11) in their study where they also observed reduction of the animal bite cases in winter months of the year. Furthermore, the frequency of animal bite cases increases with the arrival of spring i.e. month of March. This can be attributed to the fact that people of Kashmir valley prefer morning walks with the arrival of spring months and schools start operating after winter breaks, which eventually leads to increased number of dog bite cases among children and people who go for walks in the morning hours as explained earlier. These findings were also reported (11,12,13,14).

With the arrival of rainy season, the outdoor activity of the people and children is confined to indoors which eventually leads to reduction in the number of animal bite cases among Kashmiri people. In our study, we saw a sharp rise in the animal bite cases in the month of June which can be attributed to increase activity of people in morning hours, children playing in the fields, farmers working in their fields and orchards. Similar finding were reported (13,15,16). After the month of June, then there slow decline in the animal cases over rest of the months as shown in [figure 1]. The data from the last 14 years was obtained and analysed using trend analysis. There was an increasing trend of animal bite cases over the years. The decreased number of animal bite cases in the year 2014 may be attributed to loss of animal life especially dogs follows devastating flood in Kashmir valley. The trend for the upcoming three years were derived. On trend analysis, forecasting for 2018, 2019 and 2020 showed 7570, 8108 and 8645 cases respectively. Similar pattern of trend was reported by other studies respectively (17,18,19).

Conclusion

We conclude that the animal bite cases are on an increase in the future years and applicable management measures with intersectoral coordination ought to be started vigorously in endemic areas.

Recommendation

Proper information and education regarding rabies should be done through electronic and mass media. Municipal authorities need to take adequate measures to curb canine population. Indiscriminate house-hold waste disposal should be should be restricted.

Relevance of the study

The study high lightens the burden of animal bite cases received at anti-rabies clinic of Department of Community Medicine, Government Medical College, Srinagar over the last 14 years. It adds to the knowledge of seasonal variation of animal bites particularly in Kashmir Valley which is topographically and culturally different from rest of the country.
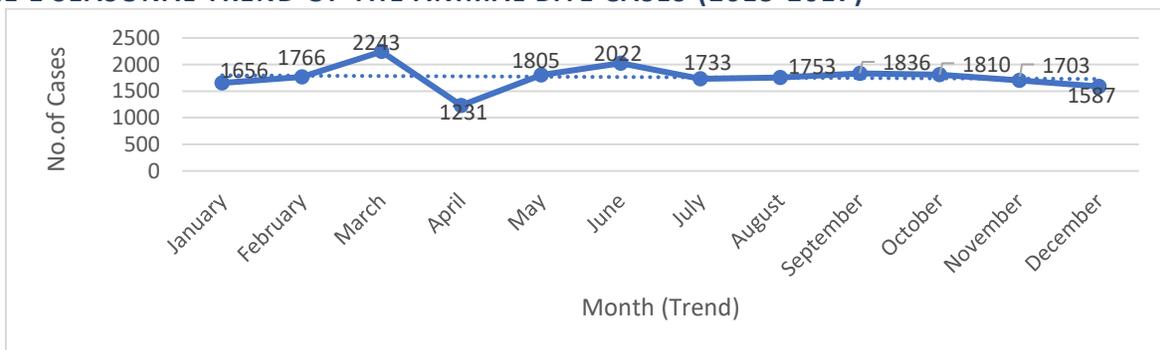
Authors Contribution

Acknowledgement

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Figures

FIGURE 1 SEASONAL TREND OF THE ANIMAL BITE CASES (2013-2017)

FIGURE 2 TREND ANALYSIS OF THE ANIMAL BITE CASES (2017-2020)