Injuries due to Animal Bites: A Descriptive Study

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Abstract

Purpose: The aim of this study was to assess some epidemiologic features of animal bites in Ardabil Province.

Methods: In this descriptive study questionnaires were completed to collect epidemiologic data for all cases of animal bites reported during a one year period in Ardabil Province.

Results: The total number of subjects exposed to animal bites was 4331. Males comprised 75% of cases and 1072 (25%) were female victims. The highest incidence rate was observed in 30-50 years age group. Animal bites were more common in summer. In 3078 cases (70.89%), legs were the main site of bite.

Conclusion: This study confirms that animal bites, as possible rabies exposures, make an important public health problem in Ardabil Province north-west of Iran.

Introduction
Animal bites are considered to be an important treat to human health. This is because of causing infections, some of which are quite fatal like Rabies. On the other hand, the role of anaerobes in bite wound infections has been increasingly appreciated. In some studies anaerobes have been isolated from more than two thirds of human and animal bite wound infections, especially those associated with abscess formation [1]. This makes a challenge for health sector policy makers to think about the capability of health systems in managing the animal bites. Some studies have shown a gross difference between awareness and actual practice in management of animal bites [2]. In a study about cost of treating the infections caused by animal bites, it has been shown that the average treatment costs for animal bite infections exceeded 6,100 Euros per case for the health insurance companies [3]. In the countries of the Eastern Mediterranean Region of the World Health Organization (WHO), rabies has been recognized as an important health problem [4]. Tourists visiting these countries are strongly advised to undergo pre-exposure vaccination. Rabies also has a special place in the history of medical research in Iran [5]. Rabies is endemic in the wildlife population in Iran where the infection of domestic livestock is frequent [6]. Ardabil province in north-western Iran has the highest incidence rate for animal bites in Iran [7]. Figure1 shows the different provinces of Iran compared according to the incidence rates of animal bites.

Methods
All the healthcare providing centers in Ardabil district, were asked to complete a questionnaire for each case of animal bites referred to these centers. These included urban health centers, rural health centers, rural health houses, and hospitals (public or private) during the Persian calendar year between April 1999 and April 2000. The questionnaire contained questions regarding the rabid animal, age, gender, and occupation of the victims. Based on the importance of the problem and regulations of first Tehran declaration the article was reproduced from a previously published Persian article in a local journal not indexed at the time. Study protocol was approved as a MD thesis work by the responsible committee of research & ethics in Ardabil University of medical sciences.
Results

The total number of subjects exposed to animal bites was 4331. Males comprised 75% of cases and 1072 (25%) were female victims. The age distribution of victims and incidence rate of bites for different age groups are given in Table 1. The highest incidence rate was observed in 30-50 years age group.

3066(83%) of cases were villagers and 17 percent of all bite victims were urban. Most of the reported cases were from Ardabil district, while the highest incidence rate belonged to Meshkinshahr. Animal bites were more common in summer than in winter. Seasonal distribution of animal bites shows that 28.3% of cases occurred in spring, 29.6% in summer, 20.8% in autumn, and 21.2% in winter. Figure 2 shows monthly distribution of animal bites.

29.1% of b persons exposed to bites were students, 18.9% were farmers, 12.71% householders, 8.64% were animal keepers and 8.93% were workers. Only 4% of cases were administrative employees.

In 3078 cases (70.89%), legs were the main site of bite injury. Hands in 746 persons (17.45%), trunk in 353 persons (8.38%), and in 144 cases the head, face and neck were the site of animal bite. Table 2 shows the frequency of different animals responsible for bites.

Discussion

Majority of the cases in present study belonged to 10-29 years age group. It was concordant with Zeynali's findings in which half of the victims belonged to this age group. However, in Zeynali's study incidence rate for age groups were not calculated. Due to the particular shape of Iran's population pyramid, this may cause a misunderstanding. We calculated the incidence rate for animal bites in different age groups which was highest in 20-39 years age group. Both figures however, can be beneficial for prevention purposes. Siugh et al. showed a higher incidence in 5-14 years age group among animal bite victims. Mean age of children bitten by animals was calculated to be 6.7 years in another childhood (<14) bite injury study. In a study of mammal bites in Thailand, 42.3 % of cases belonged to 10-14 years age group and 39.7 % were in 5-9 years age group. A bit different from other studies is the findings of an American study in Pennsylvania showing that the highest incidence rate among children under five years of age. Another American study by Bernardo et al. had similar findings to the previous one. Children had higher risk of being bitten on the face and head in pandey's study in Nepal.

In our study 75% of victims were males that is in line with previous studies, except for a study on tourists and foreign residents of Nepal in which females were more likely to be bitten by a possibly rabid animal. In many studies, as well as ours, dogs were the most frequent animals responsible for animal bites. However, it must be notified that the percentage of dog bites in our study was nearly 10% higher than other parts of Iran referred to zeynali. Legs were the main bitten organ in 3/4th of our cases. Tepsumethanon in his study showed that the most common site of injury was on the legs as much as 56.6%.

Other researchers had somewhat similar findings. In animal bites to children and dog bites caused by familiar domestic dogs, face injuries are shown to have a higher rate. In our study like the findings of zeynali, students and farmers were more likely to be bitten by animals. The findings of this study underline the importance of animal bites as a major health problem in Ardabil province, north-west of Iran.
Conflict of interests: The authors declare no conflict of interest.

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References