Incidence of injuries caused by dogs and cats treated in emergency departments in a major Italian city

F Ostanello, A Gherardi, A Caprioli, L La Placa, A Passini, S Prosperi

Objective: This study aimed to estimate the incidence and characteristics of injuries caused by dogs and cats in the population of a major Italian city.

Methods: The clinical records of all patients attending the emergency department (ED) were obtained from the two main hospitals of the city, covering an estimated population of over half a million. A case was defined as a patient admitted for bite or scratch injuries caused by dogs, cats, or other mammals between 1 January 2000 and 31 December 2002. For each case, the information collected included age and sex of the patient, the anatomical site of the injury, and the species of the animal involved.

Results: The average yearly incidence of dog and cat bite/scratches was 58.4 and 17.9 cases per 100,000 residents, respectively. Admissions peaked during the summer months. Dogs accounted for 76.9% and cats for 19.7% of cases. Dog injuries were significantly more common in males and younger individuals. Children younger than 9 years had a significantly higher risk of being bitten on the head, face, or neck. Conversely, injuries from cats were significantly more common in females and older people.

Conclusions: Surveillance of injuries caused by dogs and cats could provide useful information for planning and evaluating public health interventions. Collection of data from hospital EDs may be an appropriate, simple, and quick tool for monitoring the phenomenon and evaluating the associated risk factors.
The average yearly incidence of dog and cat bite/scratches in the population of Bologna (n = 869) was 58.4 (95% CI 53.9 to 62.8) and 17.9 (95% CI 15.5 to 20.4) cases per 100 000 residents, respectively (fig 1). We observed significant differences (p < 0.05) in the sex and the age of patients presenting with dog or cat injuries. Dog bite/scratches were more common in males (71 v 47 cases per 100 000, p < 0.0001), whereas cat bite/scratches were more frequent among females (24 v 10 cases per 100 000, p < 0.0001).

As shown in table 1, after making adjustment for age, the risk of dog bite/scratches injuries was 1.5 (95% CI 1.3 to 1.7) times higher in males than in females. The risk of cat bite/scratches injuries was 2.4 (95% CI 2.1 to 2.6) times higher in females than in males.

The age of patients with dog bites/scratches was significantly lower than that of patients with cat bites/scratches (36 v 54 years, p < 0.001). The highest incidence of injuries caused by dogs and cats was observed in the age range of 20–29 years (102.0 per 100 000) and 60–69 years (26.2 per 100 000), respectively.

The peak incidence of both dog and cat bite/scratches was in the warm season with 45.2% and 50.2% of the cases, respectively, presenting between May and August.

Dog bites more commonly involved the lower extremities (36.1%), followed by hands (30.4%), arms (18.3%), face, head, and neck (9.5%), and trunk (5.5%). However, bites to the face, head, and neck were more frequent in children under 9 years of age and accounted for 36% of the cases in this age group. This proportion was significantly higher than in the rest of the population (p = 0.001). Cat bites and scratches most frequently involved the hands (69.6%), followed by the lower extremities (14.7%), arms (13.3%), and face, head, and neck (2.3%).

Most of the patients (97.3% and 99.7% for dog and cat injuries, respectively) were in the two lowest injury severity score classes and none was in the highest class.

**DISCUSSION**

In this study, 0.21% of the patients seen between 2000 and 2002 at the EDs of the two main hospitals in Bologna attended for bites or scratches caused by dogs and cats. This corresponds to an average yearly incidence rate of 58.4 cases per 100 000 residents for dog bites and 17.9 cases per 100 000 residents for injuries caused by cats.

These figures appear to be lower than those reported in previous studies of ED admissions, which ranged from 73 to 300 cases per 100 000 inhabitants.7–13 The incidence of bite/scratches can vary according to socioeconomic conditions in the country and the area (urban/rural) being considered in a study. Other confounding factors that can influence the incidence rates are: age distribution of the human population, density of the dog and cat populations, the types of breed among the dog population and the ratio between pet and stray dogs.14

The average yearly incidence of 58.4 dog bites per 100 000 estimated in this study is for an urban area with a residents/dog ratio of 19:1. This is much lower than the 192.5 cases per 100 000 estimated in Switzerland by Matter et al.15 However, the latter figure is for a population resident in both urban and rural areas, with a resident/dog ratio of 5:1, almost fourfold higher than that in Bologna.

The proportion of patients with injuries due to dogs or cats was significantly lower than that of patients with cat bites/scratches (p < 0.001). Cat bites and scratches most frequently involved the hands (69.6%), followed by the lower extremities (14.7%), arms (13.3%), and face, head, and neck (2.3%).

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It is likely that the actual incidence of animal bites and scratches in Bologna is higher than the estimate reported in this study, since milder cases are often treated by family practitioners and are not referred to hospital EDs. The Swiss study mentioned above estimated that about 70% of the animal bites/scratches occurring in the population were treated at hospital EDs.

It is interesting to note that about a third of the patients assigned the lowest severity score rank. This indicates that emergency hospital care can be considered as inappropriate in a considerable proportion of cases. In the case of children, use of emergency hospital care could be due to parental anxiety and more generally due to the persisting worry of acquiring severe zoonoses including rabies (although in Italy this was eradicated 30 years ago). Better health education of the population may be useful in reducing such behaviour. The risk factors identified in this study are quite similar to those identified in similar studies conducted in other countries. Bites and scratches injuries were more common in summer. Dog bite injuries were significantly more common in males and younger individuals; children younger than 9 years had a significantly higher risk of being bitten on the head, face, or neck. Conversely, cat injuries were quite similar to those identified in similar studies conducted such behaviour. The risk factors identified in this study are such as control of canine and feline stray populations or planning and evaluating veterinary hygiene interventions, dogs and cats could provide information necessary for guidelines to reduce human health risks associated with animals in urban areas. WHO, 1981.

REFERENCES
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