Risk of Rabies After Mammal Bites in Thai Children

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Abstract

The data were collected by questionnaire at the Outpatient Department of Chulalongkorn University Hospital, Bangkok Thailand. This study revealed that 52 per cent of children had pet mammals in their home of which 67 per cent were dogs. 23.6 per cent of these children gave at least one history of a mammal bite inside (53.4%) or outside (46.6%) their house. Mammal bites of children could be found at all ages. However, most were in the age group of 10-14 years (42.3%), and 5-9 years (39.7%). The most common site of injury was on the legs (56.6%) and hands (30.7%). 31.7 per cent and 68.3 per cent of the bitten children incurred WHO category II and III potential rabies exposures (moderate and severe). 61.9 per cent had performed wound cleansing on each bite injury site and 34 per cent did not. 72 per cent of the children who had mammal bites received no post-exposure rabies treatment and 85.7 per cent did not make any effort to capture or observe the animal who had bitten them. Only 10.6 per cent observed the animals for 10 days or more. It was concluded that children are at considerable risk of mammal bites and that they are not receiving optimal care in this canine rabies endemic region and that 50 per cent of human rabies cases in Thailand were in children under 15 years of age.

Key word : Risk of Rabies Exposure, Mammal Bite, Children, Thailand

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J Med Assoc Thai 2002; 85: 77-81

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Animal bites are common injuries encountered in the emergency rooms of Thai hospitals. 5.3 per cent of injuries seen in the emergency room are from dog bites and 55 per cent of dog-bite victims are children[1]. Children are, thus, at great risk of rabies in this canine endemic region. That this is not a unique for Thailand was documented in a study from Mexico where 60 per cent of all reported animal bite injuries evaluated at centers were in children[2]. 25 per cent of animal bites in Spain were of children aged less than 15 years[3]. Furthermore, children are more likely to incur severe facial, head and neck bites due to their smaller size and better accessibility of the upper part of the body of an attacking dog[1,4-8]. Chulalongkorn University Hospital (CUH) is a 1,500-bed tertiary and university center within the Bangkok Metropolitan area. A total of 3,932 animal bite patients came to CUH between 1998 and 1999. Of these, 3,434 (87%) were due to dog bites and 498 (13%) to bites from other mammals. 29 per cent of the total number of patients were children under the age of 15 years. The ratio of male to female was 2 to 1 in children. Canine and feline rabies remains a public health problem in this region and, in spite of some efforts to control and vaccinate the large stray dog population of Thailand, there were 57 and 69 human deaths from rabies in 1998 and 1999 in Thailand. Approximately 50 per cent of these were in children. A prospective study was carried out of children, who presented at the clinics of CUH, in order to assess the current prevalence of animal bites.

MATERIAL AND METHOD

500 consecutive children under the age of 15 between March and July 1999 who presented with general medical problems at the outpatient clinics regarding past mammal bite events were studied. A questionnaire was used which recorded general data about the children such as age, family status, address, school attended, circumstances of the attack, wound treatment and rabies post-exposure treatment, if provided. Data were analyzed using the SPSS program.

RESULTS

Of the 500 children reviewed, 52.8 per cent were male and 47.2 per cent female. 51 per cent were residents of Bangkok and the others came from nearby provinces. 52 per cent of the children came from families that owned pets (dogs 67%, cats 27.1%, mice 1.3% and other mammals 4.7%). 23.6 per cent had a prior history of a mammal bite. Bites occurred mostly within the house or home compound (53.4%). The rest occurred on streets or other locations (Table 1). 95.2 per cent of children bitten inside their home compounds stated that they had

Table 1. Place where bitten, provoked or unprovoked and WHO category of the injury.

Place where bitten		Provoked or unprovoked				WHO category	
In the house	Outside the house	In the house		Outside the house		II	III
		Unprovoked	Provoked	Unprovoked	Provoked		
63	55	3	60	74	53	42	129
53.4%	46.6%	4.8%	95.2%	58.3%	41.7%	31.7%	68.3%

Table 2. Children's ages and location of bite wounds.

Children's ages			Location of bite wounds		
Age (years)	Cases*	%	Body	Cases*	%
1-4	28	14.8	Neck & Head	14	7.4
5-9	75	39.7	Trunk	8	4.2
10-14	80	42.3	Hand	58	30.7
15	6	3.2	Leg	107	56.6
			Others	2	1.1

*Some children were bitten more than one time or one location.

provoked the animal (playing with it, feeding it, annoying the animal or stepping on it). 41.7 per cent of the bites were perceived as having been provoked when they occurred outside the home (Table 1). It was often difficult to determine what the animal considered as provoked. Ages of children bitten by mammals ranged from 1-15 years (Table 2). The most common bite sites were the legs 56.6 per cent, arms 30.7 per cent, neck and face 7.4 per cent, trunk 4.2 per cent and unspecified 1.1 per cent (Table 2). When using the WHO classification of animal bites as a measure of potential rabies exposure[9], 31.7 per cent were in category II and 68.3 per cent in the severe category III group. 61.9 per cent of the children had received some sort of wound cleansing prior to arrival at the hospital. However, only 21.2 per cent of the children who had mammal bites received any post-exposure rabies treatment (immune globulin and/or rabies vaccination). No effort was made to investigate the biting mammal in 85.7 per cent of cases. Only 10.6 per cent of the children or parents observed the animal for 10 days as recommended by WHO (Table 3).

DISCUSSION

1.3 per cent and 8.9 per cent of travellers, after being in Thailand for an average of 17 days, have experienced a dog bite and dog lick respectively (10). Approximately one quarter of Thai children experience an animal bite by the age of 15 years. In spite of some efforts by the municipal health authorities in Thailand to reduce and immunize the large stray dog populations, canine and feline rabies remain serious and ever present threats. 35 per cent of dogs and 5 per cent of cats tested at this institution by fluorescent antibody determination for rabies were found to be positive in 2000. Though the number of animals examined has decreased, the percentage of positives remains high in this selected population (dogs and cats that are ill, have bitten people or other dogs or show unusual behavior). This indicates that the disease is still prevalent in Thailand[11]. It is not surprising that approximately one half of human rabies deaths are in children who live, play and are bitten by dogs more commonly and more severely than adults. Modern post-rabies

Table 3. Rabies prophylaxis in children after being bitten by mammals.

Wound care		
Wound cleansing	Cases	%
Done every time after being bitten	117	61.9
Done some times after being bitten	6	3.2
Nothing done	64	33.9
Others	2	1.1

Immunization		
Vaccination and immunoglobulin	Cases	%
Done every time after being bitten	40	21.2
Done some times after being bitten	10	5.3
Nothing done	136	72.0
Others	3	1.6

Disposition of animals		
What do the patients do for the bitten animals?	Cases	%
Observe for 10 days	20	10.6
Send to diagnose for rabies	1	0.5
Nothing done	162	85.7
Others	6	3.2

exposure treatment is expensive and some of the biological products required, particularly human or equine immune globulin, are increasingly difficult to obtain or extremely expensive. However, this may not be the only reason why a large number of animal bite cases were not vaccinated. Drastically reducing the population of the dogs and cats and vaccinating the remaining ones, remains the logical approach to eliminating the risk of rabies. Religious and cultural barriers have blocked effective dog control measures used to eradicate rabies in such Asian countries as Peninsular Malaysia, Singapore, Japan, Taiwan, and Hong Kong. Thai children will continue to die of this dreadful disease unless energetic and innovative methods to reduce, register and vaccinate the Thai canine population are implemented.

(Received for publication on August 21, 2001)

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ความเสี่ยงต่อโรคพิษสุนัขบ้าในเด็กไทยที่ถูกสัตว์เลี้ยงลูกด้วยนมกัด

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การศึกษาการถูกสัตว์เลี้ยงลูกด้วยนมกัดในเด็กไทยโดยการทำแบบสอบถามที่แผนกผู้ป่วยนอกของโรงพยาบาลจุฬาลงกรณ์ สภากาชาดไทย พบว่าร้อยละ 52.0 ของเด็กมีการเลี้ยงสัตว์เลี้ยงลูกด้วยนมในบ้าน โดยเลี้ยงสุนัขมากที่สุดคิดเป็นร้อยละ 67.0 ร้อยละ 23.6 ของเด็กเคยถูกสัตว์เลี้ยงลูกด้วยนมกัดมาก่อน เป็นการถูกกัดในบ้านร้อยละ 53.4 และนอกบ้านร้อยละ 46.6 ซึ่งการถูกสัตว์กัดนี้พบได้ในทุกอายุของเด็กที่ทำการสำรวจ โดยช่วงอายุที่มีการถูกกัดมากที่สุด คือ 10–14 ปี และ 5–9 ปี คิดเป็นร้อยละ 42.3 และ 39.7 ตามลำดับ ตำแหน่งของร่างกายที่ถูกสัตว์กัดมากที่สุด คือ ขา (56.6%) และแขน (30.7%) ร้อยละ 31.7 และ 68.3 ของเด็กที่ถูกกัด มีความรุนแรงของการถูกกัดจัดอยู่ในกลุ่ม II และ III ตามข้อกำหนดการดูแลรักษาแก่ผู้สัมผัสสัตว์ที่เป็นหรือสงสัยเป็นโรคพิษสุนัขบ้าขององค์การอนามัยโลกตามลำดับและพบว่าร้อยละ 61.9 มีการทำแผลหลังจากถูกสัตว์กัดทุกครั้ง แต่มีถึงร้อยละ 34.0 ที่ไม่มีการทำแผลหลังจากถูกสัตว์กัดเลย ร้อยละ 72.0 ไม่มีการฉีดวัคซีนและเซรุ่มป้องกันโรคพิษสุนัขบ้าหลังถูกกัด ในขณะที่มีเพียงร้อยละ 21.2 เท่านั้นที่มีการฉีดวัคซีนป้องกันโรคพิษสุนัขบ้าทุกครั้งที่ถูกกัด ส่วนการปฏิบัติกับสัตว์ที่กัดนั้นพบว่า ร้อยละ 85.7 ไม่มีการปฏิบัติอะไรกับสัตว์ที่กัดเลย มีเพียงร้อยละ 10.6 เท่านั้นที่มีการสังเกตดูอาการสัตว์ที่กัดนาน 10 วัน จากการศึกษาเบื้องต้นในครั้งนี้สรุปว่า เด็กเป็นกลุ่มที่มีความเสี่ยงต่อโรคพิษสุนัขบ้าได้เนื่องจากการถูกสัตว์เลี้ยงลูกด้วยนมกัด โดยเฉพาะเด็กในกลุ่มอายุ 5–14 ปี และควรจะต้องพิจารณาให้ความสำคัญในการป้องกันโรคพิษสุนัขบ้าในเด็กเพิ่มมากขึ้น ได้แก่ การระมัดระวังการถูกสัตว์เลี้ยงลูกด้วยนมกัด, การปฏิบัติตนเองที่ถูกต้องหลังจากถูกสัตว์กัด และการฉีดวัคซีนป้องกันโรคพิษสุนัขบ้าแบบก่อนสัมผัสโรคในเด็กไว้ก่อน

คำสำคัญ : ความเสี่ยงของโรคพิษสุนัขบ้า, สัตว์เลี้ยงลูกด้วยนมกัด, เด็ก, ประเทศไทย

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จดหมายเหตุทางแพทย์ ฯ 2545; 85: 77–81

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