Dog-Bite Injuries at the Animal Bite Clinic of the Thai Red Cross Society in Bangkok

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Abstract

Canine rabies remains a public health problem in Thailand and other developing countries. This study of animal bites at the Animal Bite Clinic at the Queen Saovabha Memorial Institute revealed that : (1) The majority of patients were bitten by dogs and the time of the attack was mostly during the day. (2) School - aged children are at the highest risk for animal bites. (3) The most common site of injury are the legs and foot (64.2%), with the second most common site being the hands and fingers (21.2%). (4) Only 48 per cent of patients received rabies vaccine 1 - 2 days after being exposed. There was considerable delay before the rest received treatment. Solving Thailand' s rabies problem depends on control of canine rabies and educational campaigns. Public education must be an integral part of efforts to decrease the incidence of animal bites and assurance that they are managed properly.

Key word : Rabies, Rabies Management, Dog-Bites, Thailand.

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Rabies is a major public health problem in many developing countries of Africa, Asia and South America[1]. Dogs are responsible for most human deaths from this disease[2]. India alone has recently revised its reported human rabies deaths from 20,000 to 30,000 and over 500,000 patients are given some form of postexposure rabies treatment every year[3]. Only China, Penisular Malaysia, Singapore and Thailand are reporting a significant decrease in the human prevalence of rabies[4]. In Thailand human postexposure treatments have increased to over 150,000 cases per

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year although the trend in human rabies is decreasing every year[1]. The Queen Saovabha Memorial Institute (QSMI) is a center for rabies diagnosis and includes the primary animal bite clinic for the central part of Thailand. An estimated 8,000 patients receive postexposure rabies vaccination annually and the proportion of fluorescent antibody positive dogs among those examined for rabies averaged 46 per cent indicating that rabies is still a major public health threat. This study was done to delineate the magnitude of the problem and to identify circum stances and localities where and when animal attacks are most likely to occur.

MATERIAL AND METHOD

These data were collected prospectively from 1 January to 31 December 1996. Using all mammalian animal-bite victims presenting to the Animal Bite Clinic who were considered to have been possibly exposed to rabies. During this time, a questionnaire was given randomly to patients. The questionnaire included questions about the circumstances surrounding the bite incident, the location of the wound and the treatment of the wound after injury. Most patients were seen by a doctor and all by specially trained nurse-practitioners. Wounds were irrigated with normal saline and with an antiseptic solution. Dry dressings were applied to small wounds and abrasions. Large wounds that needed closure were sutured electively after daily dressing for 5 - 7 days. Primary or booster tetanus toxoid was given where appropriate. All skin penetrating wounds were infiltrated with RIG, and a course of tissue culture rabies vaccine postexposure vaccination. Series was started using either the standard 5 intramuscular injection or reduced dose Thai Red Cross intradermal regimens[5]. Data were analyzed using the SPSS statistics.

RESULTS

A total of 500 questionnaires collected from the Animal Bite Clinic revealed that 53.2 per cent of the patients were female and 46.8 per cent were male. A total of 20 per cent were teenagers, the group known to be at high risk of animal bite (Table 1). The data showed that 83.4 per cent were bitten by dogs, 12.2 per cent by cats and 4.2 per cent by other animals. Most of the attacks occurred in Bangkok, especially in streets or public places and during the day (73.6%). A total of 37.6 per cent of attacks occurred between 6.00 a.m and noon, 32.8 per cent between noon and 6.00 p.m, 18.4 per cent between 6.00 p.m and midnight and 5.6 per cent between midnight and 6.00 a.m (Table 2). Data regarding the bite site (Table 3) showed that 64.2 per cent of the victims were bitten on the leg and foot, 21.2 per cent on

Table 1. Ages of dog-bite victims.

	Number	%
1 - 19 yr	100	20
20 - 30 yr	159	31.8
31 - 40 yr	98	19.6
41 - 50 yr	76	15.2
> 51 yr	67	13.4

Table 2. Time of animal bite.

Time	Number	%
6.00 a.m. - Noon	188	37.6
Noon - 6.00 p.m.	164	32.8
6.00 p.m. - Midnight	92	18.4
Midnight - 6.00 a.m.	28	5.6
Not recorded	28	5.6

Table 3. Site of bite.

Site of bite	Number	%
Leg and foot	321	64.2
Hand and finger	106	21.2
Arm	36	7.2
Head, Face, Neck	18	3.6
Buttock	7	1.4
No record	10	2

Table 4. Characteristics of exposure.

	Number	%
Bite or scratch with bleeding	379	75.8
Bite or scratch no bleeding	84	16.8
Contact of saliva with mucous or eye	21	4.2
Licking over unbroken skin	9	1.8
Licking over open wound	7	1.4

the hand and fingers. Our data showed that 75.8 per cent of the wounds bled and 16.8 per cent of the wound did not bleed and presumably were scratches. (Table 4)

Data regarding preliminary treatment of the bite wound by the patient or a local clinic (Table 5) showed that 33.8 per cent did not clean the wound after exposure, 66.2 per cent cleaned the wound. Table 6 shows the time which elapsed before the victim received the first rabies post exposure treatment. 48.2 per cent were vaccinated 1-2 days after exposure and 28.8 per cent 3-4 days,

Table 5. Preliminary treatment of the bite wound by patient or local clinic.

		Number	%
Wound not cleaned		169	33.8
Wound cleaned		331	66.2
With water and soap	177		
Only with water	119		
With other substances	35		

Table 6. Time elapsed before the victim started rabies postexposure treatment.

Time after exposure	Number	%
Immediated	3	0.6
1 - 2 days	241	48.2
3 - 4 days	144	28.8
5 - 6 days	31	6.2
> 7 days	73	14.6

6.2 per cent 5-6 days and 14.6 per cent were vaccinated more than 7 days after exposure. The longest delay before postexposure treatment was 30 days.

DISCUSSION

There has been a decrease in annual rabies deaths in Thailand and in the number of rabid dogs brought into the Rabies Diagnostic Unit at QSMI. However, dogs that are rabid remain at nearly 50 per cent of those examined. More than 95 per cent of all human rabies cases in Thailand are due to dog bites[6]. In 1997, it was estimated that the total dog population in Thailand was 10 million and that of humans 65 million with a man to dog ratio of 6.5 : 1. The incidence of animal bite injuries treated in Thailand is considerably more than 150,000[1]. More than 99 per cent of all human rabies deaths in the world occur in tropical developing countries such as Africa, Asia and South America where both domestic and stray dogs are the principal carriers of rabies[2,7].

Over 70 per cent of dog attacks occured during the day time, especially between 6.00 a.m and noon and were on streets or public places where people were walking to work or children to school. Our data revealed that most animal bite injuries came from dogs (83.4%). This is similar to other canine rabies endemic countries[2]. Stray dogs are the main carriers in Thailand. Most dogs do not receive more than one dose of rabies vaccine. Previous studies have shown that one dose of rabies vaccine does not provide long lasting humoral immunity[8,9].

Our data revealed that most wounds bleed (75.8%). Animal bites are invariably infected by aerobic and anaerobic bacteria. *P. multocida* is one particularly virulent organism [10]. A wound resulting from a cat bite is at the greatest risk for infection[11]. So in endemic areas, it is obligatory to complete treatment after people are exposed, early initiation of antimicrobial therapy in patients can decrease the time of treatment, morbidity and mortality. Tetanus and rabies vaccine should also be given to all patients, particularly those at high risk for infection.

33.8 per cent of cases (169) did not clean their wound immediately after exposure inspite of intensive educational campaigns. Severe complications may result from bacteria or other viral infections. A previous report[12] found that cleaning bite wounds with soap and water followed by the application of a virucidal antiseptic alone will prevent rabies in a significant number of cases. Public education is important for decreasing the incidence and morbidity from animal bites. Immediate treatment after being bitten should be undertaken.

14.6 per cent of patients came for treatment after exposure with a delay of over 7 days which is high risk for treatment especially in failure of rabies treatment, particularly facial and

multiple wounds in children, even using the complete current WHO treatment guideline[13]. So additional effort must be made to educate the general public about the importance of post exposure wound treatment. Tetanus immunization needs to be brought up to date and rabies prophylaxis in a rabies endemic area such as Thailand is mandatory.

We conclude that patient education is important for decreasing the incidence and morbidity from animal bites. Patients bitten by animals should pay attention especially to severe wounds which are at high risk of complications. Irrigation may be the most important wound care along with the administration of an appropriate antibiotic. Delay of post exposure rabies treatment after being exposed remains a problem in our patients. Immediate treatment should be given according to recommended guidelines and a strong policy should be established to control rabies and the stray dog population such as mass vaccination. A solution to human rabies from dog bite depends on strict control of canine rabies together with public education on the magnitude of dog problems and prevention.

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การศึกษาเกี่ยวกับการถูกสุนัขกัดในผู้ป่วยที่มารักษาที่คลินิกผู้ป่วยที่ถูกสัตว์กัด สภากาชาดไทย

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ข้อมูลที่พบจากผู้ป่วยที่ถูกสัตว์กัด พบว่า 1) ร้อยละ 83.4 เกิดจากถูกสุนัขกัด โดยเฉพาะในช่วงเวลากลางวัน 2) เด็กที่อยู่ในช่วงอายุต่ำกว่า 20 ปี เป็นกลุ่มเสี่ยงต่อการถูกสุนัขกัดมาก 3) บาดแผลส่วนใหญ่เป็นบริเวณขาและ เท้า 4) พบเพียงร้อยละ 48 ของผู้ป่วย มารับการฉีดวัคซีนป้องกันโรคพิษสุนัขบ้า หลังจากถูกสัตว์กัด 1 – 2 วัน และพบร้อยละ 14.6 ของผู้ป่วย มารับการฉีดวัคซีน หลังจากถูกสัตว์กัดมากกว่า 7 วัน ซึ่งเป็นกลุ่มที่เสี่ยงต่อการเกิดโรคแทรกซ้อนและความล้มเหลวในการฉีดวัคซีนป้องกันโรคพิษสุนัขบ้า ในการแก้ปัญหาสัตว์ที่เป็นโรคพิษสุนัขบ้าในประเทศไทย นอกจากจะต้องมีมาตรการควบคุมสัตว์ที่เป็นโรคพิษสุนัขบ้าแล้ว ยังจะต้องรณรงค์เผยแพร่ความรู้สู่ประชาชนในแง่ของการป้องกันและระมัดระวังการถูกสัตว์กัดด้วย

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