Assessment of Knowledge. Attitudes and Practices of dog bite victims Attending the Emergency Department in AL Hilla Teaching Hospital During The Year 2017

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Abstract

Background: Dog bites are a public health and economic problem affecting mainly low and middle income countries including Iraq especially the central provinces of this country, epidemiologic studies to assess Knowledge. Attitudes and Practices of dog bite victims were not found in Iraq.

Objective:

To asses the knowledge, attitudes and practices among a sample of dog bite victims in Babylon province-Iraq during the year2017.

Patients and Methods: A cross sectional study was conducted after obtaining the approval of health authorization on a convenient sample of dog bite injured patients attending the emergency department of Al Hilla teaching hospital during the period from 1st February to the beginning of June, 2017. A pre tested semi structured questionnaire was used to assess the knowledge, Attitudes and Practices of participants by face to face interview. Data were analyzed statistically using Statistical Package of Social Science version 22.

Results:

The mean age and the standard deviation of the 212 participants ages was 19.74 +14.68 years, male victims were significantly more predominate (66.5%) and younger than female victims $p<0.05$. Students constituted the majority of dog bite cases (44.8%). The study revealed that lower limbs were the most common bitted site (61.3%), bitten neck and trunk are significantly correlated with young age $p<0.05$.The majority of dog bites occurred during day time (63.7%) , less than one fifth of victims (17%) knew the cause and the way of transmission of rabies but 73.6% of them did not know the owners of dogs, about 90% of them witnessed free dogs around their homes, only 1.4% of the victims knew confirmed dead cases of human rabies in their place of residence, more than 90% of patients had positive attitude toward advising others to deal correctly with dog bite injuries and advised others to receive anti rabies vaccine immediately after exposure and 100% of them had received at least single prophylactic post exposure vaccine but only (20%) of victims washed their wounds by soap and water, unfortunately 3.3% had wash and sterile the wound while none of them attended lectures on dog bites first aids.

Conclusion: This study showed that dog bites are prevalent in the province and rabies is endemic in Babylon province, there is a reasonable positive attitude towards dog bites but specific aspects of knowledge and practices regarding this health are poor.

Keywords: Dog bites patient, Knowledge, Attitudes, Practices, AL-Hilla Teaching Hospital.

تقيم المعرفة والمواقف والممارسات لمرضى عضات الكلاب المراجعين لقسم الطوارئ في مستشفى الحلة التعليمي خلال عام 2017

هديل تركي البيرماني حسن علوان بيعي احمد فاضل فرهود الجنابي

الخلاصة

خلفية البحث: كضمات الكلاب مشكلة صحية واقتصادية تؤثر بشكل خاص في الدول قليلة ومتوسطة الدخل ومنها العراق وخاصة المحافظات الوسطى فيه مثل محافظة بابل.

هدف الدراسة: تقيم مستوى المعارف والمواقف والممارسات لعينة من المصابين بعضات الكلاب المراجعين لقسم الطوارئ في مستشفى الحلة التعليمي في محافظة بابل .

المرضى وطرائق العمل: دراسة مقطعية أنجزت بعد الحصول على التصريحات من الجهات الصحية المسؤولة على عينة ملائمة من مرضى إصابات عضة الكلب المراجعين لقسم الطوارئ في مستشفى الحلة التعليمي للمدة من بداية شهر شباط الى بداية شهر حزيران 2017. استعملت ورقة استبانة مختبرة ومقاسة الصلاحية أعدت لهذا الغرض لقياس معارف وموقف وممارسات المريض عن طريق المقابلة المباشرة. حللت البيانات باستعمال برنامج الحزمة الإحصائية للعلوم الاجتماعية.

النتائج: متوسط عمر المشاركين في الدراسة والبالغ عددهم 212بلغ 19.74سنة وكانت نسبة الذكور اكبر وبفارق إحصاءي معنوي مهم66.5%. شكل الطلبة العضوضين النسبة الأعلى 44.8% . كانت نسبة العضات في الأطراف السفلى هي الأعلى 61.3% بينما كانت العضات في منطقة الرقبة والجذع هي الأعلى عند صغار السن. النسبة الأعلى من العضات تحدث في النهار, اقل من خمس المشاركين يعرفون العامل المسبب للمرض. حوالي 73.6% من المشاركين في الدراسة لا يعرفون عائديه الكلاب التي هاجمتهم وان 90% منهم يشاهدون كلاب سائبة في مناطق سكناهم وان 1.4% منهم عرفوا أشخاص توفوا بسبب الإصابة بداء الكلب في مناطقهم. تبين ان ل 90% من المشاركين مواقف إيجابية حول الوقاية من داء الكلب وعضاته وينصحون الأخرين باتخاذ الإجراءات الوقائية السليمة بعد العضة كأخذ اللقاح الواقي وكان جميع المصابين ملقحين بجرعة واحدة على الأقل (100%) ولكن ذكر (20%) فقط منهم انهم غسلوا جروحهم بالماء والصابون, ان نسبة قليلة جدا منهم(3.3%) غسلوا الجرح وعقموه بعد العضة ولم يذكر احد من المشاركين انه حضر سابقا محاضرة توعوييه عن هذه المشكلة الصحية المهمة.

الاستنتاج: عضات الكلاب وداء الكلب مشكلتان مستوطنتان في المحافظة وتوجد فجوات في المعرفة لدى المصابين ونقص خطير في الممارسات الوقائية والإسعاف الأولي السليم لعضات الكلاب. يجب تبني استراتيجية صحية وبمشاركة القطاعات الأخرى وبمشاركة المجتمع للوقاية والسيطرة على هذا المرض المميت في المحافظة والعراق.

الكلمات المفتاحية : عضات الكلاب، المعارف، المواقف، والممارسات ، مستشفى الحلة التعليمي.

Introduction:

Rabies is a fatal viral zoonotic disease that can infect all mammals, but dogs are the source of over 99% of human infections [1]. Worldwide, an estimated 29 million people receive post-exposure prophylaxis (PEP) for rabies each year and more than 59 000 people die of rabies primarily due to poor rabies control measures [2].

Man lived alongside dogs for 14,000 years at least [3]. Cuneiform tablets discovered in Iraq showed that the ancient Babylonian people knew very well the health problems of dog bites and they used herbal medicine for treatment, distinct cuneiform tablets described King Hammurabi code rules and regulations attesting to the fact that a link between the bite of a rabid animal and a human death from rabies which was well recognized in Iraq 4000 years ago [4].

Dog bites are a serious health problem that causes both physical and emotional damage to victims and considerable cost to communities [5] [6]. Rabies is spread principally by domestic dogs [7]. Worldwide, an estimated 29 million people receive post-exposure prophylaxis (PEP) for rabies each year; the disease causes approximately 59,000 human deaths globally, over 3.7 million disability-adjusted life years, and 8.6 billion USD economic losses annually [2]. It is estimated that number of deaths due to rabies may be 10 times more than those reported [8]. Dog bites and rabies are important health problems in Iraq especially in Babylon province [9]. In diverse population knowledge, attitudes and practices of animal bites might be expected to differ by geographic region [10].

According to World Health Organization, the most cost effective strategy for prevention of human rabies is the elimination of rabies in dogs through animal vaccinations, this Support the targets to eliminate human rabies in Asia by2020 [11] [12]. The status of health of individuals and the control of health related events are affected by their positive knowledge, attitude and practices [13]. Community awareness about rabies is very crucial in rabies prevention and control [14]. For efficiently increasing awareness, the knowledge gap among the community should be identified and targeted.

Deaths from rabies could be prevented by the timely application of appropriate prophylaxis [5]. Community awareness about rabies is very crucial in rabies prevention and control [15] . For efficiently increasing awareness, the knowledge gap among the community should be identified and targeted.

This study was conducted to find out the knowledge, attitudes and practices related to dog-bites in a sample of patients attending the Emergency Department in AL-Hilla Teaching Hospital.

Patients and methods:

The ethical issues of this study depended on the ethical clearance and the approval which were obtained from the Iraqi Ministry of Health- Babylon Health Directorate in order to undertake this cross sectional epidemiologic study. The setting of this study was the Emergency Department at al Hilla Teaching Hospital, the period of the study started from the first of February through the first of June, 2017.

The sample is a convenient consecutive sample which was selected from dog bite victims who attended the emergency department in Hilla Teaching Hospital, the sample size was estimated according to the following equation [16] [17]:

$$N = \frac{(1.96)^2 * (1-p)}{P * E^2}$$

Where: N: sample size, (1.96): is a statistical parameter corresponding to the confidence level of 95% , P: is the expected prevalence 8% [18] , E: Relative precision = 0.2. So the total sample size required according to the equation was 220 patients, eight non-cooperative participants were excluded from the study.

Oral informed consents were obtained from each participant enrolled in the survey after informing them about the purpose of the study. Only voluntary participants were recruited in the study. All the information obtained from the study participants was kept confidential.

Before beginning data collection a pilot study was done , adequate training was given to the data collectors on how doing this task. The questionnaire prepared in Arabic was administered to 10 participants who were conveniently selected to check the understandability of the items in the questionnaire and simultaneously it was used as part of the data collection training for data collectors. Unclear words were made clearer based on the feedback. Individuals involved in the pretest (pilot study) were not included in the study sample; the data were collected through face-to-face interview.

Pretested questionnaire was constructed depending on previous studies. The prepared questioner was sent to four experts in public health and veterinary health for the assurance of its validity. The questionnaire was also examined through the application of pilot study to check the repeatability of the questionnaire.

This tool of data collecting includes the following items:

a.Demographic data (age ,gender, levels of education and occupation)
b. Place of residence (rural, urban).
c.Time of exposure to bites (month of exposure, day in the week of the exposure and the day time of dog bites occurrence.
d. Patients characteristics: include the following: site of bites, number of bites history of previous bites

Knowledge of patients about dog bite including the following: Knowledge about the cause of rabies, knowing the dog owner, knowing the person bitten by the same dog, knowing person died of rabies,., knowing the presence of stray dogs in the area around patients house.

Attitudes of patients include the will of the patient to give instruction to other people about taking care from a dog bite, giving instruction to other people about cleaning the wound after bite, giving instruction to people about use rabies vaccine immediately after dog biting.

Practices includes: having a dog at home, giving vaccine to your dog , action after exposure to bite (washing the site of injury or disinfecting it, pre exposure vaccination and post exposure prophylaxis vaccination , number of doses, participating in the education activity(lectures) about correct dealing with dog bites .

Data Analysis:-

Statistical analysis was carried out using SPSS version 20. Categorical variables were presented as frequencies and percentages. Continuous variables were presented as (Means ± SD). Independent sample t-test was used to compare means between two groups. ANOVA test was used to compare means between three groups or more. Pearson's chi square (X^2) and Fisher-exact test was used to find the association between categorical variables. A *p*-value of ≤ 0.05 was considered as significant.

Result:

Table (1) shows the frequency distribution of 212 respondents with dog bite injured who were interviewed in the emergency department in Al Hilla teaching hospital. This table reveals that the mean age and standard deviation of the study patients was 19.74 ±14.68. Male are predominant (66.5%), patients living in rural area constituted (58%), (36%) of them had a primary level of education and the students constituted the majority of cases 44.8%.

Table (2) shows that lower limb is the most common site for biting (61.3%), more than two thirds of them had single bite (72.6%) and (97.2%) of them had no previous bite, all of them(100%) had received PEP vaccine, more than one third (35.4%) of bitten patients do nothing to their wounds, after dog bites only (20.3%)of patients wash the wound with soap and water.

Table (3) shows that three fourth of patients (73.6%) did not know the owner of dog and (90%)of them said that they did know other person bitten by the same dog ,only (1.4%) of patients knew person died due to dog bite mediated rabies , around four fifth of participants do not know the cause of rabies (83%) and(27.4%) of them owner pet dogs but more than two thirds (70.7%) did not vaccinate their home dogs ,(88.7%)of them witness free dogs in the area around their houses.

Table (4) shows the time of occurrence of dog bite, most of biting events took place in the day time (63.7%), Tuesday shows the most frequent bites (18.4%).

Table (5) shows that neck and trunk region sites were significantly affected in the young age group (mean age 12.07 ± 10.46) p=0.041, while lower limb biting was associated with older patient (19.43 ± 14.51).

Table (6) shows that the proportion of the patients living in rural areas are significantly higher in knowing the dog's owner (32%) .patients living in rural areas owner dogs more than urban dwellers 36.6% vs. 14.6% p<0.001 but urban patients vaccinate their dogs more than patients living in rural areas p value ≤ 0.05.

Table (1) : Distribution of patients with dog bites according to sociodemographic characteristics

Socio demographic characteristics		
Age (years)	19.74 ± 14.68	1-65
Gender	**No.**	**(%)**
Male	141	(66.5)
Female	71	(33.5)
Total	212	100.0%
Residence		
Urban	89	(42.0)
Rural	123	(58.0)
Total	212	100.0%
Educational level		
Child	36	(17.0)
Illiterate	14	(6.6)
Primary	77	(36.3)
Secondary	64	(30.2)
Higher education	21	(9.9)
Total	212	100.0%

Table 2: Distribution of patients according to dog bites characteristics

Bite characteristics	**No.**	**(%)**
Site of bites		
Lower limb	130	(61.3)
Upper limp	33	15.6)(
Neck	4	(1.9)
Trunk	10	4.7)(
More than one site	35	(16.5)
Total	212	100.0%
Number of bites		
1 bite	154	(72.6)
2 bites	46	(21.7)
3 bites	9	(4.3)
4 bites	2	(0.9)
5 bites	0	(0.0)
6 bites	1	(0.5)
Total	212	100.0%
History of previous bite		
Present	6	(2.8)
Absent	206	(97.2)
Total	212	100.0%
Use vaccine before bite		
Yes	6	(2.8)
No	206	(97.2)
Total	212	100.0%

Number of Doses		
One dose	4	(66.8)
Two doses	1	(16.6)
Three doses	1	(16.6)
Total	6	100.0%
Use vaccine after bite		
Yes	212	(100)
No	0	(0.0)
Total	212	100.0%
Number of Doses		
One dose	103	48.7)(
Two doses	34	(16.0)
Three doses	23	(10.8)
Four doses	25	(11.8)
Five doses	27	(12.7)
Total	212	100.0%
Action after exposure to bite		
Do nothing	75	35.4%
Sterilize the wound	87	41.0%
Wash the wound with soap and water	43	(20.3)
Wash and sterilize the wound	7	(3.3)
Total	212	100.0%

Table (3) Distribution of dog bites patients according to their knowledge, attitude and practice

Study variables	N	%
Knowing the dog		
Yes	56	26.4%
No	156	73.6%
Total	212	100.0%
Know a person bitten by the same dog		
Yes	21	9.9%
No	191	90.1%
Total	212	100.0%
Know a person having rabies		
Yes	7	3.3%
No	205	96.7%
Total	212	100.0%
Know a person died by rabies		
Yes	3	1.4%
No	209	98.6%
Total	212	100.0%
Take educational lecture about rabies first aid		
Yes	0	0.0%
No	212	100.0%
Total	212	100.0%
know the etiology of human rabies		
Yes (Virus)	36	17.0%
No	176	83.0%
Total	212	100.0%
Give instruction to other people about take care from dog bite		
Yes	202	95.3%
No	4	1.9%
Don't know	6	2.8%
Total	212	100.0%
Give instruction for people about cleaning wound after bite		
Yes		

No	190	89.6%
Don't know	6	2.8
Total	16	7.6%
	212	100.0%
Give instruction for people about use rabies vaccine		
Yes	202	95.3%
Don't know	10	4.7%
Total	212	100.0%
Have dog at home		
Yes	58	27.4%
No	154	72.6%
Total	212	100.0%
Give vaccine to your dog		
Yes	17	29.3%
No	41	70.7%
Total	58	100.0%
There are free dogs in the area of your house		
Yes	188	88.7%
No	24	11.3%
Total	212	100.0%

Table (4) : Distribution of patients according to time of bite

Study variables	No.	%
Time of exposure		
a.m. (day time)	135	63.7%
p.m. (at night)	77	36.3%
Total	212	100.0%
Day of exposure		
Sunday	28	13.2%
Monday	24	11.3%
Tuesday	39	18.4%
Wednesday	36	17.0%
Thursday	28	13.2%
Friday	35	16.5%
Saturday	22	10.4%
Total	212	100.0%

Table (5) : The mean differences of age groups by site of bite

Study markers	**Site of bite**	**No.**	**Mean ± SD**	**F-test**	**P value**
Age (years)	Lower limb	130	19.43 ± 14.51	**2.804**	**0.041**
	Upper limb	33	18.84 ± 11.74		
	Neck or trunk	14	12.07 ± 10.46		
	Multiple bites	35	24.82 ± 17.73		

***P value ≤ 0.05 was significant.**

Table (6) : Association between residence and study variables

Study variable	Residence		χ^2	P-value
	Rural	Urban		
Know the dog				
Yes	40 (32.5)	16 (18.0)	**5.618**	**0.018***
No	83 (67.5)	73 (82.0)		
Total	123 (100.0)	23 (100.0)		
Know person affected by rabies				
Yes	4 (3.3)	3 (3.4)		1.000 f
No	119 (96.7)	86 (96.6)		
Total	123 (100.0)	89 (100.0)		
Know person died from rabies				
Yes	3 (2.4)	0 (0.0)		0.266 f
No	120 (97.6)	89 (100.0)		
Total	123 (100.0)	89 (100.0)		
Have dog at home				
Yes	45 (36.6)	13 (14.6)	**12.55**	**<0.001***
No	78 (63.4)	76 (85.4)		
Total	123 (100.0)	89 (100.0)		
Give vaccine to your dog				
Yes	10 (22.2)	7 (53.8)		**0.04 f**
No	35 (77.8)	6 (46.2)		
Total	45 (100.0)	13 (100.0)		
There are free dogs in the area around your house				
Yes	109 (88.6)	79 (88.8)	0.001	0.974
No	14 (11.4)	10 (11.2)		
Total	123 (100.0)	89 (100.0)		

*P<0.05 considered statistically significant

Discussion

This study is the first of its kind to assess the knowledge, attitudes and practices among attendees at the emergency department in AL Hilla teaching hospital in Babylon indicating that this problem is neglected. Studies proved that this dog bite mediated fatal disease is endemic in Iraq and increasing during the last years especially in Babylon province [9]. Lack of knowledge and unfavorable practices have been attributed as the main reasons for sustaining human dog mediated rabies [15].

The current study shows that the dog bitten victims are young, about 72% of cases occurred in males this can be explained by more exposure of males to the outer environment as compared to females in Iraqi society, this finding goes in line with the findings of other studies conducted in other countries [19-24].

The study shows that the majority of victims have low level of education and most of them are children in the school age and the majority were living in the rural areas this finding agrees with the results obtained by other studies [25-28].

Most of the dog bites (61.3%.) occurred in the leg in agreement with who reported the lower limbs as the commonest site of dog bites in a study carried out in Ilorin, Kwara state, Nigeria [29-31]. This may also be due to the fact that most dogs have easy access to the legs of victims during an attack and most individuals tend to defend themselves with their legs during an attack by an offending dog.

Nearly 72.6 % of the respondents had experienced one dog bite, but following the dog bite nearly one-third had practiced washing of the wounds with water or soap and water as first aid to prevent rabies. Other published surveys have indicated that similar proportion of people felt that washing the wound with soap and water was the best option [32] [33]. Washing of rabies-infected wounds with soap and water can increase survival by 50 % . This treatment is cheap, readily available and feasible for all to apply. All respondents mentioned that they have received at least one

dose of PEP vaccine this goes with the guideline of WHO [34].This dinging indicates the favorable awareness of dealing correctly with human rabies prophylaxis.

Results of the current study reveal that the majority of victims were exposed to unknown dogs indicating that the majority of dogs are ownerless dog this finding consisted with finding of another study [28] , large population of stray dogs in any community correlates positively with increasing rate of dog bite injuries and rabies.

Less than one third of the dog owners mentioned that they used to vaccinate their pet dogs, this figure still falls below the World Health Organization standard of vaccination of 70-80% dog vaccination in an area to boost herd immunity [5]. This poses a public health risk as these unvaccinated dogs can serve as a source of transmission of rabies to the dog bite victims, this finding is lesser than that reported in a study carried out in Ethiopia (33.3%) of dog owner let their dogs to be vaccinated regularly [35],but far higher than the finding of another reporter who found that only 9 % of dog owner used to vaccinate their dogs [10]. This vaccination rate can be further improved if there are more veterinary clinics in the province and dog owners who give their dogs the required veterinary care.

About 90% of respondents mentioned that they witnessed free dogs around their houses this may be due to poor management of stray dogs which increases their risk of contracting rabies [36].

The study reveals that no one of respondent has the opportunity to be educated by lectures about the first aid and the proper dealing with dog bites this depicts the poor health educational activities provided by professionals on what to do if bitten by dogs. This strongly suggests that rabies is still a neglected disease, at least in the study area, and much has to be done by health and veterinary professionals so that prevention and elimination of rabies becomes possible.

In conclusion, this study shows that dog bites are prevalent in the province and rabies is endemic in Babylon province, there is a reasonable positive attitude towards dog bites but specific aspects of knowledge and practices regarding this health problem are poor.

Its recommend that there is need for the promotion of public health education programs aimed at educating the public on proper first aid after dog bite and on the need to vaccinate their dogs. A more effective and efficient garbage disposal system, coupled with an urgent need for a coordinated rabies control activities by forming a standing committee or any other relevant body like the reactivation of District Team Problem Solving program that was successfully implemented by Iraqi Ministry of Health to deal with this high priority public health problem.

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