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Evaluation of Cases with Contact with Rabid Animal Risk in Gaziantep City Hospital

Gaziantep Şehir Hastanesinde Kuduz Riskli Hayvan Teması Olan Olguların Değerlendirilmesi

Halim Bayram, Selda Aslan

Department of Infectious Diseases and Clinical Microbiology, Gaziantep City Hospital Gaziantep,Turkey

Abstract

Aim: The aim of this study was to evaluate the general characteristics and prophylaxis status of cases admitted to our hospital due to rabid animal contact.

Material and Method: Cases with rabid animal contact who were admitted to hospital between March 2024 and August 2024 were evaluated retrospectively.

Results: The mean age of the 660 cases was 21.45±17.12 years. 55.8% (n=368) of them were male and 44.2% (n=292) were female. 590 (89.4%) of cases applied within the first 24 hours after contact, while 70 (10.6%) applied after 24 hours. Prophylaxis was not recommended in 40.5% (n: 267), and prophylaxis was recommended in 59.5% (n: 393). The most common type of animal contact was cats (68.3%, n=451), followed by dogs (29.8%, n=197). 72% (n=475) of the animals were stray. Considering the wound depth, 380 (96.7%) of cases recommended for prophylaxis were evaluated as category type 2, and 13 (3.3%) were evaluated as category 3. Of cases recommended for prophylaxis, 20.3% (n=80) received 4 doses of rabies vaccine, 42.7% (n=168) received 3 doses of rabies vaccine, and 3.3% (n=13) received Human Rabies Immune Globulin in addition to the vaccine.

Conclusion: The intensity of exposure with stray animals is a serious public health problem that has been going on from the past to the present in terms of rabies risk. Early referral to a health center after a rabid animal contact, wound care, and timely administration of appropriate rabies prophylaxis show that rabies is a preventable disease.

Keywords: Vaccine, rabies, prophylaxis

Öz

Amaç: Bu çalışmada hastanemize kuduz riskli temas nedeni ile başvuran olguların genel özellikleri ve profilaksi durumlarının değerlendirilmesi amaçlanmıştır.

Gereç ve Yöntem: Mart 2024 - Ağustos 2024 tarihleri arasında hastanemize başvuran kuduz riskli hayvan teması olan olgular retrospektif olarak değerlendirildi.

Bulgular: Başvuran toplam 660 olgunun ortalama yaşı 21,45±17,12 yıl idi. Hastaların %55,8' i (n=368) erkek ve %44,2'si (n=292) kadındı. Olguların 590'ı (%89,4) temas sonrası ilk 24 saat içinde başvururken 70'i (%10,6) 24 saatten sonra başvurdu. Profilaksi önerilmeyen %40,5 (n: 267), profilaksi önerilen %59,5' ti (n:393). Temas edilen hayvan türü en sık kedi (%68,3- n=451) ile olup ikinci sıklıkta köpek (%29,8 - n=197) olarak saptandı. Hayvanların %72'si (n=475) sahipsizdi. Yara derinliği dikkate alındığında profilaksi önerilen olguların 380'i (%96.7) kategori tip 2, 13'ü (%3.3) ise kategori 3 olarak değerlendirildi. Profilaksi önerilen olguların.%20,3' üne (n=80) 4 doz, %42,7' sine (n=168) 3 doz kuduz aşısı ve %3,3' üne (n=13) aşıya ilave olarak Human rabies immün globulin uygulandı.

Sonuç: Sahipsiz hayvanlarla olan temasların yoğunluğu kuduz riski açısından geçmişten günümüze uzanan ciddi bir halk sağlığı sorunudur. Kuduz riskli temas sonrası sağlık merkezine erken başvuru, yara bakımı ve zamanında uygun kuduz profilaksinin yapılması, kuduz önlenebilir bir hastalık olduğunu göstermektedir.

Anahtar Kelimeler: Aşı, kuduz, profilaksi

Corresponding *(İletişim)*: Halim Bayram, Gaziantep City Hospital Infectious Diseases and Clinical Microbiology Department, Gaziantep,Turkey
E-mail *(E-posta)*: halim.bayram@hotmail.com
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INTRODUCTION

Rabies virüs is a neurotropic, enveloped RNA virus belonging to the Rhabdoviridae family of the Lyssavirus genus.[1] This is a zoonotic disease that causes neurotropic viral infection and can be prevented by vaccination. Transmission usually occurs through the bite of infected animals and scratches a human or other animals. Saliva from an infected animal can also transmit rabies if the saliva comes into contact with the eyes, mouth, or nose.[2] Even though rabies is a vaccine-preventable disease, it has a high incidence in many parts of the world. There are very few documented cases of rabies that survived,[3,4] and in these cases, severe permanent sequelae have been observed.[5] In the developed countries, the incidence of the disease has been reduced with pre- and post-exposure preventıons. According to World Health Organisation data, an estimated 59000 people die each year from rabies.[6,7] According to the 2019 updated data of the Ministry of Health in Turkey, the annual suspected rabid animal contact is 180,000 and 1 to 4 rabies-related human deaths occur each year.[2] Wound care, rabies vaccine and rabies immunoglobulin are recommended for patients admitted to hospital with rabid animal contact.[1,8] Transmission by contact with suspected rabid animals is most commonly by dog bite, but it can also be transmitted from other domestic animals such as cats, sheep, cows, goats, donkeys and horses. In addition, rabies is also spread by contact with other animals such as foxes, jackals, wolves, pigs, martens, bears, ferrets, weasels and skunks.[8] Nowadays, rabies transmission through suspected rabid animal contact still maintains its importance in terms of public health.

In this study, it was aimed to analyse the cases admitted to Gaziantep City Hospital Emergency Department after suspected rabid animal contact.

MATERIAL AND METHOD

The study was obtained from Gaziantep City Hospital Medical Research Ethics Committee (Date: 20.11.2024, Decision No: 76/2024/, E-22753161-514.10-235233430). All procedures were carried out in accordance with the ethical rules and the principles of the Declaration of Helsinki. The study was designed retrospectively, no written informed consent form was obtained from patients.

In this study, records of 660 suspected rabid animal contact cases admitted to Gaziantep City Hospital Emergency Department between March 2024 and August 2024 were retrospectively analysed. Hospital records and ''Rabies Suspected Animal Contact Form" data including age, gender, wound characteristics, time till application to the hospital, vaccination and/or rabies immunoglobulin administration, tetanus prophylaxis administration, kind of animal contacted and whether it was owned or not were analysed. According to the 2019 National Rabies Prophylaxis Guide of the Turkish Directorate General of Public Health, in categories of contact with suspected rabid animals, categories 1 and 2 were classified as superficial, categories 3 and 4 as deep injuries. Age distribution range was categorised as 0-18, 18-65, and over 65 years.

Statistical Analysis

Statistical analysis was performed using IBM SPSS 23.0 version (IBM SPSS, Chicago, IL). Quantitative data were described as number and their percentages (%), and qualitative data were marked with their mean±standard deviation (SD) or median (minimum-maximum).

RESULTS

In the study, 660 rabies suspected animal contact cases admitted to Gaziantep City Hospital Emergency Department between March 2024 and August 2024 were evaluated. 368 (55.8%) of the cases were male and the average age of all cases was 21.45±17.12 years old (range: 1-75-years-old). The age distribution of the patients was as follows: 50.2% were under 18, 48.3% were between 18 and 65, and 1.5% were more than 65 years of age. 96 % of the cases lived in the city centres and 4 % in the rural areas. In cases with a history of rabies suspected animal contact, 475 (72%) of the animals were non-owners and 185 (28%) were owners. The distribution of kind of animal contacted was as follows; 451 (68.3%) cat contact, 197 (29.8%) dog contact, 1 (0.15%) horse contact, 1 (0.15%) donkey contact respectively. The most common animal type contact was with a cat, but animal type record of 6 contacts was not obtained. 267 cases were categorised as category type 1 and no prophylaxis was recommended. The distribution of the others was as follows: 380 (96.7%) were category type 2 and 13 (3.3%) were category 3. No application was assessed as category type 4. Category type 2 applications were assessed as superficial injury and type 3 was considered as deep injury. When the length of time until hospital admission was evaluated, 590 (89.4%) of the cases were admitted to hospital within the first 24 hours, 60 (9.1%) between 2 and 5 days and 10 (1.5%) more than 5 days. Prophylaxis was administered in 393 (59.5%) of suspected rabies animal contact cases, while prophylaxis was not applied in 267 (40.5%). Data analysis of rabies suspected animal contact cases is shown in **Table 1**. Of 393 patients who received prophylaxis, 80 (20.3%) received 4 doses, 169 (43%) received 3 doses and 150 (36.7%) received 2 doses of vaccine. In addition, rabies immunoglobulin was administered to 13 cases (3.3%). Tetanus prophylaxis was administered to 181 (46%) of all cases. The rabies post-exposure prophylaxis applications are shown in **Table 2**.

Table 1. Data analysis of rabies suspected animal contact cases

	N	(%)
Age groups		
<18	331	50.2
18-65	319	48.3
≥65	10	1.5
Gender		
Male	368	55.8
Female	292	44.2
Rabies prophylaxis		
Recommended	393	59.5
Non recommended	267	40.5
Species of contacted animals		
Cats	451	68.3
Dogs	197	29.8
Horses	1	0.2
Donkeys	1	0.2
Unknown	6	0.9
Owner of animals		
Known	185	28
Unknown	475	72
Classification by WHO		
1	267	
2	380	96.7
3	13	3.3
4	-	-
Length of time until hospital admission		
first days	590	89.4
2-5 days	60	9.1
>5 days	10	1.5

Table 2. The rabies post-exposure prophylaxis applications

	N	(%)
Rabies vaccine dosage		
1	0	0
2	150	36.7
3	169	43.0
4	80	20.3
Rabies immunoglobulin		
Applied	13	3.3
Not applied	380	96.7
Tetanus prophylaxis		
Applied	181	46.0
Not applied	212	54.0

DISCUSSION

Rabies is a mortal type of viral encephalitis. The disease can be prevented by post-exposure prophylactic procedures including wound disinfection, vaccination, and Ig application. There are many reports evaluating the cases admitted due to rabies suspected animal contacts. According to the gender distribution of our cases, 55.8% of them were male and it was compatible with the literature. In the study by Kurtoğlu et al. it was found that male patients were more likely to present with street animal contact. The relationship between gender and the type of animal contacted was analysed and it was found that females were exposed to more injuries by cats (62.9%) and males were injured by dogs (53.9%), and the relationship between the type of animal contacted and gender was statistically significant.[17] The reason for the predominance of male cases in these studies is that men spend more time in working life and in external environments and have more contact with animals.

In the study conducted by Aydın et al. it was observed that 98% of the cases were below 65 years of age, and 50% of the total cases were in the age range of 18-44 years.[10] Deveci et al. found that 54.4% of suspected animal contacts were under 20 years of age and 0.3% were between 81and 90 years of age.[11] In our study, the age groups 0-18 years and 18-65 years were the most frequently affected group (98.5% of the cases were in the 0-65 age group), whereas the least affected group was found to be over 65 years of age. The distribution of the admitted cases according to the place of residence was similar to the literature and it was found that those living in the city were more frequently admitted.[9-11] Aydın et al. showed that 79% of the animals were unowned and 54% of the contact animals were dogs.[10] Aldas et al. demonstrated that 73.7% of the cases were cat contacts, 26.2% were dog contacts and 83.2% of the animals were unowned.[9] In the study conducted by Karadas et al. it was found that there was suspected contact with cats (54.2%), dogs (44.5%) and wild animals with 0.5%, and 77.9% of the animal type was found to be unowned.[12] Similarly, in our study, the high frequency of cat contact and the high proportion of unowned animals was observed. It has been reported that rabies originating from wild animals is predominant in developed countries in which dog vaccination is carried out regularly, whereas in developing countries with many unowned animals, especially dogs, are the source of rabies.[8] Prophylaxis was not recommended for 40.5 per cent of applicants due to the high proportion of cat contact cases and the type of contact category.

Considering the duration of application to the emergency department as an indicator of people being sensitive and anxious about rabies disease, it was observed that the majority of the patients (89.4%) applied within the first 24 hours in our study and this was in accordance with similar studies.[9-11] In a study, it was observed that the shortness of application time varied according to the type of injury, applications were made in the first 8 hours in very serious injuries, and the risk of wound site infection increased in admissions made after the first 12 hours.[13] The fact that prophylaxis was not recommended to 40.5% of the admissions shows the lack of knowledge of the community about rabies disease. In the study conducted by Kurtoğlu et al. the level of knowledge of the population about the rabies vaccine and transmission routes was evaluated and it was found that they did not have sufficient level of knowledge.[17] In addition, in a study conducted by Şimşek et al. it was found that the level of knowledge of healthcare workers about rabies disease was low.[18] In our study, it was observed that the majority of rabies risk animal contact was superficial, category 2 (96.7%).

Aydın et al. found that 54% of the total injure of patients were superficial and 46% were deep. 53.6% of these injuries were category type 2 and 44.9% were category type 3.[10]

The most effective method to protect against rabies after suspected animal contact is washing the bite site with soap and water and early wound care.[14] The immunisation is the second stage of indispensable importance and vaccination should be started as early as possible after contact.[15] Among our total number of cases, 80 (20.3%) received 4 doses, 169 (43%) received 3 doses, and 150 (36.7%) received 2 doses of vaccine. It was observed that rabies immunoglobulin was administered to 13 (3.3%) of the cases for whom prophylaxis was recommended. Tetanus prophylaxis was also given to 46% of the patients who received prophylaxis. In general, in patients who received three doses of rabies vaccine, the contact animal was followed up for 10 days and vaccination was stopped according to the WHO recommendation.[19] Appropriate wound care and subsequent administration of rabies immunoglobulin may prevent death in patients with rabies suspected animal contact.[16] It was observed that the rate of rabies immunoglobulin administration was low in our study like in other similar studies conducted in our country.[9,11,20,21] The depth of the injury and the high rate of contact with dogs increase the use of rabies immunoglobulin.[10,12] While wound care, vaccination and rabies immunoglobulin application protect against rabies by 100%, vaccination and rabies immunoglobulin application increase the risk of rabies because it is below 10% in underdeveloped countries.[22]

CONCLUSION

Rabies is a serious public health problem that extends from the past to the present. In this study, the high incidence of unowned animal contact and its importance in terms of rabies disease were emphasised. For this reason, awareness was raised by drawing attention to the fact that rabies disease can be prevented by early application after contact, appropriate wound care and correct prophylaxis application.

ETHICAL DECLARATIONS

Ethics Committee Approval: The study was carried out with the permission of Gaziantep City Hospital Medical Research Ethics Committee (Date: 20.11.2024, Decision No: 76/2024/, E-22753161-514.10-235233430

Informed Consent: Because the study was designed retrospectively, no written informed consent form was obtained from patients.

Referee Evaluation Process: Externally peer-reviewed.

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REFERENCES

1. Özsemerci HA, Söğüt Ö, Ümit TB, Ergenç H, Çakmak S. acil servise başvuran kuduz riskli temas vakalarının değerlendirilmesi: iki yıllık inceleme:iki yıllık inceleme, analitik araştırma. Turkiye Klinikleri J Med Sci 2023;43(1):1-7.
2. Altın N, Aslan M, Ulusoy TÜ, Kuzi S, Şencan İ. Kuduz riskli temaslara uygulanan profilaksilerin ve aşılamaya uyumun gözden geçirilmesi. J Ankara Univ Fac Med 2023;76(1):50-5.
3. Centers for Disease Control and Prevention (CDC) Recovery of a patient from clinical rabies-California 2011, MMWR 2012;61:61-5.
4. De Souza A, Madhusudana SN. Survival from rabies encephalitis. J. Neuro. Sci 2014;339:8-14.
5. Ullas PT, Balachandran C, Pathak N, et al. Case report: survival from clinical rabies in a young child from Maharashtra, India, 2022. Am J Trop Med Hyg 2023;109:1157-60.
6. Hampson K, Coudeville L, Lembo T, et al. Estimating the global burden of endemic canine rabies. PLoS Negl Trop Dis. 2015;9(4):e0003709.
7. Mondiale de la Sante O, Organization WH. Rabies vaccines: WHO position paper-April 2018-Vaccins antirabiques: Note de syntese de l'OMS-avril 2018. Weekly Epidemiyological Record 2018;93(16):201-9.
8. Aylan O, Baykam N, Güner R, et al. TC Sağlık Bakanlığı Kuduz Profilaksi Rehberi. 2019.
9. Aldaş S, Özmen BÖ. Hayvan Isırığı ve kuduz riskli teması olan çocukların değerlendirilmesi: tek merkez deneyimi. Araştırma Makalesi, Mersin Univ Sağlık Bilim Derg 2024;17(2):271-7.
10. Aydın NN, Aydın M, Kuduz riskli hayvan teması olan hastaların değerlendirilmesi. Sağlik bil değer 2024;14(1):54-9.
11. Deveci T, Ay MO, Acehan S, et al. Acil servise kuduz riskiyle başvuran hastaların demografik özelliklerinin analizi. Phoenix Med J 2020;2(1):41-5.
12. Karadaş MA, Yilmaz F, Demir TA, Okudan RN, Çalişkan G, Keskin O. Antalya Eğitim ve Araştirma Hastanesi Acil Servisi'ne başvuran kuduz şüpheli hayvan temaslı hastaların değerlendirilmesi. Acta Medica Alanya 2018;2(3):163-9.
13. Vatansever Ü, Hayvan ve İnsan Isırıkları. Çocuk Acil Tıp Kitabı İstanbul Tıp Kitabevleri yayınevi: İstanbul; 2012.
14. Grill AK. Approach to management of suspected rabies exposures: what primary care physicians need to know. Can Fam Physician 2009;55(3):247-51.
15. Tarantola A, Blanchi S, Cappelle J, et al. Rabies postexposure prophylaxis noncompletion after dog bites: estimating the unseen to meet the needs of the underserved. Am J Epidemiol 2018;187(2):306-15.
16. Abubakar S, Bakari A. Incidence of dog bite injuries and clinical rabies in a tertiary health care institution: a 10-year retrospective study. Ann Afr Med 2012;11(2):108-11.
17. Kurtoğlu S, Esen ES, Öztürk GZ, Eğici MT. Kuduz riskli temas polikliniğine başvuran bireylerin kuduz hastalığı ve aşısı hakkındaki bilgi ve davranışlarının değerlendirilmesi. Turk Mikrobiyol Cemiy Derg 2023;53(3):149-55.
18. Şimşek AÇ, Yücel A, Çankaya S. Ankara İli Kuduz Aşı Merkezlerinde Hizmet Sunan Sağlık Çalışanlarının Kuduz Hastalığıyla İlgili Bilgi Düzeyleri. Ankara Med J 2019;(1):244-50.
19. Organization WH. World survey of rabies, 1997. Weekly Epidemiological Record= Relevé épidémiologique hebdomadaire. 1999;74(45):381-4.
20. Temiz H, Akkoç H. Diyarbakır Devlet Hastanesi kuduz aşı merkezine başvuran 809 olgunun değerlendirilmesi. Dicle Tıp Derg 2008;35(3):181-4.
21. Söğüt Ö, Sayhan MB, Gökdemir MT, Kara HP. Türkiye'nin Güneydoğusunda önlenebilir bir halk sağlığı sorunu: kuduz riskli temas olguları. JAEM 2011;1(10):14-7.
22. Wilde H, Chutivongse S, Tepsumethanon W, Choomkasien P, Polsuwan C, Lumbertdacha B. Rabies in Thailand: 1990. Rev Infect Dis 1991;13(4):644-52.