Original Article

ANATOLIAN CURRENT MEDICAL

DOI: 10.38053/acmj.1471674

Anatolian Curr Med J. 2024;6(3):229-231

Evaluation of rabies risk contact cases

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Cite this article as: Solmaz M, Orhan Ö. Evaluation of rabies risk contact cases *Anatolian Curr Med J.* 2024;6(3):229-231.

Received: 13.05.2024 ◆ **Accepted**: 30.05.2024 ◆ **Published**: 28.05.2024

ABSTRACT

Aims: Rabies is a disease with fatal complications, often caused by a bite from an infected animal. The aim of this study was to retrospectively investigate the cases admitted due to rabies risk contact.

Methods: The study included 928 patients admitted to public hospitals in Batman in the last 1 year due to animal bites and risky contact. The cases included in the study were evaluated according to age, gender, residential area, season of application, place of bite, type of animal bitten and vaccination status.

Results: 31.8% of the applicants were under 18 years of age. 63.5% of the applicants were male. According to the season of application, the highest number of applications was in summer with 32.4%, while the lowest number of applications was in winter with 18.8%. When evaluated according to residential areas, there were more applications from urban areas. Animal bites were 53.8% cat bites, 35.5% dog bites, 10.8% horse, donkey and cow bites. 94.5% of cases fully completed the vaccination program.

Conclusion: Rabies is a major public health problem. Necessary measures should be taken to reduce the number of risky contact cases. Necessary shelters for animals, centers where they can be treated should be provided, and a preventive vaccination program for animals should be carried out in full.

Keywords: Rabies risk contact, cat bite, vaccination, public health

INTRODUCTION

Rabies is a neurotropic RNA virus belonging to the lyssavirus genus of the rabdoviridae family. It can cause encephalitis, an acute and fatal condition involving the central nervous system.[1] Every year, people are bitten by animals at risk of rabies all over the world. Rabies is most commonly caused by being bitten by an infected animal and the wound is exposed to the animal's saliva. It can be transmitted through contact with damaged skin, scratching by an animal, organ transplantation from an infected person, and rarely through aerosols.[2]

Rabies remains an important public health problem. In developing societies, dogs are the most common rabies-causing animals, whereas in developed societies wild animals are the most common rabies-causing animals. The disease causes acute encephalitis with a rapidly progressive and fatal course. Because of the high mortality rate of encephalitis, rapid diagnosis and treatment is extremely important.[2,3]

Most diseases in humans, including rabies, can be prevented by vaccination. Therefore, in case of any suspicion in humans, the necessary vaccination program should be carried out in full. The most important method of rabies prevention is vaccination of animals.[3-5]The aim of this study was to retrospectively investigate the cases admitted due to rabies risk contact.

METHODS

This study is a retrospective study. The study included 928 patients admitted to public hospitals in Batman between January 1, 2023 and December 31, 2023 due to animal bites and risky contact. Those who did not have rabies risky contact were not included in the study. The cases included in the study were evaluated according to age, gender, residential area, season of application, place of bite, type of animal bitten and vaccination status. All pediatric and adult patients were included in the study.

The study was carried out with the permission of the Mardin Artuklu University Non-interventional Clinical Researches Ethics Committee (Date: 13.02.2024, Decision No: 2024/2-15). We obtained an informed consent form from all patients for procedure. All procedures were carried out in accordance with the ethical rules and the principles of the Declaration of Helsinki.

Statistical Analysis

Statistical analysis are made using IBM-SPSS version 24. Frequency and percentage were used as descriptive measures in the analysis.

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RESULTS

The data on the cases admitted to public hospitals in Batman due to animal bites and risky contact are given in Table. 33% of the applicants were between the ages of 19-35 years and the group with the least number of applicants was between the ages of 1-8 years with 9.2%. 31.8% of the applicants were under 18 years of age. Of the applicants, 63.5% (589) were male and 36.5% (339) were female. When evaluated according to residential areas, 545 (58.8%) cases were from urban areas and 383 (41.2%) cases were from rural areas. When evaluated according to the season of presentation, summer was the most common season with 32.4% and winter was the least common season with 18.8%. Animal bites were 53.8% cat bites, 35.5% dog bites, 10.8% horse, donkey and cow bites. When the applied cases were evaluated according to the bite site, the hand was damaged in 27.4% (254) cases, the arm was damaged in 42% (390) cases, the leg was damaged in 29.2% (271) cases, the head and neck was damaged in 1.2% (11) cases, and the abdomen was damaged in 0.2% (2) cases. All patients received local wound care and were included in the vaccination program. 94.5% of the cases completed the vaccination program completely. No rabies infection developed in any of the cases included in the vaccination program.

Table. Characteristics of the admitted cases

		n	(%)
Age	1-8 years	85	9.2
	9-18 years	210	22.6
	19-35 years	306	33.0
	36-50 years	203	21.9
	51-75 years	124	13.4
Gender	Female	339	36.5
	Male	589	63.5
Residential area	Urban	545	58.8
	Rural	383	41.2
Season of application	Spring	203	21.9
	Summer	301	32.4
	Autumn	250	26.9
	Winter	174	18.8
Bite site	Hand	254	27.4
	Arm	390	42.0
	Leg	271	29.2
	Neck	11	1.2
	Abdomen	2	0.2
Type of biting animal	Cat	499	53.8
	Dog	329	35.5
	Others	100	10.8
Vaccination status	Complete	875	94.3
	Incomplete	53	5.7

DISCUSSION

In this study, 928 patients admitted to our hospitals due to rabies risk contact were analyzed. In our study, similar to the literature data, it was determined that there were more males among the patients admitted.[6,7]The main reason for this is that men generally spend more time outdoors and therefore interact with animals more frequently. This leads to a higher risk of being bitten or scratched.

According to the data of the World Health Organization and also according to many studies conducted in our country, it has been shown that many cases with a history of rabies contact are seen at a high rate of 28%-44% between the ages of 6-15.[8,9] In our study, in line with the literature, we observed that the rate of admissions under the age of 18 was 31.8%.

In the study of Krzowska-Firych et al.[10] involving 519 patients with rabies risk contact, most of the rabies risk contact cases were urban dwellers. In our study, similar to many other studies in the literature, the majority of those admitted to hospital with rabies risk contact cases were living in urban areas. The reason for this in our study reveals that there are deficiencies in the control of animals that cause contact in urban areas. In order to eliminate this situation, controlled supervision of animals living especially in cities should be provided by the relevant administrators.

While cases due to wild animals occur in developed societies, in developing societies such as Turkey, such cases are seen due to inadequate vaccination of domestic animals living in cities.[11] Especially dogs are the main source of rabies-related deaths in humans. In studies conducted in our country, dogs constitute the majority of rabies contact animals.[12] However, in our study, most of the contact cases were cats.

The study by Ren et al.[13] revealed that rabies contact cases are most common in summer and autumn months. Similarly, in the study by Yizengaw et al.[14] it was shown that cases were most frequently seen in the summer months. In our study, similar to these studies, it was observed that most of the cases occurred in summer and the least in winter. In summer, people spend more time outdoors than in winter, increasing the risk of contact with animals.

Animal contact may vary depending on the type of animal and the age of the case. In literature studies, extremities are the most commonly injured region. According to a study conducted by Ostanello et al.,[15] in most of the cases, 66.5% of the injuries were to the extremities. In our study, most of the injuries were extremities. We think that this is due to the high rate of contact with cats.

Local wound care was provided to all of our contact cases and nearly 95% of our cases were fully vaccinated in accordance with the national vaccination program.

Limitations

The limiting feature of our study is that it was retrospective and conducted with data from the last year. Epidemiologic studies with larger data should be conducted on this subject.

CONCLUSION

Rabies risk contact continues to be an important public problem. Trainings should be provided to raise awareness about rabies and how first intervention should be done. In order to reduce the number of risky contact cases, the necessary work should be carried out within the legal framework to prevent the uncontrolled reproduction of the stray animal population, especially in crowded settlements. Necessary shelters for animals, centers where they can be treated should be provided, and a preventive vaccination program for animals should be carried out in full.

ETHICAL DECLARATIONS

Ethics Committee Approval

The study was carried out with the permission of Mardin Artuklu University Non-interventional Clinical Researches Ethics Committee (Date: 13.02.2024, Decision No: 2024/2-15).

Informed Consent

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

Referee Evaluation Process

Externally peer-reviewed.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

Financial Disclosure

The authors declared that this study has received no financial support.

Author Contributions

All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

Acknowledgements

Authors thank all participants who agreed to participate in the study.

REFERENCES

1. T.C. Sağlık Bakanlığı Halk Sağlığı Genel Müdürlüğü. Kuduz Profilaksi Rehberi. 2019. Available from: https://hsgm.saglik.gov.tr/depo/birimler/zoonotik-ve-vektorel-hastaliklar-db/Dokumanlar/Rehberler/Kuduz_Profilaksi_Rehberi.pdf
2. T.C. Sağlık Bakanlığı Temel Sağlık Hizmetleri Genel Müdürlüğü Zoonotik Hastalıklar Daire Başkanlığı. Zoonotik Hastalıklar Hizmet İçi Eğitim Modülü. 2011. ISBN: 978- 975-590-328-6.
3. Dede T, Kocabaş E. Dünyada ve ülkemizde henüz çözülmemiş bir halk sağlığı sorunu: kuduz. *Çocuk Enfeks Derg*. 2008;2(3):109-116.
4. Yekenkurul D. Determination of measles, rubella, mumps and chickenpox seropositivity of district public hospital healthcare workers. *Anatol Curr Med J*. 2021;3(2):109-114. doi: 10.38053/acmj.854866
5. Wyatt J. Rabies - update on a global disease. *Pediatr Infect Dis J*. 2007;26(4):351-352. doi: 10.1097/01.INF.0000258776.47697.97
6. Salomão C, Nacima A, Cuamba L, et al. Epidemiology, clinical features and risk factors for human rabies and animal bites during an outbreak of rabies in Maputo and Matola cities, Mozambique, 2014: Implications for public health interventions for rabies control. *PLoS Negl Trop Dis*. 2017;11(7):e0005787. doi: 10.1371/JOURNAL.PNTD.0005787
7. Uzunovic S, Skomorac M, Bašic F, Mijac-Music I. Epidemiological features of human cases after bites/scratches from rabies-suspected animals in Zenica-Doboj Canton, Bosnia and Herzegovina. *J Prev Med Public Health*. 2019;52(3):170-178. doi: 10.3961/JPMPH.18.252
8. Göktaş P, Ceran N, Karagül E, Çiçek G, Özyürek S. Kuduz aşı merkezine başvuran 11 017 olgunun değerlendirilmesi. *Klimik Derg*. 2002;15(1):12-15.
9. Yıldız M, Durukan P. Hayvanlara bağlı yaralanmalar. *Fırat Tıp Derg*. 2005;10(1):25-26.
10. Krzowska-Firych J, Mazurek E, Hasiec B, Tomasiewicz K. The first report evaluating the post-exposure rabies prophylaxis in children exposed to animals in the Lublin Province (Eastern Poland) in 2010-2016 - a retrospective study. *Hum Vaccin Immunother*. 2018;14(11):2660-2665. doi: 10.1080/21645515.2018.1477910
11. Temiz H, Akkoç H. Diyarbakır Devlet Hastanesi kuduz aşı merkezine başvuran 809 olgunun değerlendirilmesi. *Dicle Tıp Derg*. 2008;35(3):181-184.
12. Derinöz O, Akar T. Animal bites cases presented to a university hospital pediatric emergency room. *Turkish J Pediatr Emerg Intens Care Med*. 2017;4(1):22-26. doi: 10.4274/CAYD.46855
13. Ren J, Gong Z, Chen E, et al. Human rabies in Zhejiang Province, China. *Int J Infect Dis*. 2015;38:77-82. doi: 10.1016/J.IJID.2015.07.013
14. Yizengaw E, Getahun T, Mulu W, Ashagrie M, Abdela I, Geta M. Incidence of human rabies virus exposure in northwestern Amhara, Ethiopia. *BMC Infect Dis*. 2018;18(1):597. doi: 10.1186/S12879-018-3500-3
15. Ostanello F, Gherardi A, Caprioli A, La Placa L, Passini A, Prosperi S. Incidence of injuries caused by dogs and cats treated in emergency departments in a major Italian city. *Emerg Med J*. 2005;22(4):260-262. doi: 10.1136/EMJ.2004.014886