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HUMAN ANTI-RABIES ACCOMPANIMENT AND CONSEQUENT ADHERENCE TO POST-EXPOSURE PROPHYLAXIS

ACOMPANHAMENTO ANTIRRÁBICO HUMANO E CONSEQUENTE ADESÃO À PROFILAXIA PÓS-EXPOSIÇÃO

ACOMPAÑAMIENTO ANTIRRÁBICO HUMANO Y CONSECUENTE ADHERENCIA A LA PROFILAXIA POST-EXPOSICIÓN

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ABSTRACT

Objective: to analyze human anti-rabies adherence and follow-up in post-exposure prophylactic treatment. **Method:** a descriptive, cross-sectional, retrospective study of quantitative approach, performed through the analysis of data collected on the user's individual anti-rabies patient records. The data were processed in the Excel 2013 software program and presented in tables. **Results:** of the 204 sheets analyzed, 93.63% completed the prescribed treatment. In the 6.37% of cases of abandonment, there was no active search through home visit. 59.31% of users sought care within the first 24 hours after exposure. Among the aggressive animals, there was one positive diagnosis for rabies. **Conclusion:** care and adherence are effective because, despite the virus was circulating in the region, there was no case of rabies in humans. Vigilance and control of virus circulation in the studied region should be maintained. **Descriptors:** Rabies; Post-Exposure Prophylaxis; Vaccine; Epidemiology; Public Health.

RESUMO

Objetivo: analisar a adesão e o acompanhamento antirrábico humano no tratamento profilático pós-exposição. **Método:** estudo descritivo, transversal, retrospectivo, de abordagem quantitativa, realizado por meio da análise de dados coletados em fichas de atendimento individual antirrábico dos usuários. Os dados foram processados no programa Excel 2013 e apresentados em tabelas. **Resultados:** das 204 fichas analisadas, 93,63% concluíram o tratamento prescrito. Quanto aos 6,37% de casos de abandono, não houve a busca ativa através de visita domiciliar. 59,31% dos usuários procuraram atendimento nas primeiras 24 horas após a exposição. Entre os animais agressores, houve um diagnóstico positivo para raiva. **Conclusão:** o atendimento e a adesão são eficazes, pois, apesar de o vírus circular na região, não houve nenhum caso de raiva em humanos. Deve-se manter a vigilância e o controle da circulação do vírus na região estudada. **Descritores:** Raiva; Profilaxia Pós-Exposição; Vacina; Epidemiologia; Saúde Pública.

RESUMEN

Objetivo: analizar la adherencia y el acompañamiento antirrábico humano en el tratamiento profilático post-exposición. **Método:** estudio descriptivo, transversal, retrospectivo, de enfoque cuantitativo, realizado por medio da análisis de datos recogidos en fichas de atendimento individual antirrábico de los usuarios. Los datos fueron procesados en el programa Excel 2013 y presentados en tablas. **Resultados:** de las 204 fichas analizadas, 93,63% concluyeron el tratamiento prescrito. De los 6,37% casos de abandono, no hubo búsqueda activa a través de visita domiciliar. 59,31% de los usuarios buscaron atendimento en las primeras 24 horas después de la exposición. Entre los animales agresores, hubo un diagnóstico positivo para rabia. **Conclusión:** el atendimento y la adherencia son eficaces, pues a pesar del virus circular en la región, no hubo ningún caso de ravia en humanos. Se debe mantener la vigilancia y el control de la circulación del virus en la región estudiada. **Descriptors:** Rabia; Profilaxis Posexposición; Vacuna; Epidemiología; Salud Pública.

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INTRODUCTION

Human rabies is a zoonosis known and widely feared for its fatal prognosis, being considered as a serious public health problem because it presents lethality equivalent to almost 100%. It is an infectious contagious disease that affects predominantly all the domestic and wild mammals, being dogs and cats the main transmitters in urban centers by their home relation. With the creation of the National Human Rabies Prophylaxis Program by the Ministry of Health in 1977, the vaccine became available in all federative units in Brazil and in the Federal District. Since then, the incidence of rabies in humans has been decreasing significantly.¹⁻²

The National Program for Prophylaxis of Human Rabies in Brazil made it possible to maintain control over the circulation of the virus with actions of mass vaccination of dogs, cats and livestock, seizure of stray animals, control of outbreaks, adequate and accessible anti-rabies prophylactic treatment, clarification to the population and characterization of risk areas. These actions were intensified as a result of the *Plan for the Elimination of Urban Rabies from the Major Chains of Latin America*, of the Pan American Health Organization, in 1983, which set the year 2015 as a deadline.³⁻⁴

In Brazil, the Program represents a high cost in assisting people at risk of becoming ill and dying. Epidemiological data from the Ministry of Health show that the North and Northeast regions were responsible for 82% of the cases of human rabies in Brazil in the year 2012, and the dog was responsible for 72% of the cases. The South region was certified as a human-free dog-rabies area.⁵

In the Federal District, according to the Environmental Health Surveillance, the only case of registered human rabies occurred in 1978. In 2000, there was a case report of canine rabies; and, in 2001, a feline case, confirming viral circulation in bats and domestic livestock.⁶

Due to the lethality of rabies, post-exposure rabies vaccination for rabies prophylaxis is a great form of prevention, since the permanent control of this zoonosis is paramount for public health as the virus circulates in several regions. In this sense, the analysis of human rabies data makes it possible to evaluate and improve the services provided to victims. Thus, this study aims to analyze human adherence and human anti-rabies monitoring in post-exposure prophylaxis.

METHOD

This is a descriptive, cross-sectional, retrospective study of a quantitative approach, carried out in the vaccine room of the 5th Health Center, located in the Administrative Region of Lago Sul, Brasília-DF, which has an urban population estimated at 31,206 inhabitants, with 8,742 households, and covers an area of 190,237 km², of which 57.07 km² correspond to the urban area.⁷

The data of the survey were collected from the individual records of human rabies notification and care, completed by the nursing professionals in the vaccine room from January to December 2014. Only post-exposure records of patients treated during this period were included in the sample, and those with incomplete information were excluded from the sample. The final sample totaled 204 analyzed information sheets.

The variables analyzed consisted of human anti-rabies prophylactic treatment and users' adherence to treatment. For this purpose, the data were analyzed by calculating the percentile of each variable.

Data on the profile of clients served were collected regarding age, anatomic site exposed to rabies virus, species and clinical condition of the aggressive animal, adherence to treatment (time interval between exposure and search for care in the service, and whether there was delay between the first and the second dose) and post-exposure human anti-rabies monitoring (prescribed prophylactic treatment, termination of treatment, and conduct adopted by professionals in case of non-attendance at the due date).

This study was performed with secondary data, characterizing minimal risks to the population. This research presents a 95% confidence index and is in accordance with Resolution no. 466/2012 - National Health Council (CNS), which regulates the ethical aspects of research involving human beings. It was approved by the Ethics and Research Committee (CEP) of the Foundation of Education and Research in Health Sciences of the Federal District (FEPECS-DF), under the Opinion no. 1,258,369 and CAAE: 49736615.5.0000.553.

RESULTS

Through the analysis of the information sheets, the data collected were tabulated in Excel version 2013, treated at a percentile frequency with continuous variables, as shown in the following tables:

Table 1. Profile of the users served for human anti-rabies prophylactic treatment regarding age.

AGE	n= 204 (100%)
0 to 09	35 (17.16)
10 to 19	17 (8.33)
20 to 29	43 (21.08)
30 to 39	31 (15.20)
40 to 49	25 (12.25)
50 to 59	27 (13.24)
>60	26 (12.75)

Table 2. Characteristics of the aggression: anatomical site, condition and species of the aggressive animal, and type of exposure to the virus.

Anatomical location of exposure to rabies virus	n= 204 (100%)
Mucous	06 (2.94)
Head / Neck	26 (12.76)
Hands / Feet	94 (46.08)
Trunk	10 (4.90)
Limbs	68 (33.33)
Type of exposure to rabies virus	
Indirect contact	10 (4.90)
Licking	05 (2.45)
Scratch	17 (8.33)
Bite	172 (84.31)
Species of the aggressive animal	
Dog	144 (70.49)
Cat	42 (20.59)
Bats	09 (4.41)
Others	09 (4.41)
Condition of the aggressive animal	
Sound	149 (73.04)
Suspicious	13 (6.37)
Rabid	13 (6.37)
Missing	24 (11.76)
Dead	01 (0.49)
Slaughtered	04 (1.96)

Table 3. Prescribed prophylactic treatment, actions taken to find the missing people, as described in the information sheets, and number of cases that were closed.

Prophylactic treatment	n= 204 (100%)
Observation	18(8.82)
Vaccine and serum	136(66.67)
Serum and vaccine	50(24.51)
Actions taken to find the missing people as described in the information sheets	n= 13 (100%)
Phone calls	11 (84.6)
Others	02 (15.4)
Closed cases	n= 204 (100%)
Yes	190 (93.14)
No	14 (6.86)

Table 4. Adherence to treatment: period between exposure and the search for care in the health service, and whether there was delay between the first and the second dose of rabies vaccine.

Period between exposure and the search for treatment	n= 204 (100%)
<24 hours	121 (59.31)
24 hours to 72 hours	69 (33.82)
More than 72 hours	14 (6.86)
Return time between 1st and 2nd dose	n= 186 (100%)
03 days	155 (83.33)
03 to 07 days	12 (6.45)
More than 07 days	06 (2.94)
Did not complete the schedule	13 (6.37)

DISCUSSION

In the year 2014, 204 cases of users who were attacked by animals that could transmit the rabies virus were reported in the Lago Sul region, Brasília-DF. These people sought care in this health services for prophylactic treatment. The results of this study correspond to the analysis of the human anti-rabies records, which describe the profile regarding age, location of the aggression, type of exposure to the virus, condition and species of the aggressive animal, prescribed prophylactic treatment, termination of treatment, practitioner's conduct in case of non-attendance at the due date and adherence to treatment.

Table 1 shows that among the people exposed to the rabies virus, who sought care in that service, the most prevalent age group was composed of adults between 20 and 29 years of age, with 43 individuals (21.08%), followed by the age group of 0 to 9 years, with 35 individuals (17.06%); there were 26 cases (12.75%) with elderly people and only 17 cases (8.33%) with adolescents, which was the age group with less cases. Among these data, those referring to children were quite significant, since this age group represents only 7% of the total population of this administrative region, represented by a total of 2,190 children out of a total of 31,206 inhabitants of that region.⁷

It can be seen from the data shown in Table 1 that all age groups appear in this study, and adults are more exposed to contact with animals. Results also found in other studies show that this may be related to the care given to domestic animals, such as feeding, bathing and walking on public roads.^{3,8}

Children appear in second place, represented by 35 (17.06%) individuals in the information sheets, which is similar to the data found in other studies.⁹⁻¹⁰ This age group is more exposed to this type of aggression by maintaining closer contact with pets and by using more frequently yards, public places and the street as a leisure area.¹¹

The most affected anatomic locations was hands and feet, with 94 cases (46.08%), followed by limbs, with 68 cases (33.33%), and the less affected anatomical area was the mucous, with 6 cases (2.94%). The greater occurrence of aggressions in these areas happens due to the positioning of the victims for their own defense in the moment of the aggression, when directing the hands and/or placing hands and feet in the attempt to

contain or to defend themselves from the aggressive animal.^{8,10}

The identification of the anatomical location of the exposure is important, since regions close to the Central Nervous System (head, neck and face) and very innervated areas (hands, digital pulp and soles) are considered serious because they facilitate the penetration of the virus into the nervous system.¹²

The animal species responsible for the most representative exposure was the canine, with a total of 144 cases (70.59%) of the aggressions, followed by felines, with 42 cases (20.59%), and bats, with 9 cases (4.41%). In some studies, dogs also appear first, followed by cats; this fact happens because these are domestic animals that are in daily contact with humans.^{3,8-10}

Among the species of animals found in this study, characterized as "others" in Table 2, wild animals and domestic livestock are included, which represented 4.41% (9) of the sample of this study. Among them, there was a positive case for rabies, diagnosed in laboratory in a medium-sized domestic animal (sheep). Livestock has presented the highest number of positive cases for rabies, being an important source of infection for transmission of this zoonosis to humans. Thus, monitoring and surveillance of these animals are recommended for the control of rabies virus.⁵

The most frequent type of exposure was the bite, with 172 (81.31%), followed by scratches, with 17 (8.3%); indirect contact, 10 (4.90%); and licking, with 5 (2.45%) cases. Such data are confirmed by studies that have shown that bites represent the major cause of search for care.^{3,8-10} It is important to report the type of exposure because when the animal is infected, the virus stays in the saliva of the animal; and when in contact with an entrance door (solution of continuity, mucous, non-intact skin), there is a high risk of virus penetration.

Regarding the final condition of the animal, 149 (73.04%) were considered healthy; those disappeared totaled 24 (11.76%); animals considered suspicious represented a total of 13 (6.37%); 13 were considered as rabid (6.37%); a total of 4 (1.96%) were slaughtered; and only 1 (0.49%) animal was dead. Data found in some studies also demonstrated that animals considered healthy at the time of the aggression had a significant representation.⁹⁻¹¹

The suspicious condition (rabid, dead, missing or slaughtered), despite representing a smaller number (26.95%) of the total number of sheets, is of paramount importance

in assessing the degree of risk for rabies. Therefore, animals in these conditions should be considered at risk.

The filling of "rabid", represented by 6.37% (13) of the data collected may be incorrect, since only one animal was diagnosed in laboratory as positive for rabies. Therefore, the other 12 animals should be considered only as suspicious, and classified as rabid only after confirmation of the exams.

The choice of post-exposure prophylaxis regimen against Human Rabies will depend on the type of exposure (indirect contact, mild or severe accident) and on the conditions of the aggressive animal (suspicious, clinically suspicious, dead, missing cat or dog, wild animals or livestock).⁵ Such conditions are described in Tables 2 and 3.

Regarding post-exposure Anti-rabies Treatment (ART) and according to the animal's condition, in 136 (66.67%) of the 204 cases analyzed the post-exposure prophylactic treatment was prescribed with two doses of rabies vaccine, in which patients were instructed to observe the animal in a period of ten days. It can be observed in some studies that this prescription also had a greater representation. They considered that prophylactic treatment could have been avoided with the observation of the animal for ten days, as a consequence of a high number of healthy animals.^{3,10-11} A total of 18 (8.82%) users were exempted from the vaccine treatment against rabies; they only needed to observe the animals for a period of ten days.

The basic prophylactic regimen with two doses of rabies vaccine and observation is indicated for people who suffer serious accidents (injury to the head, face, neck, hands, feet, digital pulp and/or plantar region; deep, extensive and multiples wounds in any region of the body; licking of mucous membranes; and licking of mucous in which there is severe injury and deep injury caused by the animal's nail). If the animal keeps healthy during the observation period, the case is closed.⁵ In this research, the prophylactic scheme with two doses of vaccine and observation of the animal is proportional to the number of serious aggressions considered to be at risk for rabies.

Treatment with vaccine and serum was indicated for 24.51% (50) of the clients served. The complete regimen consists of five doses of vaccine against Human Rabies, and the serum is indicated when the origin of the animal is unknown, or when it is wild, suspected or proven rabid. The complete vaccine and serum anti-rabies scheme is also

indicated when it comes to wild animals and bats, regardless of the severity of the injury.⁵

Since 2008, the vaccine used in Brazil is of cell culture, which produces a more lasting immunity and causes few adverse events, being indicated even for pregnant women.⁴

Of the 204 sheets analyzed, 191 (93.63%) users terminated treatment and only 13 (6.37%) abandoned it. This result is superior to the data found, in which 84% concluded the treatment. However, in another study, this number was much lower, that is, 55% did not complete anti-rabies treatment with vaccine.⁸

As for the accessibility of health, most users focused on the need for medical care and drug provision as a requirement to have a quality and resolute care.¹³

The health service carried out some actions to search for clients who did not attend on the due date to the continuity of the human rabies vaccination scheme, which were a total of 13 (100%) cases. The conducts carried out, as described in the individual answer sheet, were: 11 (85%) telephone calls and 2 actions classified as "others" (15%). There was no visitor. This information is filled in a field on the back of the individual sheet, where all these conducts are annotated by professionals.

In cases of abandonment, the immediate search of the missing users for the application of the subsequent dose is the responsibility of the service.¹² The search of the missing users is performed by any means of communication, including home visit and home vaccination.⁵ The results of this study showed no provision of home care by this health team.

Regarding the period between exposure to the risk of contracting rabies and the search for care in the health center, 121 (59.31%) people sought care in the first 24 hours; 69 (33.82%) sought between 24 and 72 hours; and only 14 (6.86%) sought after 72 hours. The rapidity with which people who are attacked seek health care for prophylactic treatment is a good indicator of the local population's awareness of the risk of contracting the disease, which reduces the risk of infection by the virus. There is a small number of people who seek treatment late.

In a given study, the five-day period was used to analyze the time between exposure and the search for care in the health service, and there was a result of 84.7%.³ When comparing those data with the present research, the result is almost 100%, since the longest period observed between exposure and search for care was three days (72 hours).

After initiation of vaccination, 155 (83.33%) users returned on the date set for the second dose of the rabies vaccine, with a three-day interval between the doses, as recommended in the vaccination manual.⁵ This evidences good care and good guidance provided by the health team to users. Only 13 (6.37%) did not complete the vaccination schedule, and these were the same that did not complete the treatment.

In contrast, another study found that more than 50% discontinued treatment. This fact may have occurred because there was not an information system integrated with other reference services, where users may possibly have completed the scheme.⁸ This lack of integration of the information system also occurs in the Federal District.

CONCLUSION

Through the variables used in the research related to the exposed person (age group), to the aggression, to the animal, to the adherence and the treatment, it was verified that the most exposed age group consists of adults; the most affected anatomic regions were hands and feet; and the dog remains as the animal responsible for most of the aggressions.

The indication of vaccine and observation of the animal was proportional to the number of aggressions considered to be at risk for rabies. Serum indication was correct due to the number of missing, suspicious, killed, slaughtered and rabid animals.

Post-exposure anti-rabies care is effective, since in none of the cases of the sample human rabies was found and more than 90% of patients completed treatment, thus proving the efficiency of care in post-exposure prophylactic treatments.

The rapidity with which users seek care for rabies prevention is a good indicator of awareness of the risk of contracting this disease, a factor that decreases the risk of infection by the virus. Regarding adherence, more than 80% of the users treated with the vaccine returned on the date set for continuity of the vaccine scheme, showing that there was a good reception and guidance by the professional team; however, regarding the aggressive animals, one case was confirmed in laboratory as positive for rabies in 2014 in a livestock, which confirms the presence of the virus in the region, proving that rabies is a zoonosis of uniform distribution and is present in all social classes. One factor that favors the presence of the virus in urban areas is the man-made

environmental modifications, causing bats to migrate to urban areas.

Permanent and active surveillance should be maintained to detect any changes in the profile of the disease, since the rabies virus is notorious in the region, presenting a new challenge for the surveillance of this zoonosis, mainly in relation to the presence of bats and their insertion in the urban areas.

In spite of the small number of people who abandoned the treatment, there was no search for the user through home visits, which shows the difficulty of transportation in relation to the locomotion of the practitioner to the residence, since the Lago Sul region occupies an extensive territory.

Therefore, other similar studies should be done in other administrative regions of the Federal District to compare the results and evaluate the data, or even a study covering the entire Federal District for national parameters.

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