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ARTIGO ORIGINAL

EVALUATION OF HEALTH PROFESSIONALS IN HUMAN ANTIRRABIC CARE

AVALIAÇÃO DOS PROFISSIONAIS DE SAÚDE NO ATENDIMENTO ANTIRRÁBICO HUMANO

EVALUACIÓN DE LOS PROFESIONALES DE SALUD EN LA ATENCIÓN ANTIRRÁBICA HUMANA

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ABSTRACT

Objective: to evaluate the behavior of health professionals in human rabies control. ***Method:*** a descriptive, quantitative study with 2,789 cases of dog or cat aggression for post-exposure human rabies prophylaxis in the period from 2013 to 2015, reported in Sinan. The data was analyzed by the Stata 12.0 program and a logistic regression analysis was performed to assess the suitability of the conduct. ***Results:*** the bite represented a higher proportion of cases (85.6%). Dogs and cats accounted for 98.4% of the aggressor species. Of these, 81.8% were referred to as healthy. Of the treatments indicated, 68% were of the observation and vaccine type. It was found that 70.1% of the behaviors indicated were adequate. ***Conclusion:*** based on the evaluation of the health professionals' conduct in the human rabies control, it was verified that most of them were performed correctly and in accordance with ministerial norms. However, a considerable number of inadequate behaviors were observed reflecting the constant need to qualify professionals for the institution of anti-rabies prophylaxis. ***Descriptors***: Rabies; Post-Exposure Prophylaxis; Epidemiological Surveillance; Health Education; Public Policies; Health Personnel.

RESUMO

Objetivo: avaliar a conduta dos profissionais de saúde no atendimento antirrábico humano. ***Método:*** estudo quantitativo, descritivo, com 2.789 casos que sofreram agressão por cão ou gato para a profilaxia antirrábica humana pós-exposição, no período de 2013 a 2015, notificados no Sinan. Os dados foram analisados pelo programa *Stata* 12.0 e realizou-se análise de regressão logística para a avaliação da adequação da conduta. ***Resultados:*** a mordedura representou maior proporção dos casos (85,6%). Os cães e gatos representaram 98,4% das espécies agressoras. Desses, 81,8% foram referidos como sadios. Dos tratamentos indicados, 68% foram do tipo observação e vacina. Constatou-se que, das condutas indicadas, 70,1% foram adequadas. ***Conclusão:*** a partir da avaliação das condutas dos profissionais de saúde no atendimento antirrábico humano, pôde-se verificar que a maioria delas foi realizada da forma correta e de acordo com as normas ministeriais. No entanto, constatou-se um número considerável de condutas inadequadas refletindo a necessidade constante de qualificação dos profissionais para a instituição da profilaxia antirrábica. ***Descritores:*** Raiva; Profilaxia Pós-Exposição; Vigilância Epidemiológica; Educação em Saúde; Políticas Públicas; Pessoal de Saúde.

RESUMEN

Objetivo: evaluar la conducta de los profesionales de salud en la atención antirrábica humana. ***Método:*** estudio cuantitativo, descriptivo, con 2.789 casos que sufrieron agresión por perro o gato para la profilaxis antirrábica humana post-exposición, en el período de 2013 a 2015, notificados en el Sinan. Los datos fueron analizados por el programa Stata 12.0 y se realizó un análisis de regresión logística para evaluar la adecuación de la conducta. ***Resultados:*** la mordedura representó mayor proporción de los casos (85.6%). Los perros y gatos representaron el 98.4% de las especies agresoras. De los 81.8% fueron referidos como sanos. De los tratamientos indicados, el 68% fueron del tipo observación y vacuna. Se constató que, de las conductas indicadas, el 70.1% fueron adecuadas. ***Conclusión:*** a partir de la evaluación de la conducta de los profesionales de salud en la atención antirrábica humana se puede verificar que la mayoría de ellas fueron realizadas de la forma correcta y de acuerdo con las normas ministeriales. Sin embargo, se constató un número considerable de conductas inadecuadas, reflejando la necesidad constante de calificación de los profesionales para la institución de la profilaxis antirrábica. ***Descriptores***: Rabia; Profilaxis Post-Exposición; Vigilancia Epidemiológica; Educación en Salud; Políticas Públicas; Personal de Salud.

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INTRODUCTION

Rabies is an anthropozoonosis characterized by acute viral encephalitis and is an important public health problem due to the high lethality of the disease and the high cost for prophylaxis and treatment in cases of rabies virus exposure.[1]

It is a disease that presents itself endemically in Brazil and has four cycles: the urban, involving dogs and cats; the rural, involving animals of production; the wild, involving marmosets, foxes, among others, and the aerial, involving bats. The aerial cycle, represented by the chiroptera, is the main cycle responsible for the maintenance of the wild chain. [2] However, the dog, in some localities, where the control measures are not effective, is still considered of greater epidemiological relevance for the transmission of human rabies.[1]

In Brazil, in 1973, the National Rabies Control Program (NRCP) was created to eliminate human rabies transmitted by dogs and cats and control canine rabies. Among the main lines of action to control the disease are: vaccination of dogs and cats; prophylactic treatment of persons at risk of contracting the disease; epidemiological surveillance; laboratory diagnosis; control of the animal population and health education.[3]

In 2010, three cases of the disease occurred in the Northeast region: two cases in Ceará and one in Rio Grande do Norte; and two cases were recorded in the State of Maranhão in 2011. In the year 2015, two cases of human rabies transmitted by dogs and cats were reported in the States of Mato Grosso do Sul and Paraíba, respectively.[4] It is noteworthy that the last cases of human rabies in Brazil were recorded in 2016 and transmitted by a feline in Boa Vista - RR and by a bat in Iracema - CE.[5]

Although there is a specific protocol for the treatment of rabies in Brazil, called the Recife Protocol, which aims to reduce human rabies mortality, [6] prevention through anti-rabies prophylaxis should still be considered as the main measure of control of this illness.[2]

Thus, through the suspected contamination of the rabies virus, the lesion should be cleaned, as this behavior reduces the risk of infection. Next, a complete anamnesis should be performed aiming at the correct indication of anti-rabies prophylaxis and, when necessary, the use of the vaccine that may or may not be associated with serum.[1]

When considering the magnitude of human rabies, due to its high lethality and the high number of care for rabies prophylaxis, it is necessary to adopt strategies so that health professionals can adopt effective prophylactic measures according to the recommendations of the Ministry of Health.

Therefore, this study may demonstrate the importance and necessity of establishing appropriate anti-rabies prophylaxis in order to avoid cases of the disease and, consequently, death, as well as reducing the unnecessary expenditure of public resources.

OBJECTIVE

- To evaluate the behavior of health professionals in human rabies control.

METHOD

Quantitative study, using data from the Notification of Injury Information System (Sinan). The studied population comprised the cases that suffered cat and dog aggressions treated in the municipality of Petrolina, for post-exposure human anti-rabies prophylaxis, from January 2013 to December 2015. The research sample corresponded to 2,743 cases originating from the Datasheets of Prophylactic Human Antimicrobial Post-Exposure Care and reported to Sinan.

The human rabies prophylaxis service is decentralized to the Basic Health Units (BHU) and the Multiprofessional Specialized Care Units (MSC). These units are part of a project to restructure basic care, which is specific to the municipality of Petrolina[7] and, although it presents a differentiated nomenclature, it offers the programs, guidelines and proposals contained in the National Policy of Basic Care.

The variables selected for the study were categorized into sociodemographic, epidemiological antecedents, type of unit and conduct evaluation. Regarding the sociodemographic variables, the following were evaluated: age, sex, race / color, area of residence and schooling.

As for the epidemiological background, the following were evaluated: type of exposure; location of the lesion; wound characteristic; type of injury; treatment history; species of the aggressor animal; initial condition of the animal; animal for observation and treatment indicated.

With reference to the type of unit, MSC and non-MSC units were categorized. The evaluation of the adopted behavior was classified as adequate and inadequate based on the following variables: type of exposure; location of the lesion; wound characteristic; type of injury; initial condition of the animal; animal subject to observation and treatment indicated. The conduct was considered

adequate when the analysis of all variables was in accordance with the Technical Norms of the Ministry of Health and inadequate when it did not meet this criterion.

The dependent variable analyzed was treated as a dummy and was related to the evaluation of the conduct, being assigned one for the appropriate conduct and zero for the inappropriate conduct.

The data was analyzed by means of descriptive and analytical statistics according to the classification of the variable. Categorical variables were presented in absolute values, proportions and 95% confidence intervals assuming the binomial distribution. Measures of central tendency, dispersion (mean and standard deviation) and 95% confidence interval for the mean were calculated for the numerical variables.

The predictive factors of the adequacy of the conducts taken by the professionals were carried out through the binary logistic regression expressed by the econometric model logit with correction of robust errors to heteroscedasticity. The odds ratio model was used to determine the association between the dependent variable and the independent variables. The model was tested by means of crude and adjusted analysis.

The crude evaluation consisted of a bivariate analysis between the dependent variable and the predictors being included in the multivariate model those of which had p values of less than 0.20. Factors associated with the adequacy of the conduct were considered as variables whose model adjusted for p values was less than 0.05. A statistical analysis was performed using statistical software Stata 12.0 and for the construction of tables, Microsoft Office Excel 2013.

The project was approved by the Ethics and Research Committee of the University of Pernambuco under the number of CAAE: 57708016.9.0000.5207 and, because it was a research that used secondary data, there was no need to use the Free and Informed Consent Form.

RESULTS

The results are shown in Tables 1, 2 and 3, respectively.

Table 1. Distribution of human rabies cases according to socio-demographic characteristics reported in the city of Petrolina (PE), Brazil, 2013 to 2015.

Variables	N	%	IC95%*	
Age group				
0-09 years	714	26.0	24.4%	27.7%
10-19 years	505	18.4	17.0%	19.9%
20-39 years	656	24.0	22.3%	25.5%
40-59 years	556	20.3	18.8%	21.8%
60 or more	312	11.3	10.2%	12.6%
Sex				
Male	1.375	50.2	48.0%	51.7%
Female	1.367	49.8	48.3%	52.0%
Race/color				
White	585	21.5	20.0%	23.0%
Not white	2.136	78.5	77.0%	80.0%
Area of residence				
Urban	2.069	75.5	73.9%	77.1%
Rural	672	24.5	22.9%	26.1%
Education				
Illiterate	68	2.8	2.1%	3.4%
Elementary school	1.235	50.7	48.7%	52.6%
Highschool	540	22.1	20.5%	23.8%
Higher Education	147	6.0	5.1%	7.0%
Non applicable	448	18.4	16.8%	19.9%

Table 2. Distribution of human rabies cases according to epidemiological antecedents and conduct evaluation in the city of Petrolina (PE), Brazil, 2013 to 2015.

Variables	N	%		IC95%*
Type of exposure				
Indirect contact	17	0.6	0.3%	0.9%
Scratch	336	12.3	11.0%	13.5%
Licking	34	1.2	0.8%	1.7%
Bite	2.349	85.6	84.3%	86.9%
Other	7	0.3	0.1%	0.4%
Location of the lesion				
Mucose	18	0.7	0.4%	1.0%
Head / Neck	137	5	4.2%	5.8%
Hands / Feet	911	33.2	31.5%	35.0%
Trunk	115	4.2	3.4%	4.9%
Upper limbs	472	17.2	15.8%	18.6%
Lower limbs	1.088	39.7	37.9%	41.5%
Injury Characteristic				
Single	1.641	59.8	58.0%	61.7%
Multiple	1.101	40.2	38.3%	42.0%
Type of Injury				
Deep	1.682	61.6	59.8%	63.5%
Superficial	937	34.3	32.6%	36.1%
Dilacerating	110	4.1	3.3%	4.8%
Treatment history				
Pre-exposure	21	0.8	0.4%	1.1%
Post-exposure	111	4	3.3%	4.8%
Without precedent	2.611	95.2	94.4%	96.0%
Species of the aggressor animal				
Dog / cat	2.743	98.4	97.9%	98.8%
Other animals	46	1.6	1.2%	2.1%
Initial condition of the animal				
Health	2.244	81.8	80.4%	2.244
Suspect	125	4.6	3.8%	125
Dead / missing	373	13.6	12.3%	373
Observable animal				
Yes	2.264	95.6	94.7%	2.264
No	105	4.4	3.6%	105
Indicated treatment				
Pre-exposure	9	0.4	0.1%	0.5%
Waiver of treatment	37	1.4	0.9%	1.8%
Animal observation	330	12	10.8%	13.3%
Observation and vaccine	1.867	68	66.4%	69.9%
Vaccine	216	7.9	6.9%	8.9%
Serum and vaccine	280	10.2	9.1%	11.3%
Re-exposure scheme	2	0.1	0.0%	0.2%
Conduct evaluation				
Proper	1.924	70.1	68.4%	71.9%
Not suitable	819	29.9	28.1%	31.6%

Among the factors that were associated with the adequacy of the conduct, it was verified that MSC, wounds located in the mucosa, head, neck, hands and / or feet, tearing injury, single wound, scratching and / or bite, suspect and dead/missing animal increased the chances of an adequate conduct (Table 3).

The other variables presented in the model, such as age, schooling, white color, area of residence, sex, treatment history, and observable animal, did not present a significant relation with the increase or decrease in the chances of occurrence of the appropriate conduct (Table 3)

Table 3. Multivariate analysis of adequate ducts and their association with sociodemographic, epidemiological and unit type characteristics in the city of Petrolina (PE), Brazil. 2013 - 2015.

Variables	OR adjusted	p-value	IC95%	
Age group				
0 to 9 years	1.00			
10 to 19 years	0.89	0.371	0.64	1.17
20 to 39 years	1.92	0.055	0.56	1.00
40 to 59 years	1.88	0.060	0.56	1.01
60 years or more	0.26	0.795	0.65	1.37
Type of unit				
MSC	2.17	0.030	0.64	0.97
Non MSC	1.00			
Lesion location				
Mucose, head, hands and/or feet	12.96	0.000	4.10	6.78
Upper and Lower Limbs and/or body	1.00			
Tipe of wound				
Deep	1.00			
Superficial	1.87	0.062	0.64	1.01
Dilacerating	2.55	0.011	1.23	5.09
Injury Characteristic				
Unique	13.48	0.000	4.51	7.53
Multiple	1.00			
Type of exposure				
Scratch	7.55	0.000	3.42	19.55
Bite	7.09	0.000	3.34	16.97
Initial condition of the animal				
Health	1.00			
Suspicious	5.11	0.000	0.11	0.37
Dead/missing	2.94	0.003	0.06	0.57
Observable animal				
Yes	0.18	0.859	0.45	1.93
No	1.00			

OR - Odds Ratio

DISCUSSION

The study found that the most prevalent age group was from zero to nine years, corroborating another study.[8] However, it differs from the result of another research that found adults as the most exposed to aggression.[9]

The fact that accidents occur more often in children may be related to the characteristics of this phase of growth, such as intense curiosity and little notion of danger, favoring accidents with animals.[8]

The male gender was the most affected as described by another study.[8] Regarding race / color, the non-white was the most predominant disagreeing with another study, which had the white race as the most prevalent.[9]

Most of the aggressions occurred in the urban area, similar to another study.[9] It is believed that the highest occurrence of attacks in this area of residence is due to the aggressions caused by dogs and cats.

This study showed that people with elementary education were the most affected according to another report.[9] Schooling is described in the literature as an indicator of socioeconomic level. Some authors report that the socioeconomic level can influence the occurrence of aggressions by animals considering that, in economically less favored areas, there is greater promiscuity of the human in relation to the animal, as well as the lower is the health care adopted.[8]

The most common type of exposure was the bite corroborating the findings of other studies.[8,9] It is believed that the greater prevalence of biting is due to the fact that people mistakenly believe that this type of exposure is more serious, offering greater risk of rabies virus infection when compared to other types of exposure such as scratching and licking.[10]

The research revealed that the lower limbs were the most affected, similar to the studies carried out in Primavera do Leste / MT and in the State of Paraná.[9,11] However, it disagrees with another survey that had hands / feet as the most affected places.[10] It is believed that the highest occurrence of injuries in this region of the body is related to the positioning of the victim for their own defense at the time of the aggression.

The greater prevalence of single injuries ratifies the results presented by other authors,[9,11-5], however, differs from the survey carried out in the rural area of Pernambuco.[10]

Regarding the type of wound, a greater frequency of deep injury was observed

confirming the results described in other studies.[10-5] However, it diverges from the results of another study.10 The greater predominance of the deep wounds mentioned in the research can be justified by the fact of individuals seeking health services in cases of more serious accidents.

The result observed for a previous treatment was similar to that found by other authors.[12] Most of the aggressions were caused by canine and feline animals, equivalent to the findings of another study.[8] It is believed that this fact is related to the greater contact of the man with these animals, be they domiciled or wandering.

This study showed that most of the animals were healthy at the time of the aggression, resembling those reported by other authors.[9] Regarding the observation, the majority were observable, in agreement with the results presented by other studies.[8,13]

The treatments most frequently indicated by health professionals were observation and the vaccine, approaching the outcome described by another study.[9] It is believed that this treatment was the most indicated because most of the injuries were deep, the animal being observable and having been referred to as healthy at the time of the aggression.

Regarding the evaluation of prophylactic behaviors, it was found that the majority was classified as adequate, corroborating with findings from other studies.[8,9,11]

After careful analysis of the characteristics and location of the wound, the clinical condition of the animal at the time of the aggression and the possibility of observation of the aggressor animal, the correct institution of anti-rabies prophylaxis could be reached. However, the clinical condition and the observation of the animal are parameters only for aggressions involving dogs and cats, since the evolution and pathogenesis of the disease are only well known in these species.[1]

It is important that health professionals act similarly to ministerial protocols in order to reduce operational and care deficits to the individual who may have been exposed to the rabies virus.

Regarding the association between type of unit and adequacy of the conduct, it was observed that the MSC presented a greater chance of adequacy of the conduct. This fact may be related to the greater number of visits that occur in these units, increasing, consequently, the number of human rabies consultations and the domain professionals may have for the indication of prophylactic conduct, also, these units have a more adequate and consistent structure with the parameters established by the Ministry of Health.

Wounds located on the mucosa, head / neck and hands / feet were considered as protective factors for the adequacy of the conduct, contrary to that found in another study, which revealed that injuries to the head / neck and hands / feet presented a greater risk for the inadequate conduct, while mucosal injuries were not significant for the adequacy of the conduct.[9]

The type of lacerating wound increased the chances of adequacy of the conduct, similar to another research that aimed to evaluate the adequacy of prophylactic behavior in the first post-exposure rabies treatment.[9]

Single injuries increased the chances of an adequate conduct diverging from the study conducted in the State of Paraná, which showed that this injury did not present any significance for the adequacy of the conduct.9 These injuries are considered to increase the chances of an adequate conduct due to the majority of accidents have been profound which possibly leads to greater attention on the part of professionals when choosing the appropriate treatment.

The bite and the scratch presented greater chances of adequacy of the conduct. A study showed that bite and indirect contact increased the chances of improper conduct, while scratching increased the chances of suitability of the conduct. [9]

The suspect and dead or missing animal increased the chances of an adequate behavior, disagreeing with a study carried out in the State of Paraná.9

The failures related to filling the fields of some variables contained in the records of human rabies are a problem for the research. Some records contained ignored and / or blank data on variables such as the type and location of the injury, condition of the animal, among others, making it difficult to evaluate the epidemiological characteristics and the adopted behavior.

CONCLUSION

Based on the evaluation of the behavior of health professionals in human rabies, it was verified that most of them were performed correctly and in accordance with ministerial norms. However, a considerable number of inadequate behaviors were observed reflecting the constant need to qualify

professionals for the institution of anti-rabies prophylaxis.

Thus, it is the responsibility of health agencies to invest in activities that guide and qualify professionals for appropriate antirabaric care.

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