35 - INCIDENCE OF NEGLECTED DISEASES IN A CITY OF AN INTERNATIONAL TRIPLE FRONTIER

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INTRODUCTION

Neglected diseases are caused by parasitic and infectious agents that inflict serious physical, cognitive and socioeconomic damage (BRASIL, 2010; MATHERS et al, 2012.). The geographical distribution and installation of these diseases occur mainly in poverty-related sites, where precarious sanitation is associated with other health problems. In addition, the spread and the increasing number of cases of neglected diseases hapen in border areas (PADMASIRI et al, 2006; GIOVANELLA et al, 2007; STREIT; LAFONTANT, 2008).

The World Health Organization considers public health issue a set of 17 different neglected diseases, nine of which are present in Brazil. Of these diseases, tuberculosis, dengue, Chagas disease, leishmaniasis, leprosy, malaria and schistosomiasis make up the seven priorities of the action program for neglected diseases (BRASIL, 2010).

In this context, tuberculosis is currently a disease considered an issue for public health care in the world and in most countries of South America. Many measures to control this disease have proved ineffective due to the low uptake of patients and the sub-reported cases (GIOVANELLA et al., 2007, WHO, 2010). According to Peiter (2005) the southern Brazilian border region has the highest prevalence and increasing incidence rates of tuberculosis.

Another disease that is as concern among health agents is dengue. According to some researchers several factors have contributed to the spread of dengue, such as climate change, changes in landscapes and ecosystems, establishment of new patterns and ways of life of the population, poor public health services, some of which are characteristic of border areas (MENDONÇA; SOUZA; DUTRA, 2009).

The Ministry of Health, through the National Dengue Control Program, has established some priority areas with the presence of dengue transmission, and these regions include municipalities that receive new dengue serotypes such as municipalities in the borders, ports, centers of tourism, among other cities (BRASIL, 2002). In this regard, some components have been established for the control and prevention of new cases: epidemic surveillance, surveillance in border areas, fight against vectors, patient care, and integration with Primary Health Care, among others actions (BRASIL, 2002; FERREIRA et al., 2009

In this group, there are also leprosy and malaria. About leprosy, Brazil accounts for almost 93% of cases in the Americas, being the second in the number of reported cases in the world. These data emphasize the need for regional and local studies on this disease (LONGO; CUNHA, 2006; WHO, 2010).

Malaria is mosquito-borne disease caused by the Yearpheles, and despite having been controlled in some countries in the late seventies, is again a concern and a health issue in Brazil, which means Brazil is responsible for 55% cases of the disease reported in the Americas (WHO, 2010; BRAZ; DUARTE; TAUIL, 2013;).

Therefore, the aim of this study was to describe the incidence of four endemic diseases considered neglected - (tuberculosis, dengue, leprosy and malaria) in the city of Foz do Iguaçu, in 2006. Thus, this study represents an important tool to equip the development of strategies to effectively control diseases and improve the quality of life of the patients based on the profile of the cases incidence.

METHOD

This is a quantitative descriptive cross-sectional study. The population consisted of all confirmed cases of tuberculosis, dengue, leprosy and malaria, in 2006, in the city of Foz do Iguaçu, Paraná, located in the far western state of Paraná, bordering Paraguay and Argentina. (BRASIL, 2013).

It was carried out a search for information in the Notified Diseases Information System (SINAN) database of the Municipal Health Secretariat of Foz do Iguaçu, PR (SMSFI). The variables analyzed were: number of new cases, gender and age. Data were analyzed in (Statistica Software - StatSoft) and presented in tables, in absolute and percentage frequency.

This study was approved by the Ethics Committee on Human Research of the State University of the Western Paraná, upon the opinion 117/2007.

RESULTS AND DISCUSSION

The research population consisted of 517 new incident cases in 2006, which represent the sum of 139 cases of tuberculosis, 223 dengue, 120 leprosy and 35 malaria.

Regarding tuberculosis attack, in its pulmonary form, according to gender, it is observed that male was attacked more often. It was also found that the disease has reached more young people aged 20-39 years in full working life (Table 1).

Table 1 - Distribution of reported pulmonary tuberculosis cases, according to gender and age, Foz do Iguaçu - PR, 2006

	No.	%
Gender		
Male	81	58.2
Female	58	41.8
Total	**139**	**100**
Age group		
<1 year	0	0
1 to 9 years	1	0.7
10 to 19 years	10	7.2
20 to 39 years	85	61.2
40 to 59 years	34	24.4
60 years or older	9	6.5
Total	**139**	**100**

Source: SINAN – SMSFI 2006

The occurrence pattern of tuberculosis cases was similar to that found in a survey on the topic in the city of Teresina

(SANTOS et al., 2012). The predominance of patients in the age group of young and economically active adults shows the endemic nature of this disease, and also the global damage to the quality of life of those infected - physically, psychologically and mainly economically speaking (MENDES et al., 2007 , LEMOS, 2012; NEVES, 2012).

In Paraná, between the years 2001 and 2007, the incidence rate of tuberculosis in the group of the tri-border municipalities was 26.4 per 100000 inhabitants, among which Foz do Iguaçu had the highest incidence rates. This is justified due to the influx of people in border cities, local economic activities and the tourism that has established an intense population growth, favoring the spread of the disease in the border region between the three countries (BRAGA, HERRERO; CUELLAR, 2011).

The incidence of dengue was represented by 223 cases, with no significant difference between genders. The most affected individuals aged 20-49 years (Table 2).

Table 2 - Distribution of confirmed dengue cases according to age group and gender, Foz do Iguaçu - PR, 2006,

	N	%
Gender		
Male	110	49.3
Female	113	50.7
Total	**223**	**100**
Age group		
< 1 year	01	0.5
1-9 years	07	3.1
10-19 years	43	19.3
20-49 years	124	55.6
50 >	48	21.5
Total	**223**	**100**

Source: SINAN – SMSFI 2006

A study on the incidence of dengue in the urban area of Uberlândia corroborates this study, which indicate a slight predominance of cases among females, but not statistically significant, suggesting that men and women have similar levels of exposure and susceptibility to the disease (SANTOS; MARÇAL JÚNIOR; VICTORIANO, 2002).

A survey on the spatial distribution of dengue in a municipality of the state of Minas Gerais in 2006 shows higher prevalence of cases among females. As for the age group, figures were higher among adults aged 20-59 years, similar to the data found in this research (PEDROSO; MOURA, 2012).

It is noteworthy that among the four diseases that comprise this study, dengue had the highest incidence in 2006. In that context, TEIXEIRA et al, (2013) conducted an analysis of dengue incidence trends in Brazil between 2000 and 2010. Results showed substantial variations and overall increase in the disease incidence. In this sense, the author states that the lowest incidence occurred in 2004 with (63.2 / 100000 inhabitants) and the apex in 2010 with (538/100 thousand inhabitants). He also advocates that these data indicate a worsening of the problem along the years. According to SINAN in the city of Foz do Iguaçu, in 2006, there were 120 leprosy cases reported. Table 3 reveals that the predominance was among females, with 54.2% and the most affected age group was 20 to 59 years.

Table 3 - Distribution of the leprosy cases reported, according to gender and age group, Foz do Iguaçu - PR, 2006

	N	%
Gender		
Male	55	45.8
Female	65	54.2
Total	**120**	**100**
Age group		
< 1 year	**-**	**-**
1- 4 years	**-**	**-**
5-14years	4	3.3
15-19 years	2	1.7
20-59 years	93	77.5
60 >	21	17.5
Total	**120**	**100**

Source: SINAN – SMSFI 2006.

In Longo and Cunha (2006) research on the clinical and epidemiological profile of leprosy cases, there was predominance of males, unlike the data found in this study. In another study, however there were found data similar to this research, in which the majority of incident cases were female (LANA et al., 2003).

Regarding age group, in Longo and Cunha (2006) research, the highest incidence was also found among economically active 20-59 year old adults (75%), as well as the data found in this research. A reason for the higher incidence of this age group is justified by the classification of leprosy as slow evolution and long incubation period (SILVA- SOBRINHO, 2010).

The same author, in his research on leprosy in the state of Paraná indicated that the city of Foz do Iguaçu is among the areas with the highest case incidence. The incidence shows variations from 2.43 to 4.68 cases per 10000 people between 2000 and 2005. The concern now is the existence of large number of undiagnosed cases in this area, and this situation requires more time and effort to achieve the leprosy elimination goal (SILVA- SOBRINHO; MATHIAS, 2008).

The incidence of malaria was significantly prevalent among men during the study period. It was found that the disease affected mainly individuals of the working age group (Table 4).

Table 4 - Distribution of the malaria cases confirmed according to age group and gender, Foz do Iguaçu - PR, 2006

	Nº	%
Gender		
Male	27	77.1
Female	8	22.9
Total	**35**	**100**
Age group		
1 to 4 years	1	2.9
5 to 9 years	0	0
10 to 14 years	1	2.9
15 to 19 years	2	5.7
20 to 34 years	12	34.3
35 to 49 years	10	28.5
50 to 64 years	7	20.0
65 to 79 years	2	5.7
Total	**35**	**100**

Source: SINAN – SMSFI 2006

Of the four investigated diseases, malaria had the lowest incidence rate in the city of Foz do Iguaçu in 2006. The highest number of cases was among the male population, predominantly in the 20-49 years age group. It is suggested that these results may be linked to the occupation of individuals, especially local riparians, fishermen and farmers.

In this sense, Marques and colleagues (2008) research confirmed the findings of this study by relating the epidemiological aspects of malaria, where the highest incidence of cases was also found among the male population (77%) aged between 20 and 49 years (68.6%). However, most cases of the disease in the state is imported, although Foz do Iguaçu is among the cities with the highest number of indigenous cases in Paraná - area of influence of the Itaipu reservoir (BÉRTOLI and MOTINHO, 2001).

FINAL REMARKS

In the border regions there are several factors that contribute to the incidence of these diseases. It is considered that in Foz do Iguaçu the heavy traffic of people from various places in the country and around the world causes the transmission and importation of neglected diseases, such as tuberculosis, dengue, malaria and leprosy. The spread and increased of incidence of these diseases, primarily dengue and malaria, are related to fishing, work in plowing, lack of protection and careless of the environment, housing near lakes and behavior that lead to contact with the mosquitoes that transmit these diseases.

The increased knowledge of the epidemiology of these endemic diseases in Foz do Iguaçu - PR enables the discussion of their individual characteristics in order to designate more information and actual indicators that may raise awareness among health care managers about the relevance of neglected diseases as a public health issue in the region, and encourage public actions to promote quality of life and health for the population, but also to prevent new cases from happening.

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INCIDENCE OF NEGLECTED DISEASES IN A CITY OF TRIPLE FRONTIER INTERNATIONAL

ABSTRACT

Introduction: Diseases cause important physical, cognitive and socioeconomic damage. It is spread by steady population mobility in border regions. Objective: To describe the case incidence of the four endemic diseases considered neglected - tuberculosis, dengue, leprosy and malaria - in the city of Foz do Iguaçu in 2006. Method: This is a descriptive quantitative study. The data search was performed in the Information System for Notifiable Diseases. The variables used in this study were: number of new cases, sex and age group, in 2006. Results: The incidence of reported cases in males was higher for tuberculosis (58.2%) and malaria (77.1%), with no gender difference in the incidence of dengue cases and the presence of more females in the incidence of leprosy cases (54.2%). The age group that was most affected by the diseases in this study generally focused on the 20-59 years population. Conclusion: The location, the intense flow of people in the study region, among other factors, facilitates the occurrence of neglected diseases. Thus, knowledge about the epidemiology of these diseases is necessary to implement strategies to prevent diseases and improve quality of life.

KEYWORDS: Neglected Diseases; incidence; Border areas.

L'INCIDENCE DE MALADIES NEGLIGÉES DANS UNE VILLE DE TROIS FRONTIÈRES INTERNATIONALES

RÉSUMÉ

Introduction : les maladies produisent d'importants troubles physiques, cognitifs et socio-économiques, et sa propagation est favorisée par la mobilité constante de la population dans les régions frontalières. Objectif : décrire l'incidence de quatre maladies endémiques considérées négligées (la tuberculose, la dengue, la lèpre et le paludisme) dans la ville de Foz do Iguaçu en 2006. Méthode : il s'agit d'une étude descriptive et quantitative avec recherche d'information auprès de la base de données appélée Système de Rensegneiment sur la Notification de Maladies [Sistema de Informação de Agravos de Notificação]. Les variables analysées dans cet étude ont été les suivantes : nombre de nouveaux cas ; sexe et groupe d'âge dans l'année de 2006. Résultats : l'incidence de cas notifiés chez les hommes était plus élevée pour la tuberculose (58,2 %) et le paludisme (77,1 %). Par contre, les femmes ont démontré plus d'incidence pour les cas de lèpre (54,2 %). Il n'y a pas eu de différence entre les sexes en ce qui concerne l'incidence de la dengue. Le groupe d'âge le plus atteint par les maladies dans cette étude a été la population entre 20 et 59 ans. Conclusion : la localisation et la lourde circulation de personnes dans la région de l'étude, parmi d'autres facteurs, facilite la manifestation des maladies négligées. Par conséquent, il faut connaître le profil épidémiologique de ces maladies pour la mise en œuvre des stratégies de prévention des maladies et pour l'amélioration de la qualité de vie de la population.

MOTS-CLES : maladies négligées ; incidence ; zones frontalières.

INCIDENCIA DE ENFERMEDADES OLVIDADAS EN UN MUNICIPIO DE LAS TRES FRONTERAS INTERNACIONAL

RESUMEN

Introducción: las enfermedades producen un importante daño físico, cognitivo y socioeconómico. Su diseminación es favorecida por el tránsito constante de la población en regiones de fronteras. Objetivo: describir la incidencia de casos de cuatro enfermedades endémicas, consideradas como olvidadas (tuberculosis, dengue, lepra y malaria) en el municipio de Foz do Iguaçu, durante el año 2006. Método: se trata de un estudio descriptivo cuantitativo. Se realizó la búsqueda de informaciones en el banco de datos Sistema de Información de Daños de Notificación. Las variables empleadas en este estudio fueron: número de nuevos casos; sexo y edad durante el año 2006. Resultados: la incidencia de casos notificados del sexo masculino fue mayor para las enfermedades de tuberculosis (58,2%) y malaria (77,1%), sin diferencia entre sexos en la incidencia de los casos de dengue y, el sexo femenino sobresalió en la incidencia de los casos de lepra (54,2%). La faja de edad que más sufrió con las enfermedades presentadas en este estudio incidió entre la población de 20 a 59 años. Conclusión: La localización, el flujo intenso de personas en la región del estudio, entre otros factores, propicia la ocurrencia de enfermedades que son por ellas descuidadas. Así, es necesario el conocimiento sobre el perfil epidemiológico de tales enfermedades para implementación de estrategias de prevención de la enfermedad y mejorías en la calidad de vida de la población.

PALABRAS-LLAVE: Enfermedades Olvidadas; Incidencia; Áreas de Frontera.

INCIDÊNCIA DE DOENÇAS NEGLIGENCIADAS EM UM MUNICÍPIO DE TRÍPLICE FRONTEIRA INTERNACIONAL

RESUMO

Introdução: As doenças produzem importante dano físico, cognitivo e socioeconômico, sua disseminação é favorecida pela mobilidade populacional constante em regiões fronteiriças. Objetivo: descrever a incidência de casos de quatro doenças endêmicas, consideradas negligenciadas (tuberculose, dengue, hanseníase e malária) no município de Foz do Iguaçu no ano de 2006. Método: trata-se de um estudo descritivo quantitativo. Realizou-se a busca de informações no banco de dados Sistema de Informação de Agravos de Notificação. As variáveis utilizadas neste estudo foram: número de casos novos; sexo e faixa etária no ano de 2006. Resultados: a incidência de casos notificados no sexo masculino foi maior para as doenças, tuberculose (58,2%) e malária (77,1%), sem diferença entre sexos na incidência dos casos de dengue e, o sexo feminino se sobressaiu na incidência dos casos de hanseníase (54,2%). A faixa etária mais acometida pelas doenças neste estudo incidiu-se entre a população de 20 a 59 anos. Conclusão: A localização, o fluxo intenso de pessoas na região do estudo, entre outros fatores, propicia a ocorrência de doenças negligenciadas. Assim, é necessário o conhecimento sobre o perfil epidemiológico dessas doenças para implementação de estratégias de prevenção da doença e melhoria na qualidade de vida da população.

PALAVRAS-CHAVE: Doenças Negligenciadas; Incidência; Áreas fronteiriças.