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Detection of respiratory symptoms in the public health network of Belém, Pará State, Brazil

Detecção de sintomáticos respiratórios em serviços de saúde da rede pública de Belém, Pará, Brasil

Detección de síntomas respiratorios en servicios de salud de la red pública de Belém (Estado de Pará, Brasil)

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ABSTRACT

Tuberculosis is considered a serious public health problem, and the identification of its respiratory symptoms is of extreme importance to facilitate a precocious diagnosis of the disease. This study aimed to discover the number of respiratory symptomatic patients identified among the people that sought treatment in the local public health network, as well as the number of individuals not identified as symptomatic by its health care providers. Twenty-one health care units in Belém, Pará State, Brazil, were involved in this study, and 1,008 individuals were surveyed. Selection and analysis of the data collected was carried out using Epi-Info Version 6.0B software. The prevalence rate of respiratory symptomatic patients was 10.03%; their identification was not carried out in 72% of the cases. Of the identified ones, 33% were directed for sputum examination. There was no statistically significant difference ($p = 0.07$) in the association between the question of cough and its duration. This identification through the search for patients with chronic cough should be a procedure incorporated in the Health Units' daily routine, in order to facilitate an early diagnosis and the immediate treatment of bacilliferous cases, as a form of breaking the transmission chain of the disease.

Keywords: Tuberculosis; Prevalence; Signs and Symptoms Respiratory.

INTRODUCTION

Tuberculosis is still an important public health problem in Brazil and other regions of the world. According to data from the Sistema de Informação de Agravos de Notificação – SINAN (Information System for Notifiable Diseases) of Brazil's Ministry of Health - MS, 80,515 new cases of this disease were reported in 2004[7]. The international goals set by the World Health Organization (WHO) and agreed upon by the Brazilian government are to identify 70% of the total estimated cases of tuberculosis and to cure 85% of these[5]. Among the different Brazilian regions, the North presents an average of 6,000 new cases per year. Pará is one of the states that present the highest incidence rates, with an average of 3,000 new cases per year, approximately 45% of which are from Belém, the state capital, which reports an average of 1,300 new cases per year[11].

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Cough is the main symptom of pulmonary tuberculosis. Thus, individuals with chronic cough are suspected tuberculosis carriers. In Brazil, the following concept has been adopted as the definition for respiratory symptomatic subjects (RSSs): any individual that presents with a productive cough lasting three or more weeks[3]. For several decades, international organizations have recommended the active search for RSSs as a strategy for the early diagnosis of tuberculosis[10]. The ideal locations to organize the search for such cases are health services, where the detection of cases among RSSs should be a permanent effort, incorporated in the daily activity routine of health care professionals[10].

Bacteriological analysis is the main method for diagnosis of tuberculosis, permitting the identification of the main source for transmission, namely patients with sputum smears positive for acid-fast bacilli[2]. In the medical literature, only a few studies have focused on the identification of RSSs. In Caracas, Venezuela, Armengol and colleagues interviewed 53,314 people, and identified 2,378 (4.46%) RSSs, of which 75 (3.2%) were sick[1]. In Colombia, Zuluaga and colleagues selected 3,731 subjects 15 years of age or older who were interviewed in their homes, resulting in an estimated prevalence of 2.68 infected individuals per 1000 inhabitants[13]. In Mexico, Marin and colleagues interviewed 6,748 people. They identified 245 (3.6%) symptomatic and 17 (6.9%) sick patients[12].

In Brazil, the currently available information about the detection of RSSs in health services is insufficient. Thus, several different methods are used to estimate the number of RSSs, such as calculating 1% of the population covered by the municipal or state health service, or calculating 5% of the total number of people, aged 15 or older, attending their first appointment at a health service[5]. For the effective surveillance of tuberculosis, we consider that it is essential to implement early diagnosis of cases through active detection of RSSs.

The goals of this study were to determine the number of RSSs identified among individuals who attend health services and to determine the number of patients not identified as an RSS by these services.

MATERIALS AND METHODS

This is a study that describes the prevalence of RSSs among individuals over 15 years old who attend the public health services of the Municipality of Belém in Pará.

This study assessed data from patients in 21 Unidades Básicas de Saúde - UBS (Basic Health Units) located in the Municipality of Belém. Units of the Family Health Strategy Service were excluded because they adopt a domiciliary-based approach for identification of RSSs, i.e., there is no spontaneous demand for the UESF services. To determine the number of people to be interviewed at each UBS, *cluster* sampling was considered the most appropriate methodology[6]. In order to use this technique, the number of appointments in each health service was considered. A cumulative population list was compiled based on the list of all the health services in the municipality, yielding the number of appointments per day/year. Because the minimum recommended number of *clusters* is 30, in order to obtain the sampling interval the total number of appointments each day was divided by 30, and a random number was selected between 1 and the sampling interval. This random number determined the first UBS in the cumulative list to be selected. To select the other units from the list, the sampling interval was added to the random number. To determine the number of people per *cluster*, the total sample size was divided by 30. Thus, we worked with values varying between 34 and 122 people per unit, resulting in a total number of 1,008 interviewees. This calculation, based on the number of UBS existing in the municipality and the number of appointments held in each one of them, defined the sample.

For data collection, all the subjects answered a questionnaire that included the following aspects: the presence or absence of productive cough with sputum; the duration of cough; whether these issues were observed by the health unit – if positive, whether the patient was referred to sputum bacilloscopy; and, finally, the reason why the patient sought the UBS. The data collection was performed by 42 nursing and medical undergraduate students, distributed in groups of 2 in each UBS and identified as researcher 1 and researcher 2. They worked under the supervision of a graduate professional with knowledge of the research protocol. The researchers were previously trained by the responsible researchers, in a single session, to minimize the risks of bias in the study. Questionnaires were administered by researcher 1. Researcher 2 was responsible for the registration of the RSSs sent for sputum collection in the Livro de Sintomáticos Respiratórios (Book of Respiratory Symptomatic Subjects), which was standardized by Brazil's Ministry of Health. Researchers alternated between these two functions during data collection. In health units without a laboratory, collected material was sent to reference laboratories under the appropriate biosafety and sample preservation conditions, according to the protocol previously established in the UBS. Data collection was performed simultaneously in all 21 health units on September 4, 2006. The procedure started upon initiation of regular activity at the health unit and ended when the scheduled number of interviews for each unit was reached. This procedure was chosen because we considered that working each unit on different days could interfere with the results and that working on a single day would be more viable logistically.

The identified RSSs were analyzed through two bacteriologic sputum examination exams. The first sample was collected at the time of identification, whereas the second was extracted on the following morning. In all cases, regardless of the smear result, a protocol for treatment or follow-up of the case was applied, as set by the norms in the Programa de Controle da Tuberculose (Brazilian Program for Tuberculosis Control) [4].

The construction and analysis of the database were performed using the program Epi-Info Version 6.04 B. In the analysis, the following variables were considered: age, gender, the number of persons questioned about the presence or absence of productive cough with sputum, cough duration, the number of persons questioned about productive cough in the health unit, the number of RSSs identified and sent for sputum collection and the number of people questioned about the reason for seeking the health unit.

The research protocol was submitted to the Ethics Committee of the Universidade do Estado de Pará, in Belém, Pará, and was approved April 27, 2006. Formal permission was requested from the health authorities of the Municipality of Belém and was granted under protocol number 18/2006.

RESULTS

A total of 1,008 people attending one of the 21 health units were interviewed. Medical appointments were the predominant motive for seeking the health unit, totaling 48% (484) of the interviewees. In terms of gender, 75.1% (757) were females, and there was no statistically significant difference between the genders (p=0.3443). Among the interviewees, 20% (202) answered affirmatively when questioned about coughing. The mean age was 47 years (17 to 84 years). The age groups that presented a statistical significance for the association with patients that presented cough ranged from 21 to 31 years and over 65 years (Table 1).

Table 1 – Distribution of interviewees according to the occurrence of cough, gender, age and reason to seek a basic health unit (UBS) in Belém, Pará, 2006

Variables		With cough	Without cough	Odds radio	IC 95%	p
Gender						
	Female	146	611	0,8321	0,5877 - 1,1781	0.3443
	Male	56	195			
Group Age						
	10-20	21	66	12,696	0,7588 - 2,1242	0.4401
	21-31	38	254	0,5969	0,4106 - 0,8678	0.0083
	32-42	31	174	0,7109	0,4708 - 1,0734	0.1255
	43-53	43	133	12,900	0,8850 - 1,8804	0.2201
	54-64	32	101	12,642	0,8253 - 1,9365	0.3345
	>65	37	78	18,927	1,2429 - 2,8823	0.0038
Reason to go to the UBS						
	Dental Appointment	6	23	0,5321	0,2133 - 1,3273	
	Medical Appointment	113	371	0,6212	0,4744 - 0,8135	
	Other	83	412	0,4109	0,3075 - 0,5490	

Source: Field research.

In 51.4% of the people who presented with a productive cough (104 people), the duration of coughing was three weeks or more, complying with the adopted definition for an RSS. Among those identified by the researchers as having cough, only 28.2% (57 interviewees) were questioned about coughing in the health unit and, of these, only 33.3% (19 interviewees) were sent for sputum collection (Table 2). Regarding the RSSs identified by the UBS, 16 interviewees (45.7%) were sent for sputum collection.

Table 2 – Distribution of interviewees with cough according to the following variables: duration of cough, questioning about coughing at the unit and referral to sputum examination, Belém, Pará, 2006

Variables	Number of cases	(%)	IC 95%
Duration of Cough	Cases	%	
1 week	60	30	23,4 – 36
2 weeks	38	19	13,4 – 24,2
3 weeks	104	51	44,6 – 58,4
	Cases		
Questioned at the unit	145	%	
No	57	72	65,6 – 78
Yes		28	22,0 – 34,4
	Cases		
Sent for sputum smear		%	
No	38	67	13,4 – 24,2
Yes	19	33	5,4 – 13,4

Source: Field research.

We did not find a statistically significant difference (p=0.07) for the association between questioning about cough by the professionals from the studied health units and cough duration (Table 3).

Table 3 – The distribution of individuals diagnosed with cough concerning the duration and evaluation in the basic health unit, Belém, Pará, 2006

Weeks	NO	%	YES	%	Total
< Weeks	27	52	22	39	98
3 Weeks	69	48	35	61	104
Total	145	100	57	100	202

Source: Field research.

DISCUSSION

In this study, we found a prevalence rate of 10.3% (104/1008) of RSSs in the study sample. We verified that the identification of RSSs does not seem to be a priority because, in 72% of the cases, such identification was not made at the UBS. This demonstrates that the identification of RSSs seeking care at these services is poor, which does not favor the early identification of cases. It is worth emphasizing that, while early diagnosis is a priority, many cases of tuberculosis are believed not to be diagnosed, either due to difficulties in access to the services or to lack of attention by health care professionals in the detection of RSSs[8]. As to the latter possibility, we should consider that because coughing is not characterized as an acute clinical condition demanding immediate intervention, it is not always adequately valued by the medical staff, which causes the patient to seek other services or to return only when the condition worsens[8]. Despite being seemingly simple, the identification of RSSs for tuberculosis control is, in fact, a complex procedure, which requires knowledge beyond specialized technical skills. Furthermore, ongoing reinforcement and monitoring is necessary, such that this will be a routine fully developed into the services and incorporated by health care professionals, rather than a one-time action[9]. Especially in the case of tuberculosis, the

lack of RSS identification may result in a delayed disease diagnosis, with implications that affect not only the sick individual, but also for his or her surrounding community.

We showed that although RSS identification by these services has not been trustworthy, an enhancement in the procedure can be noticed when a referral of a patient to sputum smear is analyzed. This improvement demonstrates that health care providers intervene adequately when an RSS is identified.

CONCLUSION

The results of this study reinforce the importance of the high rate of diagnostic suspicion of tuberculosis when an individual presenting with cough is observed in a health unit, regardless of the primary reason for that visit. We hope that our research can contribute to a greater appreciation of issues concerning the identification of RSSs. Nevertheless, we emphasize that this issue certainly deserves alternate approaches that may result in explanations that cannot be scaled only by statistical data.

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Detecção de sintomáticos respiratórios em serviços de saúde da rede pública de Belém, Pará, Brasil

RESUMO

A tuberculose é considerada um grave problema de saúde pública, e a identificação dos sintomáticos respiratórios, uma ação primordial para facilitar o diagnóstico precoce dos casos. Os objetivos deste estudo foram: conhecer o número de sintomáticos respiratórios identificados entre as pessoas que procuram o atendimento nos serviços de saúde; e conhecer o número de pessoas não identificadas pelos serviços como tal. Participaram do estudo 21 unidades básicas de saúde em Belém, Pará. Na construção e análise dos dados foi usado o programa Epi-Info Versão 6.0B. Foram entrevistadas 1.008 pessoas usuárias das unidades. Constatou-se que a prevalência de sintomáticos respiratórios entre os entrevistados foi de 10,03%. A identificação dos mesmos nas unidades não foi feita em 72% dos casos, sendo que, dos identificados como tal, 33% foram encaminhados para exame de escarro. Não houve diferença estatisticamente significativa (p = 0,07) para a associação entre a pergunta sobre tosse e a duração da tosse, nas unidades pesquisadas. Essa identificação, mediante a busca de tossidores, deve ser uma atividade incorporada na rotina das unidades, para facilitar o diagnóstico precoce e pronto atendimento dos casos bacilíferos, como forma de quebrar a cadeia de transmissão da doença.

Palavras-chave: Tuberculose; Prevalência; Sinais e Sintomas Respiratórios.

Detección de síntomas respiratorios en servicios de salud de la red pública de Belém (Estado de Pará, Brasil)

RESUMEN

La tuberculosis se considera un grave problema de salud pública, y la identificación de los síntomas respiratorios, una acción esencial para facilitar el diagnóstico precoz de los casos. El objetivo de este estudio fue conocer el número de síntomas respiratorios identificados entre las personas que buscan atención en los servicios de salud, y el número de personas no identificadas por los servicios como tales. Participaron en el estudio 21 unidades básicas de salud de Belém (Pará, Brasil). En la construcción y análisis de los datos se utilizó el programa Epi Info Versión 6.0 B. Se encuestó a 1.008 usuarios de esas unidades. Se constató que la prevalencia de síntomas respiratorios entre los encuestados fue de 10,03%. En el 72% de los casos no fueron identificados, y de los identificados, el 33% fueron remitidos para el examen de esputo. No hubo diferencia estadísticamente significativa (p = 0,07) para la asociación entre la pregunta acerca de la tos en las unidades investigadas y la duración de la tos. Esta identificación mediante la búsqueda de tosedores debe ser una actividad incorporada a la rutina de las unidades para facilitar el diagnóstico precoz y el tratamiento de urgencia de los casos bacilíferos como forma de romper la cadena de transmisión de la enfermedad.

Palabras clave: Tuberculosis; Prevalencia; Signos y Síntomas Respiratórios.

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