ORIGINAL ARTICLE *DOI: 10.4025/cienccuidsaude.v15i2.28298*

TESTS PERFORMED FOR PULMONARY TUBERCULOSIS DIAGNOSIS IN RIBEIRAO PRETO CITY, BRAZIL

Mayara Segundo Ribeiro*
Rubia Laine de Paula Andrade**
Aline Aparecida Monroe***
Antônio Ruffino Netto****
Lucia Marina Scatena*****
Tereza Cristina Scatena Villa******

ABSTRACT
The objective was to analyze the process of examinations for the diagnosis of pulmonary tuberculosis in Ribeirao Preto. This is a survey type study with a quantitative approach. The study population consisted of 84 patients with pulmonary tuberculosis under treatment (aged over 18 years old, living in Ribeirão Preto), from January to April 2009. Data were collected through interviews using a structured questionnaire. Moreover, all tests performed by patients interviewed at the time of diagnosis were raised from the System of Tuberculosis Patients Control of the State of São Paulo (TB-WEB). For data analysis, descriptive statistics were used. It was observed that the performance of tests in the laboratory diagnosis of pulmonary tuberculosis process needs to overcome some organizational, cultural, geographical and economical barriers, since the access to diagnosis has occurred through specialized services, reference for disease control.

Palavras-chave: Health Care. Health Evaluation. Diagnosis. Tuberculosis.

INTRODUCTION

In 2014, Brazil has notified more than 76000 new cases of tuberculosis (TB), and 8% of people were died. The country still shows rates of concern in relation to the results of treatment (cure, 72%; death, 8%; neglect, 10%), since these do not reach the goals proposed by the World Health Organization (who), remaining among the 22 countries with the highest burden of disease in the world[1]. The detection rates of cases are also of concern, and studies have identified difficulties in access to health services and Diagnostics[2] contributing to the vicious circle of transmission and deaths by illness[3].

In Brazil, in recent decades, the National Tuberculosis Control Programme (POLICY) has recommended the ambulatory attendance for detection and appropriate treatment as a tool for the control of the disease. However, it is significant the number of cases diagnosed and treated at hospital level, resulting in the disorganization of the health system and the Association of TB to human immunodeficiency virus (HIV) as well as other diseases[4].

TB, infectious contagious disease caused by Mycobacterium tuberculosis, if not diagnosed early and treated properly, may lead the individual to death, in addition to the dissemination of the same by the population. The disease affects nearly every organ of the body, but the pulmonary form has importance for its leading epidemiological transmissibility.

The diagnosis of TB is still and there is need for increased effectiveness health services to guarantee access to health actions and services needed. The delay in the diagnosis of TB cases may occur due to late health service demand by the patient or by inadequate suspicion of individuals with respiratory symptoms by health professionals. The fact of the infected individuals does not have access to health services contributes to that many cases are not diagnosed, constituting a health

*Nurse. Master in Sciences, School of Nursing Ribeirão Preto da USP. Ribeirão Preto, SP, Brasil. E-mail: mayara.segundo.ribeiro@usp.br
**Nurse. Doctor in Sciences, School of Nursing Ribeirão Preto da USP. Ribeirão Preto, SP, Brasil. E-mail: rubia@eerp.usp.br
***Nurse. Professor, School of Nursing Ribeirão Preto da USP. Ribeirão Preto, SP, Brasil. E-mail: amonroe@eerp.usp.br
****Doctor. Professor, School of Medicine Ribeirão Preto from USP. Ribeirão Preto, SP, Brasil. E-mail: aruffino@fmrp.usp.br
*****Chemical production engineer. Associate professor, Faculty of Medicine of the Universidade Federal do Triangulo Mineiro. Uberaba, MG, Brasil. E-mail: lmscatena@uol.com.br
******Nurse. Professor, School of Nursing Ribeirão Preto da USP. Ribeirão Preto, SP, Brasil. E-mail: tite@eerp.usp.br

inequality. The deterioration of the public health service comes resulting in difficulties of access to these services, scarce qualified human resources for the diagnosis, notification and monitoring the patient with TB and anti-tuberculosis drugs distribution failed, configuring obstacles to the effective control of the disease[5].

In this sense, the process of conducting tests for the diagnosis of pulmonary TB, you can offer subsidies for the improvement of planning policies in health, assisting primarily on qualification of health services aimed at timely diagnostic tests.

Thus, this article aims analyze the tests required in the process of elucidating the diagnostic pulmonary TB in the city of Ribeirão Preto-SP, from the vision of patients.

METHODOLOGY

This work was developed from the use of the quantitative approach, being a descriptive study of type investigation.

As a place of study, the city of Ribeirão Preto, situated in the northeast of the State of São Paulo and owned in 2015 1 estimated population of 666,323 inhabitants. The municipality of Ribeirao Preto is considered as a priority in the State of São Paulo for the control of TB and presented in the year 2014, 162 new cases of the disease; 81.5% of cure; 5.6% of abandonment; 9.9% of deaths; and 3.0% related to transfer and treatment failure[6].

The health system of the municipality is divided into five districts, each of which has a basic unit Health District (UBDS) secondary-level reference to a certain number of basic health units (UBS) and family health Units (USF); (North District – 7UBS and 3UBS – 4USF; East-5UBS and 1USF; 5UBS and 12USF – West and central – 4UBS). If a patient of TB was diagnosed, the monitoring and the management of the case were carried out by specialized teams of the tuberculosis control program (PCT), distributed in five reference units for the treatment of the disease in the health districts of the municipality. In these services, patients went through periodic medical examinations, receive medication and are monitored by means of examinations, and their interconnecting examined.

The study population consisted of all pulmonary TB patients in treatment (aged 18 years or over resident in the municipality of study) in the data collection period (January-April 2009). During this period, 113 patients were being treated for TB, of which 17 were excluded for presenting the extrapulmonary clinical form; 3 were under 18 years; one belonged to the prison system; 3 did not accept to participate in research and 5 were not found for the interview. That way, it was possible to interview 84 patients with diagnosis of pulmonary TB.

To achieve the goal of the study, data were collected by means of a structured questionnaire, drawn up on the basis of the recommendations of the Ministry of health for the diagnosis of pulmonary TB[7].

The questionnaire comprised two sections, the first of which involved issues concerning the characterization of patients:sex; age; education; family income; employment; local housing situation; the area of housing; Clinical form of TB; co-infection with HIV; case type and tests carried out.The second section contained questions that address the process of realization of laboratory tests: first health service; examinations requested in the first health service; all the tests were carried out in the service requests that diagnosed TB; forwarding of patient by first health service sought to another service; suspicion of the healthcare professional in the first consultation; payment and/or need for financial support for consultations and examinations to diagnose TB; often the service professional who diagnosed TB asked if there was any difficulty to carry out transport/deliver the tests; often the service professional who diagnosed TB offered transportation and/or transportation voucher to carry out/delivery of exams; guidance for carrying out the examinations; often lacked material (sputum pot, etc.) for carrying out the examinations in service who diagnosed TB; difficulty to deliver sputum pot on diagnosed TB service; receipt of the results of tests carried out; How many times were you need to go to the health service

to diagnose TB; days needed to diagnose TB, after his first trip to the health service.

The interviews were conducted in the homes of the sick, and the respondent answered each question on the questionnaire according to rating scales varied as, dichotomous, multiple choice with single and sum (Likert scale). *Likert* scale, the zero value has been assigned to answer does not know or does not apply and the values of 1 to 5 recorded the degree of preference relation (or agreement) of the questions. Has been prepared and made available to respondents a callout script about the categories of *Likert* scale response of the questionnaire for the purpose of clarification and optimization of the data collection. Supplementary form, have been raised all the tests carried out by patients interviewed at the relevant period for TB diagnosis in Control system of tuberculosis patients in the State of São Paulo (TB-WEB).

For data analysis, we used the Statistica software, version 9.0 of Statsoft®. It has been calculated the frequency distribution (for nominal variables), measures of mean and median position-and dispersion-standard deviation (for continuous variables). For analysis of the variables with Likert scale of response, it has been calculated the mean value of the scores of answers of all respondents for each question, as this is an arbitrary value that was used operationally to facilitate the analysis and interpretation of results. The values obtained from this calculation received unsatisfactory ratings (close to 1 and 2), regular (around 3) and satisfactory (close to 4 and 5). The synthesis of the data was performed by means of charts and graphs.

After the approval of the Municipal Health Secretariat of Ribeirão Preto-SP, the research project was submitted and approved by the Research Ethics Committee of the school of nursing of Ribeirão Preto – University of São Paulo, as Protocol # 0984/2008.

RESULTS AND DISCUSSION

Characterization of pulmonary TB patients

In Ribeirão Preto, the TB affected more males (70.2%) with mean age of the respondents to 42.4 (15.2 ±) years, being that 92.9% of 18 to 60 years had, showing that TB affects people in productive stage of life, data similar to the findings of research carried out at the national level (8). 57.1% had incomplete elementary school, 50% were employed/self-employed. The median family income was 1.7 minimum wages - minimum wage at that time: R$465,00-(range of 0 to 12.9), and half of those surveyed received up to 2 MW (table 1). The low educational level of the population is part of a set of precarious socioeconomic conditions, which increase the vulnerability to TB, being responsible for the higher incidence and the lowest treatment adherence, as well as, handicaps the access to health services and, consequently, the diagnosis of TB[9].

In relation to the clinical aspects of the disease, 78 (92.9%) had pulmonary form of the disease only; 79 (94%) were new cases, and 7 (8.3%) were Coinfected with HIV.

Description of the process of conducting tests for the diagnosis of TB

As regards the choice of the type of health service to the first attendance, there was preference for EMT services (PA) (57.1%), as well as found in other studies[10-12] demonstrating that users generally are conspicuous by their sure customer service, greater availability of time to the public, immediate diagnostic research achievement, as well as give more credibility to the services with greater density of specialists and most technologically sophisticated resources.

It was found that, in the **first visit** EMT services and specialized services (hospitals, tuberculosis control programs, clinics and private offices), requested mainly the chest x-ray, and have doctors on call 24 hours a day, which could also justify the increased demand for such services. If, on the one hand, by the normative logic of the health care system, the flow of "spontaneous demand" of user's ready aid and hospitals has been appointed as unwanted, on the other hand, the reality comes showing that this behavior has persisted over

time and remained resistant to attempts of reorientation of care model[10]. The basic attention services already have requested the smear of sputum (table 2).

Table 1: Frequency distribution of some socio-demographic and clinical variables of pulmonary TB patients in the city of Ribeirão Preto-SP, 2009.

VARIABLES		N	%
Sex (n = 84)	Male	59	70,2
	Female	25	29,8
Age group (n = 84)	From 18 to 30 years	23	27,4
	Of 31 to 40 years	17	20,2
	Of 41 to 50 years	16	19,0
	Of 51 to 60 years	22	26,2
	Of the 61 70 years	2	2,4
	Of the 71 82 years	4	4,8
Schooling(n = 84)	No schooling	7	8,3
	Incomplete elementary school	48	57,1
	Elementary school complete	13	15,5
	High school incomplete	4	4,8
	Complete high school	9	10,7
	Incomplete higher education	1	1,2
	Complete higher education	2	2,4
Family monthly income (n = 84)	No income	2	2,4
	Up to 2 minimum wages	42	50,0
	Of 2 to 5 minimum wages	29	34,5
	Of 5 to 10 minimum wages	5	5,9
	Of 10 to 20 minimum wages	4	4,8
	Ignored	2	2,4
Employment Situation(n = 84)	Unemployed	23	27,4
	As	19	22,6
	Employee	18	21,4
	Retired	10	11,9
	Away	9	10,7
	Of home	5	5,9

Table 2: Frequency distribution of x-ray request and smear during the first visit of pulmonary TB patients to health services in the city of Ribeirão Preto-SP, 2009.

Tests required	**First health service wanted**							
	ABS (n = 20)		PA (n = 48)		Specialized services (n = 16)		**TOTAL**	
	N	%	N	%	N	%	N	%
X-ray	10	50	40	83,3	13	81,3	63	75,0
Smear	13	65	18	37,5	12	27,9	43	51,2

Caption: ABS-Basic health service; Pa-Er
Source: Interviews with people with TB and TB-WEB**.**

After the onset of symptoms, patients searching for PA services, had the request, predominantly, x-ray examinations, while the basic care had a higher representation in the request of smear tests. In General, between those whose request for smear and x-ray did not occur in the first health service wanted the time to diagnosis was greater. This result, together with the observation of a high number of referrals, can translate to non-accountability of health professionals for the diagnosis of TB, leaving him in charge of specialized services and reference to disease control[5]. This organization of work reproduces the logic on which compartmentalized structure in the health sector. In this perspective, the actions of the health services are organized predominantly to meet individual or demands arising from campaigns[4].

During the **procedure for diagnostic elucidation** (understood from visits to services until the effective diagnosis of TB), 96.4% 95.2% were held, x-ray examination, 90.5% anti-HIV bacilloscopy, 51.2% sputum culture, 14.3% and 11.9% biopsy other tests such as blood, urine, cat scan and MRI.

The majority of patients who have TB as the first suspect in the diagnostic process, conducted the reviews of chest x-ray and sputum smear, and such examinations were also requested, for the most part, patients not informed about this suspicion. For the majority of patients for whom other aggravations were bandied about (pneumonia, neoplasm, dengue fever, allergic cough, flu, weakness, gastric discomfort), there was only x-ray request (table 3).

Table 3: Frequency distribution of x-ray request and smear front of the type of diagnostic suspicion performed in the first health services visited by sick in the city of Ribeirão Preto-SP, 2009

Tests required	**Suspicion of the health professional**					
	Tuberculosis (n = 36)		Other (n = 32)		Not reported (n = 16)	
	N	%	N	%	N	%
X-ray	30	83,3	23	71,8	10	62,5
Smear	26	72,2	7	21,9	10	62,5

Source: Interviews with people with TB and TB-WEB

In Figure 1, there is a satisfactory performance of the health services in relation to the "need for payment to carry out tests"; "receiving guidance for carrying out the examinations; "availability of materials for carrying out the examinations; "delivery of the sputum Bowl"; "receipt of the results of tests on the same service requested" and a poor performance in relation to "questioning the professional as to the difficulty to the health service to perform the tests" and "providing transport and/or Valley transport for carrying out the examinations.

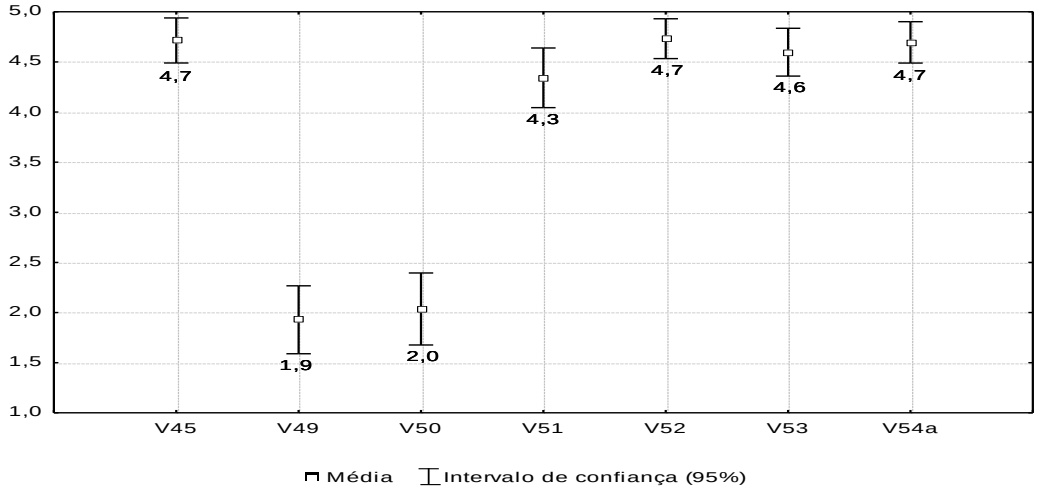
The median value for the number of times that the patient needed to go to the health service for the diagnosis of TB was twice (interquartis 1-3), with 65.5% of the patients had all requested tests on the same service who diagnosed TB. Of patients who performed the smear on the first health service sought, the median time to diagnosis was 6 days (range 0 inter-quartis-20), and those who did not was 10 days (range 3-30 inter-quartis). Of the patients who made the first x-ray health service sought, the median time to diagnosis was 7 days (range 1-20 inter-quartis), and those who did not was 16 days (range inter-quartis 7-60).

With regard to the number of times that the patient needed to access the health service for the diagnosis of TB, which was similar to a study conducted in Nepal[13] and that is greater when the basic attention services are the gateway to the diagnosis[14]. In this study, the amount of times that the patient needed to find the health service is plausible, since most patients sought for services of PA, which features x-ray equipment and request such examination to observe lung symptoms suggestive of TB. Throughout the process diagnosis most patients have conducted x-ray, smear and sputum culture, as well as other diagnostic tests not related to suspicion of TB. The smear is a test fast and low cost, but in Brazil, there have been difficulties in implementation and use of the same basic attention services[15] and emergency room, despite being indicated as priority method by the World Health Organization (who) for the detection of TB cases since 1993.

However, it seems that the request of smear in isolation, without the x-ray, does not contribute to the early diagnosis of TB, since performance was similar with respect to the time elapsed when no review was requested (Figure 2). This result has a limitation on the number (n = 6) of patients who mentioned having held just smear, three presented 30 days for the diagnosis and the other presented to 3 to 5 days.

When suspicion is raised by the health care professional, the same can request the smear sputum test, which is performed by a lab that collects daily samples in the health units of the

municipality. The results are relatively agile, sometimes in 24 hours after sending the sample and may take up to 5 business days. It is worth mentioning that the positive smears are informed as soon as possible by the laboratory (via phone), enabling immediate start of treatment[10-12].



Caption: V45-Need to be serviced or perform tests; V49 – Questioning how the difficulty of professional transport to perform the examinations; V50-providing transport and/or Valley transport for carrying out the examinations; V51-receiving guidance for carrying out the examinations; V52-availability of materials for carrying out the examinations; V53– Difficulty to deliver sputum pot; V54a – Receipt of the results of tests on the same service you requested.

Figure 1: Distribution of the confidence intervals of the relevant variables to responses of pulmonary TB patients in relation to the performance of diagnostic tests, Ribeirão Preto-SP, 2009.

Despite the potential of smear, it presents limitations as a low sensitivity and usually depending on the symptoms presented needs the complement of other tests, such as x-rays and the culture. Both also feature limitations, as the absence of radiological changes in up to 15% of cases of pulmonary TB (especially immuno compromised) and slow playback of Bacillus in sputum culture that involves time-consuming diagnosis. Such limitations could be overcome by greater investment in the application of new methods of diagnosis, but it is essential to the development of clinical diagnosis/epidemiology, since patients often do not have respiratory symptoms, as found in a study where 67% of cases of pulmonary TB that presented themselves in an emergency service reported clinical nonspecific complaints, infectious lung and no aggravations traumatic lesions[16].

In addition to the tests for the diagnosis of TB, after the confirmation of the disease, should be offered serologic testing for HIV in order to investigate the possibility of Association of two infections and thus establish the therapeutic scheme of appropriate treatment[8]. In view of the recommendation of the Ministry of health, the majority of TB patients of the municipality has conducted this survey, and in this study, 8.3% were Coinfected with HIV.

As regards the evaluation of patients with regard to difficulties of displacement, not to offer transportation to Ida Valley health services in order to perform the exams are barriers of access to diagnosis and therefore treatment[10]. In this study it was possible to identify important barriers that distance health services patients/users and deserve attention of the local managers. It should be noted that the organizational and cultural

barriers signal the need to improve the Organization of attention focused on the management of chronic conditions such as TB requiring professional qualifications aimed at the recognition of aspects of the social environment of the users as a factor of vulnerability for the illness process for TB, including gender issues for adjustments in the provision of health services actions.

Furthermore, the geographical and economic barriers were also present in the study as factors strongly related to access to TB diagnosis in terms of the profile of vulnerability of the subjects, whose life and work context, are usually unfavorable and permeated by financial constraints.

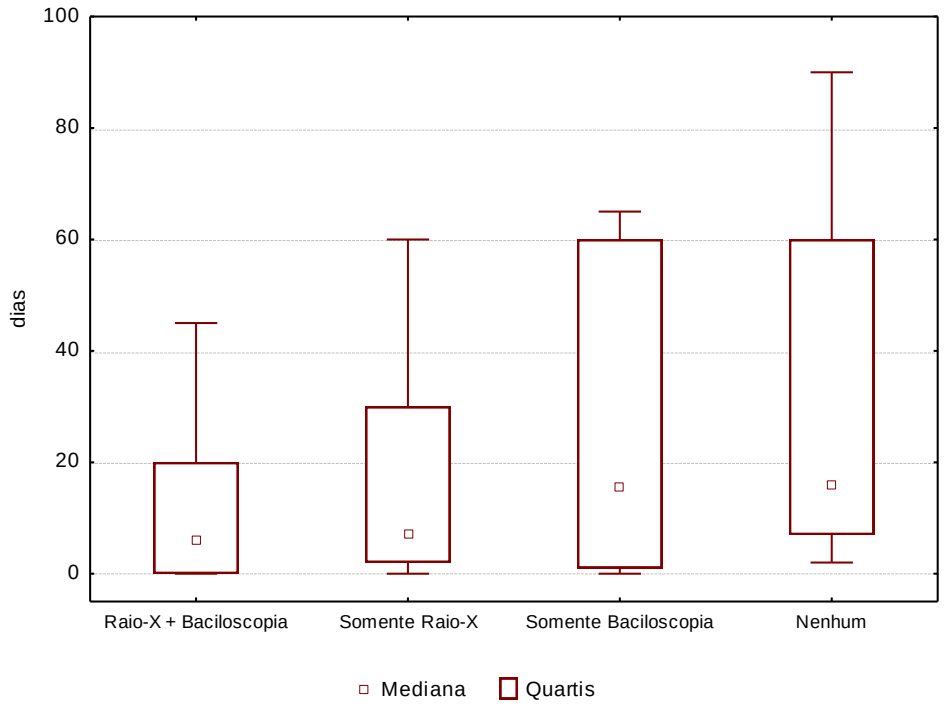


Figure 2. Distribution of medians and quartiles of time elapsed until the diagnosis of pulmonary TB from the examinations requested in the first health service sought by the patient, Ribeirão Preto-SP, 2009.

FINAL CONSIDERATIONS

The present study shows that the exams have a great contribution to the diagnosis of pulmonary TB, however there has been systematic differentiated examination request in accordance with the health service sought, reflecting on time to the effective diagnosis of the disease. This suggests the need for permanent education of working professionals in the various points of health from the public, as well as the joint definition of intervention protocols and conducts clinics that systematize the exam request a case with suspected TB.

THANKS TO:

The authors thanks the Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP).

EXAMES REALIZADOS PARA O DIAGNÓSTICO DE TUBERCULOSE PULMONAR NO MUNICÍPIO DE RIBEIRÃO PRETO, BRASIL

RESUMO

Objetivou-se analisar o processo de realização de exames para o diagnóstico da tuberculose pulmonar, no município de Ribeirão Preto. Estudo epidemiológico descritivo do tipo inquérito a partir de uma abordagem

quantitativa. A população de estudo foi constituída por 84 doentes de tuberculose pulmonar em tratamento (com idade igual ou superior a 18 anos, residentes em Ribeirão Preto), no período de janeiro a abril de 2009. Os dados foram coletados por meio de entrevistas e para tal utilizou-se um questionário estruturado. De forma complementar, foram levantados todos os exames realizados pelos doentes entrevistados no período do seu diagnóstico no Sistema de Controle de Pacientes com Tuberculose do Estado de São Paulo (TB-WEB). Para análise dos dados, foram utilizadas técnicas de estatística descritiva. Observou-se que a realização de exames no processo de elucidação diagnóstica da tuberculose pulmonar precisa transpor algumas barreiras organizacionais, culturais, geográficas e econômicas, visto que o acesso ao diagnóstico tem ocorrido por meio dos serviços especializados e de referência para controle da doença.

Palavras-chave: Atenção primária a saúde. Avaliação em saúde. Diagnóstico. Tuberculose.

EXÁMENES REALIZADOS PARA EL DIAGNÓSTICO DE TUBERCULOSIS PULMONAR EN LA CIUDAD DE RIBEIRÃO PRETO, BRASIL

RESUMEN

El objetivo fue analizar el proceso de realización de exámenes para el diagnóstico de la tuberculosis pulmonar, en la ciudad de Ribeirão Preto, Brasil. Estudio epidemiológico descriptivo del tipo averiguación a partir de un enfoque cuantitativo. La población estudiada consistió en 84 pacientes en tratamiento de la tuberculosis pulmonar (con edad igual o superior a 18 años, que viven en Ribeirão Preto), en el periodo de enero a abril de 2009. Los datos fueron recolectados a través de entrevistas, utilizando un cuestionario estructurado. Por otra parte, se plantearon todos los exámenes realizados por los enfermos entrevistados en el momento de su diagnóstico en el Sistema de Control de Pacientes con Tuberculosis del Estado de São Paulo (TB-WEB). Para el análisis de los datos, se utilizaron técnicas de estadística descriptiva. Se observó que la realización de exámenes en el proceso de elucidación diagnóstica de la tuberculosis pulmonar necesita superar algunas barreras organizacionales, culturales, geográficas y económicas, ya que el acceso al diagnóstico se ha producido a través de servicios especializados y de referencia para el control de la enfermedad.

Palabras clave: Atención Primaria a la Salud. Evaluación en salud. Diagnóstico. Tuberculosis.

REFERENCES

1. World Health Organization(WHO). Global tuberculosis report. Geneva; 2015. [citado 2016 fev 11]. Disponível em: http://www.who.int/tb/publications/global_report/en/index.html.

2. Villa TCS, Ponce MAZ, Wysocki AD, Andrade RLP, Arakawa T, Scatolin BE, et al. Early diagnosis of tuberculosis in the health services in different regions of Brazil. Rev Latino-Am Enfermagem. 2013; 21:190-8.

3. Guimarães RM, Lobo AP, Siqueira EA, Borges TFF, Melo SCC. Tuberculose, HIV e pobreza: tendência temporal no Brasil, Américas e mundo. J Bras Pneumol. 2012; 38(4):511-7.

4. Ponce MAZ, Wysocki AD, Scatolin BE, Andrade RLP, Arakawa T, Ruffino-Netto A, et al. Diagnóstico da tuberculose: desempenho do primeiro serviço de saúde procurado em São José do Rio Preto, São Paulo, Brasil. Cad Saúde Pública. 2013; 29:945-54.

5. Chirinos NEC, Meirelles BHS. Fatores associados ao abandono do tratamento da tuberculose: uma revisão integrativa. Texto contexto - enferm. 2011; 20(3):599-606.

6. Centro de Vigilância Epidemiológica Prof. Alexandre Vranjac (SP): TB-WEB; ano. Sistema de controle de pacientes com tuberculose. [citado 2016 fev 11].

Disponível em: http://www.cvetb.saude.sp.gov.br/tbweb/index.jsp (acesso restrito). Ministério da Saúde(BR). Secretaria de Atenção à Saúde. Departamento de Atenção Básica. Vigilância em Saúde: Dengue, Esquistossomose, Hanseníase, Malária, Tracoma e Tuberculose: Cadernos de Atenção Básica, no. 21. Brasília(DF); 2008.

8.Ministério da Saúde(BR). Fundação Nacional de Saúde. Evolução temporal das doenças de notificação compulsória no Brasil de 1980 a 1998. Boletim Epidemiológico(Ed Espec); 1999.

9. Silva CCAV, Andrade MS, Cardoso MD. Fatores associados ao abandono do tratamento de tuberculose em indivíduos acompanhados em unidades de saúde de referência na cidade do Recife, Estado de Pernambuco, Brasil, entre 2005 e 2010. Epidemiol Serv Saúde. 2013; 22(1)77-85.

10. Arcêncio RA, Arakawa T, Oliveira MF, Cardozo-Gonzales RI, Scatena LM, Ruffino-Netto A, et al. Barreiras econômicas na acessibilidade ao tratamento da tuberculose em Ribeirão Preto - São Paulo. Rev esc Enferm USP. 2011; 45(5):1121-7.

11. Andrade RLP, Scatolin BE, Wysocki AD, Beraldo AA, Monroe AA, et al. Diagnóstico da tuberculose: atenção básica ou pronto atendimento? Rev Saúde Pública. 2013; 47(6):1149-58.

12. Beraldo AA, Arakawa T, Pinto ESG, Andrade RLP, Wysocki AD, Sobrinho RAS, et al. Atraso na busca por serviço de saúde para o diagnóstico da tuberculose em Ribeirão Preto (SP). Ciênc Saúde Colet. 2012; 17(11):3079-86.

13. Asbroek AHA, Bijlsma MW, Malla P, Shrestha B, Delnoij DM. The road to tuberculosis treatment in rural Nepal: a qualitative assessment of 26 journeys. BMC: Health Services Res 2008; 8(7):1-10.

14. Brunello MEF, Andrade RLP, Monroe AA, Arakawa T, Magnabosco GT, Orfão NH, Scatena LM, Villa

TCS. Tuberculosis diagnostic pathway in a municipality in south-eastern Brazil. Int J Tuberc Lung Dis. 2013; 17(10):S41-7.

15. Pinto ESG, Scatolin BE, Beraldo AA, Andrade RLP, Silva Sobrinho RA, Villa TCS. O agente comunitário de saúde na detecção de casos de tuberculose. Cienc cuid saúde. 2014; 13(3):519-26.

16. Sokolove PE, Rossman L, Cohen SH. The emergency department presentation of patients with active pulmonary tuberculosis. Academic Emergency Medicine. 2000; 7(9):1056-60.

Corresponding author: Mayara Segundo Ribeiro. Escola de Enfermagem de Ribeirão Preto – Universidade de São Paulo - Avenida dos Bandeirantes, 3900, Campus Universitário – Bairro Monte Alegre, Ribeirão Preto - SP – Brasil, CEP: 14040-902

Submitted: 01/09/2015
Accepted: 15/08/2016