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Factors associated with loss to follow-up and death in cases of drug-resistant tuberculosis (DR-TB) treated at a reference center in Rio de Janeiro, Brazil

Fatores associados ao abandono e ao óbito de casos de tuberculose drogarresistente (TBDR) atendidos em um centro de referência no Rio de Janeiro, Brasil

Factores asociados al abandono y al fallecimiento por casos de tuberculosis farmacorresistente (TBFR), atendidos en un centro de referencia en Río de Janeiro, Brasil

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Abstract

Drug-resistant tuberculosis (DR-TB) poses a serious threat to tuberculosis (TB) control in Brazil and worldwide. The current study investigated factors associated with loss to follow-up and death in the course of treatment for DR-TB in a tertiary reference center in the city of Rio de Janeiro, Brazil. This was a retrospective cohort study of cases reported to the Information System on Special Treatments for Tuberculosis (SITETB) from January 1, 2012, to December 31, 2013. A total of 257 patients were reported to the SITETB and initiated treatment for DR-TB. Of this total, 139 (54.1%) achieved treatment success as the outcome, 54 (21%) were lost to follow-up, and 21 (8.2%) died. Following a multiple multinomial logistic regression analysis, the age bracket older than 50 years was the only protective factor against loss to follow-up, whereas less than eight years of schooling and reentry after loss to follow-up were considered risk factors. Reentry after loss to follow-up, relapse, and treatment failure appeared as risk factors. Our data reinforce the concept that loss to follow-up in drug-resistant tuberculosis is a serious public health problem, and that adequate follow-up of treatment is necessary in patients with this history and low schooling. A social support network for patients is also indispensable for avoiding unfavorable outcomes.

Tuberculosis; Multidrug-Resistant Tuberculosis; Patient Dropouts

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Introduction

Tuberculosis (TB) is a disease that has been known for thousands of years, but is still one of the most serious global public health problems. According to estimates by the World Health Organization (WHO), in 2015 there were 10.4 million cases of active tuberculosis and 1.4 million deaths, making TB the leading global cause of death from a single infectious agent. In addition, drug resistance has recently emerged as a major concern in dealing with TB [1].

TB can be classified as drug resistant (DR-TB) if it includes one of the following resistance patterns to anti-TB drugs: monoresistance (resistance to one first-line anti-TB drug only), polyresistance (resistance to two or more of these drugs, except for both rifampicin and isoniazid), multi-resistance (resistance to at least both rifampicin and isoniazid), and extensive resistance (resistance to both rifampicin and isoniazid, a fluoroquinolone, and at least one of three second-line injectable drugs) [2].

Multidrug-resistant tuberculosis (MDR-TB) showed an estimated 480,000 new cases and 250,000 deaths in the world, while extensively resistant tuberculosis (XDR-TB) was reported in 117 countries in 2015 [1]. The number of cases of drug-resistant tuberculosis has increased in Brazil, and 1,027 cases were reported in the country in 2015 [3].

As with drug-susceptible TB, loss to follow-up is one of the main problems in the treatment of DR-TB. Various factors are associated with loss to follow-up, such as drug toxicity, long duration of treatment, and other social determinants [4]. In a study on MRD-TB in South Africa in 2006, Holtz et al. [5] highlighted the lack of patient-provider interaction, drug use, and socioeconomic characteristics as the most significant factors associated with loss to follow-up.

Although TB treatment is free and highly efficacious in achieving cure, numerous cases still end in death [1]. In Brazil, considering new cases of MDR-TB, 10.6% of cases died in 2012 [2]. In a study in Bulgaria, Milanov et al. [6] found that weight loss or absence of weight gain and positive sputum smear at the start of treatment were factors associated with death of patients with drug-resistant TB. Chung-Delgado et al. [7] reported that low schooling, previous episodes of TB, history of diabetes, and HIV infection were associated with death among cases of drug-resistant TB in Peru.

Considering the relative lack of studies analyzing drug-resistant TB in Brazil, this study aimed to investigate factors associated with loss to follow-up and death of cases in this type of TB in a tertiary reference center in the city of Rio de Janeiro, Brazil.

Methods

This was a retrospective cohort study of cases of DR-TB treated at the Professor Hélio Fraga Reference Center (CRPHF), Sergio Arouca National School of Public Health, Oswaldo Cruz Foundation (ENSP/Fiocruz), Rio de Janeiro, Brazil, reported to the Information System on Special Treatments for Tuberculosis (SITETB) from January 1, 2012, to December 31, 2013.

CRPHF is a tertiary outpatient reference clinic under the Brazilian Unified National Health System (SUS) for diagnosis and treatment of cases of drug-resistant tuberculosis and non-TB mycobacterial infections. Most patients are referred from primary care services in the Greater Metropolitan Rio de Janeiro (Belford Roxo, Duque de Caxias, Itaguaí, Japeri, Mesquita, Nilópolis, Nova Iguaçu, Queimados, Seropédica, and São João de Meriti), besides individuals from other cities in the State of Rio de Janeiro (Centro-Sul Fluminense, Médio Paraíba, Baía de Ilha Grande, and part of the Mountainous Region – Petrópolis, Teresópolis, and Guapimirim).

SITETB is an online ancillary system of the SINAN (Information System on Diseases of Notification), dedicated to cases of drug-resistant tuberculosis and/or cases requiring special TB treatments (e.g., drug intolerance, toxicity, nephropathy, allergies), or cases of non-TB mycobacterial infections [2]. This system allows identifying the frequency and distribution of cases of DR-TB in the country, orienting management, drug supply, and epidemiological surveillance of cases.

The current study explored the following covariables: sex (male or female); age bracket (15-29 years, 30-49 years, and 50 or older); schooling (fewer than eight years, more than eight years, unknown); race/color (white, black, brown, Asian-descendant, unknown); clinical form (pulmonary,

extrapulmonary, mixed); year (2012 or 2013); resistance pattern (monoresistance, multi-resistance, polyresistance, extensive resistance); type of resistance (primary or acquired); type of entry (new case, reentry after loss to follow-up, treatment failure, relapse, resistance change, others); comorbidities (AIDS, diabetes, smoking, drug use, alcoholism). For the analysis of associated factors, the outcome variable (treatment success, treatment failure, loss to follow-up, death, others, and change of treatment regimen) was organized in three new categories, namely: "others", grouping the outcomes treatment success, treatment failure, regimen change, and others. The remaining outcomes were "loss to follow-up" and "death".

Definitions

According to WHO guidelines [8], this study used the following terms with their respective definitions.

Cured is a case of pulmonary TB with a negative culture in the last month of treatment and on at least one previous occasion. *Treatment completed* is every case of TB that was completed without evidence of treatment failure, but without laboratory confirmation. *Loss to follow-up* is when a patient with TB did not initiate treatment or when treatment was interrupted for two consecutive months or more. *Treatment failure* is a TB case with a positive culture in the fifth month or later, in the course of treatment. *Death* is characterized when a TB patient dies for any reason in the course of treatment. Finally, *treatment success* is the sum of cured and treatment completed.

Statistical analysis

We analyzed the clinical and epidemiological characteristics of reported DR-TB cases in order to characterize the study population by means of frequency distributions, medians, and interquartile range for the quantitative variables. Differences in proportions between the groups were compared with the chi-square test (χ^2), or the Fisher's exact test when the expected frequency in the contingency tables was less than or equal to 5. For continuous variables, the Wilcoxon-Mann-Whitney non-parametric test was used. P-value < 0.05 was considered statistically significant. The measures of association were calculated using odds ratios (OR) with the respective 95% confidence intervals (95%CI).

Factors associated with loss to follow-up and death were analyzed with multinomial logistic regression. For this analysis, the outcome category "others" was used as the reference for the outcome response variable and compared to the other categories (others vs. loss to follow-up; and others vs. death). The covariables proposed in the multiple multinomial logistic regression models were selected from simple multinomial logistic regression based on analysis of significance via the Wald test, i.e., covariables that were significant in the Wald test (p-value < 0.20) were incorporated into the multiple multinomial logistic regression models. Multiple models were proposed to adjust for potential confounding and interaction, choosing the most adequate model that presented the lowest value for the Akaike information criterion (AIC), since it is a measure of the distance between the true model and the candidate models (Table 1). Hosmer-Lemeshow test was used to verify the final multiple regression model's goodness of fit (HL = 5.792; GL = 12; p-value = 0.926). The measures of association were calculated using crude and adjusted OR with their 95%CI. Statistical analyses used the R software and *nnet* package, version 3.2.1 (R Development Core Team, Austria, Vienna; http://www.r-project.org).

The study was approved by the Ethics Research Commitee of the ENSP/Fiocruz, under case review CAAE: 55986316.7.0000.5240.

Results

From January 2012 to December 2013, a total of 257 patients were reported to the SITETB and initiated treatment for DR-TB at CRPHF. Of this total, 139 (54.1%) had treatment success as their outcome, 54 (21%) were lost to follow-up, 35 (13.6%) had treatment failure, and 21 (8.2%) died in the course of treatment. The majority of cases were males, with 179 (69.6%). Men showed higher percentages of loss to follow-up (n = 41; 22.9%) and death (n = 16; 8.9%) when compared to women. The most

Table 1

Proposed predictive models for loss to follow-up and death.

Models	Variables	AIC
Complete	Sex, age bracket, schooling, race, clinical form, year, type of entry, resistance pattern, serology, sputum smear, type of resistance, AIDS, diabetes, drug use, smoking, and alcoholism	377.22
1	Sex, age bracket, schooling, resistance pattern, alcoholism, type of entry, drug use	361.33
2	Age bracket, schooling, resistance pattern, drug use, and type of entry	357.86
3	Age bracket, schooling, and type of entry	349.04

AIC: Akaike information criterion.

heavily affected age bracket was 30-49 years (n = 135; 52.5%). The majority of cases had fewer than eight years of schooling (n = 149; 58%), and the most common skin color was brown among cases in treatment (n = 90; 35%) (Table 2).

Multidrug-resistant cases (MDR-TB) were the most frequent (n = 178; 69.3%), and the great majority of cases in treatment showed acquired resistance (n = 224; 87.2%). New cases were the most frequent in the study population (n = 180; 70%). Loss to follow-up was higher among cases of reentry after loss to follow-up (n = 16; 59.3%), and death was also more frequent in cases of reentry after loss to follow-up (n = 5; 18.5%). The most frequent comorbidities among patients in treatment were smoking (n = 40; 15.6%), diabetes (n = 27; 10.5%), alcoholism (n = 25; 9.7%), drug use (n = 21; 8.17%), and AIDS (n = 12; 4.7%) (Table 3).

Table 4 shows the logistic regression analysis for risk factors for loss to follow-up and death in DR-TB cases with the respective crude and adjusted odds ratios. Among the proposed models, the one with the lowest AIC for loss to follow-up and death was model 3 (AIC = 349.04) (Table 1). Among the factors associated with loss to follow-up in simple regression, age 50 years or older was a protective factor. Having fewer than eight years of schooling, reentering treatment after loss to follow-up, and drug use increased the odds of loss to follow-up. The statistically significant risk factors for death in simple regression were: reentry after loss to follow-up, treatment failure, polyresistance, and extensive resistance. Age 50 years or older was a protective factor against death (Table 4).

In the multiple analysis, the age bracket covariable, with age 50 years or older as the reference category (OR = 0.11; 95%CI: 0.03-0.41), remained as a protective factor against loss to follow-up, aswas found in the simple analysis. The covariables fewer than eight years of schooling (OR = 2.71; 95%CI: 1.25-5.82) and reentry after loss to follow-up (OR = 6.50; 95%CI: 2.29-18.46) were associated with increased odds of loss to follow-up, as in the simple regression analysis. Meanwhile, drug use was no longer a significant predictor of loss to follow-up in the multiple regression model (Table 4).

In the analysis of risk factors for death, reentry after loss to follow-up (OR = 9.36; 95%CI: 2.08-42.07) and treatment failure (OR = 5.01; 95%CI: 1.51-16.63) remained associated with death. However, after adjustment, resistance pattern was no longer a significant predictor of death (Table 4).

Discussion

The main observations in this study were: (a) age 50 years or older is associated with lower risk of loss to follow-up and death in the course of treatment when compared to cases of 15-29 years of age, (b) reentry after loss to follow-up in previous treatment and fewer than eight years of schooling were associated with increased risk of loss to follow-up, and (c) reentry after loss to follow-up in previous treatment and treatment failure were independently associated with higher mortality in the course of treatment among cases of DR-TB.

Table 2

Distribution of drug-resistant tuberculosis (DR-TB) cases by outcome and sociodemographic variables. Professor Hélio Fraga Reference Center, Sergio Arouca National School of Public Health, Oswaldo Cruz Foundation, Rio de Janeiro, Brazil, 2012 and 2013.

Characteristics	Total		Loss to follow-up		Deaths		Others		p-value
	n	%	n	%	n	%	n	%	
Sex									0.364
Male	179	69.6	41	22.9	16	8.9	122	68.1	
Female	78	30.4	13	16.7	5	6.4	60	76.9	
Age bracket (years)									**< 0.001**
15-29	59	23.0	19	32.2	5	8.5	35	59.3	
30-49	135	52.5	32	23.7	12	8.8	91	67.4	
50 or older	63	24.5	3	4.8	4	6.3	56	88.3	
Schooling (years)									**0.019**
Fewer than 8	149	58.0	40	26.8	12	8.1	97	65.1	
More than 8	101	39.3	14	13.8	7	6.9	80	79.2	
Unknown	7	2.72	0	0.0	2	28.6	5	71.4	
Race/Color									0.544
White	88	34.2	15	17.1	5	5.7	68	77.3	
Black	74	28.8	16	21.6	7	9.5	51	68.9	
Asian-descendant	1	0.4	0	0.0	0	0.0	1	100.0	
Brown	90	35.0	23	25.5	8	8.9	59	65.5	
Unknown	4	1.6	0	0.0	1	25.0	3	75.0	
Year									0.599
2012	142	55.3	27	19.1	13	9.1	102	71.8	
2013	115	44.7	27	23.5	8	6.9	80	69.5	
Total	257	100.0	54	21.0	21	8.2	182	70.8	

During the study period, 21% of cases were lost to follow-up of treatment for DR-TB. This percentage is similar to rates reported in some other countries such as Taiwan (29%) [9], Uzbekistan (20%) [10], and Argentina (20%) [11]. However, the rates are higher than in other countries, e.g., Lithuania (13%) [12], Russia (12%) [13], and Peru (10%) [14]. Our findings are not atypical, since a meta-analysis of more than nine thousand patients found 23% overall loss to follow-up [15]. These rates underscore the urgent need to better understand the factors associated with loss to follow-up in the treatment of DR-TB.

Our study found that patients with age 50 years or older had lower risk of loss to follow-up and death in the course of treatment for DR-TB. Garrido et al. [16], analyzing factors associated with loss to follow-up of drug-susceptible cases of TB in Amazonas State, Brazil, also identified a lower risk of loss to follow-up in older patients. However, these results differ from another study, in which older patients had a 1.7 higher risk of loss to follow-up for treatment of DR-TB [10].

According to our findings, DR-TB patients with less than eight years of schooling showed higher risk of loss to follow-up in the course of treatment. In various studies [17,18,19,20], education has been associated with better adherence to treatment of drug-susceptible, since it increases awareness of the disease. Importantly, education has also been acknowledged as an important proxy for economic status in Brazil [21]. Thus, low schooling is generally associated with a set of precarious socioeconomic conditions such as lack of resources, unhealthy living conditions, and overcrowded housing. Even with social and financial support, such conditions increase the vulnerability to tuberculosis and are directly associated with low adherence to treatment [16].

We believe that any underlying association between poverty and loss to follow-up in this cohort could be attenuated by systematic efforts by programs to relieve the socioeconomic barriers to health

Table 3

Distribution of drug-resistant tuberculosis (DR-TB) cases by outcome and clinical variables. Professor Hélio Fraga Reference Center, Sergio Arouca National School of Public Health, Oswaldo Cruz Foundation, Rio de Janeiro, Brazil, 2012 and 20133.

Characteristics	Total		Loss to follow-up		Deaths		Others		p-value
	n	%	n	%	n	%	n	%	
Time in treatment in months [median (IQR)]	14.9 (9.0-20.0)		6.0 (3.2-10.7)		9.0 (3.0-15.0)		18.0 (15.0-22.0)		**< 0.001**
Clinical form									0.869
Pulmonary	254	98.8	54	21.3	21	8.3	179	70.5	
Extrapulmonary	1	0.4	0	0.0	0	0	1	100.0	
Mixed	2	0.8	0	0.0	0	0	2	100.0	
Sputum smear									0.219
Positive	200	77.8	46	23.0	18	9.0	136	68.0	
Negative	44	17.1	8	18.2	2	4.5	34	77.3	
Not performed	13	5.1	0	0.0	1	7.7	12	92.3	
Sputum culture									0.819
Positive	237	92.2	51	21.5	21	8.9	162	69.6	
Negative	10	3.9	2	20.0	0	0	8	80.0	
Not performed	10	3.9	1	10.0	0	0	9	90.0	
HIV serology									0.231
Positive	14	5.4	0	0.0	2	14.3	12	85.7	
Negative	186	72.4	40	21.5	15	8.1	131	70.4	
Not performed	57	22.2	14	24.6	4	7.0	39	68.4	
Resistance pattern									**0.060**
Monoresistance	41	16.0	6	14.6	1	2.4	34	82.9	
Multi-resistance	178	69.3	41	23.0	12	6.7	125	70.2	
Polyresistance	25	9.7	5	20.0	5	20.0	15	60.0	
Extensive resistance	13	5.1	2	15.4	3	23.1	8	61.5	
Type of resistance									0.740
Primary	33	12.8	5	15.2	3	9.1	25	75.8	
Acquired	224	87.2	49	21.9	18	8.0	157	70.1	
Type of entry									**< 0.001**
New case	180	70.0	34	18.9	8	4.4	138	76.7	
Reentry	27	10.5	16	59.3	5	18.5	6	22.2	
Failure	34	13.2	3	8.8	6	17.6	25	73.5	
Relapse	13	5.1	1	7.7	2	15.4	10	76.9	
Resistance change	2	0.8	0	0.0	0	0.0	2	100.0	
Others	1	0.4	0	0.0	0	0.0	1	100.0	
AIDS									0.142
Yes	12	4.7	0	0.0	1	8.3	11	91.7	
No	245	95.3	54	22.0	20	8.2	171	69.8	
Diabetes									0.432
Yes	27	10.5	3	11.1	2	7.4	22	81.5	
No	230	89.5	51	22.2	19	8.3	160	69.6	
Drug use									**0.028**
Yes	21	8.2	9	42.9	2	9.5	10	47.6	
No	236	91.8	45	19.1	19	8.1	172	72.9	
Smoking									0.601
Yes	40	15.6	10	25.0	4	10.0	26	65.0	
No	217	84.4	44	20.3	17	7.8	156	71.9	
Alcoholism									**0.060**
Yes	25	9.7	8	32.0	4	16.0	13	52.0	
No	232	90.3	46	19.8	17	7.3	169	72.8	
Total	257	100.0	54	21.0	21	8.2	182	70.8	

IQR: interquartile range.

Table 4

Results of multinomial logistic regression for predictors of loss to follow-up and death in the course of treatment according to age bracket, schooling, resistance pattern, type of entry, and drug use. Professor Hélio Fraga Reference Center, Sergio Arouca National School of Public Health, Oswaldo Cruz Foundation, Rio de Janeiro, Brazil, 2012 and 2013.

Variables	Crude OR	95%CI	p-value *	Adjusted OR	95%CI	p-value **
Loss to follow-up in the course of treatment						
Age bracket (years)						
15-29	Ref.					
30-49	0.69	0.34-1.37	0.283	0.54	0.24-1.18	0.123
50 or more	0.10	0.10-0.37	**< 0.001**	0.11	0.03-0.41	**< 0.001**
Schoolinh (years)						
Fewer than 8	2.42	1.23-4.78	**0.009**	2.71	1.25-5.82	**0.010**
More than 8	Ref.					
Resistence pattern						
Monoresistance	Ref.					
Multi-resistance	1.88	0.73-4.81	0.188			
Polyresistance	1.83	0.48-6.96	0.373			
Extensive resistance	1.57	0.26-9.47	0.621			
Type of entry						
New case	Ref.			Ref.		
Reentry	10.59	3.85-29.1	**< 0.001**	6.50	2.29-18.46	**< 0.001**
Failure	0.50	0.14-1.75	0.275	0.48	0.13-1.78	0.273
Relapse	0.40	0.05-3.21	0.386	0.35	0.04-2.94	0.330
Drug use						
Yes	3.69	1.38-9.84	**0.009**			
No	Ref.					
Death in the course of treatment						
Age bracket (years)						
15-29	Ref.					
30-49	0.98	0.46-1.58	0.967	1.04	0.31-3.49	0.947
50 or more	0.52	0.13-2.06	0.351	0.33	0.06-1.94	0.220
Schoolinh (years)						
Fewer than 8	1.46	0.55-3.88	0.452	1.35	0.46-3.94	0.580
More than 8	Ref.			Ref.		
Resistence pattern						
Monoresistance	Ref.			Ref.		
Multi-resistance	3.30	0.30-19.96	0.259			
Polyresistance	11.00	1.14-100.53	**0.035**			
Extensive resistance	14.14	1.28-156.78	**0.031**			
Type of entry						
New case	Ref.			Ref.		
Reentry	14.06	3.52-56.15	**< 0.001**	9.36	2.08-42.07	**< 0.001**
Failure	4.22	1.34-13.25	**0.013**	5.01	1.51-16.63	**0.008**
Relapse	3.37	0.63-18.06	**0.155**	3.61	0.64-20.44	0.147
Drug use						
Yes	1.94	0.39-9.66	0.424			
No	Ref.					

95%CI: 95% confidence interval; OR: odds ratio; Ref.: reference category.

* Statistical significance < 0.20;

** Statistical significance < 0.05.

care. Various descriptive and observational studies have shown that eliminating barriers in access to treatment or the supply of financial incentives can improve long-term adherence to treatment [22,23,24,25]. Elucidating the ways throught with poverty jeopardizes the ability to complete the long-term TB treatment, socioeconomic support not with standing, will allow the interventions to facilitate treatment completion and consequently cure for poorer patients.

The association between loss to follow-up and cases of reentry into treatment after loss to follow-up has been observed in other studies and highlights the importance of success in the first-line treatment regimen offered to the patient with DR-TB [10,14]. According to a study by Lalor et al. [10] in Uzbekistan, the strongest individual risk factor for abandoning treatment of DR-TB was having interrupted a previous treatment.

A study in Peru found that patients who had interrupted previous treatment had an increased risk not only of abandoning the current regimen, but also of dying [15]. Previously treated patients should receive additional support at the start of a new regimen to emphasize the importance of adherence and conclusion of the process. Before starting a new treatment, cases of reentry after loss to follow-up require special attention to identify and address the issues that have contributed to the loss to follow-up and thus avoid serious outcomes, including death.

The association between failed treatment and death, as shown in our study, underscores the difficulties in the clinical management of these patients, since failure of previous treatment suggests that these patients have more resistant drugs in their treatment regimen. Thus, alternative and individualized treatment regimens should be considered, based on the results of drug-sensitivity tests in the regimen to decrease the odds of these patients evolving to death.

It is important to address the study's various limitations. The main one is the use of secondary data from health services, drawn from an information system focused on the clinical management of DR-TB cases in Brazil, where the available data are not standardized or originally intended for research. For example, we were unable to access the causes of death of patients in the course of treatment to better elucidate the factors leading to death in these patients. Another important limitation is that since this was a retrospective study, the data collected in the SITETB did not allow identifying and evaluating the reasons that led patients to interrupt or abandon treatment.

The reasons for loss to follow-up of patients with DR-TB should be known better for a proper understanding of the challenges involved in treatment adherence, especially in situations of DR-TB. We thus recommend qualitative studies to assess other factors that lead to increased risk of loss to follow-up and how they can be addressed directly with patients in order to avoid new losses to follow-up and even death. Despite these limitations, the study provides valuable information on factors associated with loss to follow-up and death in the course of treatment for DR-TB. Such information is available for use, could be used by TB control program managers to optimize the use of resources in the SUS.

Conclusion

Our findings point to some risk factors related to loss to follow-up and death, which are public health problems that contribute to worsening DR-TB. It is important for TB control programs and health professionals to identify risk factors in patients with increased risk of loss to follow-up and to adopt specific strategies to address this problem and prevent death. Various measures can be considered, such as the implementation and maintenance of financial benefits, development and strengthening of communication between health care providers, patients, and their families, and strengthening social support networks to help reduce the stigma faced by TB patients in their daily lives.

Contributors

P. V. S. Viana participated in the study's conception, project, data analysis and interpretation, writing of the article and relevant critical revision of the content, and approval of the final version for publication. P. Redner and J. P. Ramos contributed in the data analysis and interpretation, writing of the article and relevant critical revision of the content, and approval of the final version for publication.

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Resumo

A tuberculose drogarresistente (TBDR) representa hoje uma grave ameaça aos avanços no controle da tuberculose (TB) no Brasil e no mundo. Neste estudo, investigam-se fatores associados ao abandono e ao óbito de casos em tratamento para TBDR, em um centro de referência terciária do Município do Rio de Janeiro, Brasil. Trata-se de um estudo de coorte retrospectiva, a partir dos casos notificados no Sistema de Informação de Tratamentos Especiais de Tuberculose (SITETB), no período de 1º de janeiro de 2012 a 31 de dezembro de 2013. Um total de 257 pacientes foi notificado no SITETB e iniciou o tratamento para TBDR. Desse total, 139 (54,1%) tiveram sucesso terapêutico como desfecho, 54 (21%) abandonaram o tratamento e 21 (8,2%) evoluíram para óbito. Após análise de regressão logística multinomial múltipla, a faixa etária acima de cinquenta anos foi observada como único fator de proteção ao abandono, ao passo que ter menos de oito anos de escolaridade e reingresso após abandono foram considerados como fatores de risco. Reingresso após abandono, recidiva e falência indicaram fatores de risco. Nossos dados reforçam a concepção de que o abandono do tratamento de tuberculose resistente é um sério problema de saúde pública, sendo necessário um adequado acompanhamento no tratamento de pacientes com esse histórico e com baixa escolaridade. Além disso, uma rede de apoio social ao paciente é imprescindível para que desfechos desfavoráveis sejam evitados.

Tuberculose; Tuberculose Resistente a Múltiplos Medicamentos; Pacientes Desistentes do Tratamento

Resumen

La tuberculosis farmacorresistente (TBFR) representa hoy una grave amenaza para los avances en el control de la tuberculosis (TB) en Brasil y en el mundo. En este estudio, se investigan factores asociados al abandono y al óbito de casos en tratamiento para TBDR, dentro de un centro de referencia de carácter terciario del municipio de Río de Janeiro, Brasil. Se trata de un estudio de cohorte retrospectiva, a partir de los casos notificados en el Sistema de Información de Tratamientos Especiales de Tuberculosis (SITETB), durante el período del 1 de enero de 2012 al 31 de diciembre de 2013. Un total de 257 pacientes fue notificado en el SITETB y comenzó el tratamiento para TBDR. De ese total, 139 (un 54,1%) tuvieron éxito terapéutico como desenlace, 54 (un 21%) abandonaron el tratamiento y un 21 (8,2%) evolucionaron hacia óbito. Tras el análisis de regresión logística multinomial múltiple, la franja de edad por encima de cincuenta años se observó como el único factor de protección al abandono, al mismo tiempo que tener menos de ocho años de escolaridad y reingresar en el sistema educativo tras el abandono fueron considerados como factores de riesgo. Reingreso tras abandono, recidiva e insolvencia indicaron factores de riesgo. Nuestros datos refuerzan la concepción de que el abandono del tratamiento de tuberculosis resistente es un serio problema de salud pública, siendo necesario un adecuado acompañamiento en el tratamiento de pacientes con este historial y con baja escolaridad. Además, una red de apoyo social entorno al paciente es imprescindible para que los desenlaces desfavorables sean evitados.

Tuberculosis; Tuberculosis Resistente a Múltiples Medicamentos; Pacientes Desistentes del Tratamiento

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