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RESEARCH

Frequência de taxa tuberculínica entre os trabalhadores do Hospital Antônio Pedro

Frequency of tuberculin rate among workers of the Hospital Antônio Pedro

Frecuencia de la tasa de tuberculosis entre los trabajadores del Hospital Antonio Pedro

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ABSTRACT

Objective: describing the frequency of positivity rate of tuberculosis among the workers of a university hospital in the municipality of Niterói, in Rio de Janeiro, in the period from January 2008 to March 2011. Also, identifying in which sectors where the conversion of tuberculin evidence has occurred. **Method:** this is a transversal and retrospective study, of descriptive type, developed from a database provided by PCTH (Hospital Tuberculosis Control Program) of the referred university hospital in Niterói - RJ. **Results:** from the total of 663 employees, 261(39%) have presented a positivity rate in tuberculosis test, being 45% of them of male gender. The nutrition sector and the emergency sector were the ones that have presented the higher positivity rates in tuberculosis test, with, respectively, 12% and 13%. Both have had 10% of conversion rate of its professionals in three years. **Conclusion:** this survey indicates that there are risks of tuberculosis infection in healthcare units with incidence of tuberculosis cases. **Descriptors:** pulmonary tuberculosis, healthcare workforce, epidemiology.

RESUMO

Objetivo: descrever a frequência da taxa de positividade tuberculínica entre os trabalhadores de um hospital universitário do município de Niterói, RJ no período de janeiro de 2008 a março de 2011; - identificar os setores onde ocorreu conversão na prova tuberculina. **Método:** trata-se de um estudo transversal, retrospectivo, de tipo descritivo, desenvolvido a partir de um banco de dados fornecido pelo PCTH (programa de controle da tuberculose hospitalar) do referido hospital. **Resultados:** do total de 663 funcionários, 261(39%) apresentaram taxa de positividade na prova tuberculínica, sendo 45% do sexo masculino. Os setores que apresentaram maiores taxas de positividade na prova tuberculínica foram o serviço de nutrição (12%) e emergência (13%) onde a taxa de conversão entre os profissionais foi de 10% no período de 3 anos. **Conclusão:** este estudo indica que há risco de infecção tuberculosa em unidades de saúde com incidência de casos de tuberculose. **Descritores:** tuberculose pulmonar, pessoal de saúde, epidemiologia.

RESUMEN

Objetivo: describir la tasa de frecuencia de positividad de tuberculosis entre los trabajadores de un hospital universitario de la ciudad de Niterói, Rio de Janeiro, en el período comprendido entre enero de 2008 y marzo de 2011; - identificar los sectores donde se produjo la conversión en la prueba tuberculina. **Método:** se trata de un estudio transversal y retrospectivo, de tipo descriptivo, desarrollado a partir de una base de datos proporcionada por PCTH (programa de control de tuberculosis hospitalaria) del referido hospital. **Resultados:** del total de 663 empleados, 261 (39%) mostraron positividad en la prueba tuberculina, siendo 45% hombres. Los sectores con las mayores tasas de positividad tuberculina fueron los servicios de nutrición (12%) y de emergencia (13%), donde la tasa de conversión entre los profesionales fue de 10% en 3 años. **Conclusión:** este estudio indica que hay riesgo de infección por tuberculosis en los centros de salud con la incidencia de la tuberculosis. **Descritores:** tuberculosis pulmonar, personal de salud, epidemiología.

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INTRODUCTION

Although the gateway of choice of the care network tuberculosis is primary care, it is known that in the medium and large urban centers the gateway for the diagnosis of tuberculosis patients is most often the urgency/emergency hospitals.

In hospitals, the problem has been overlooked and undersized, because as of mid-twentieth century, there was the advantage of outpatient treatment in the hospital regarding the treatment of the disease. Only recently, with the outbreaks of multidrug resistant (MDR-TB) and tuberculosis extensively resistant (XDR-TB) occurred in hospitals, both in developed countries and in developing countries, a consensus arose that hospitalization of selected cases continues being a necessity and that control measures in hospitals should be encouraged.¹

Several hospital outbreaks reported in recent years compromised both patients and health professionals, many with various therapeutic regimens resistant strains.² It should be noted that the risk of nosocomial transmission by *Mycobacterium tuberculosis* increases as the aspects related to delay in diagnosis of tuberculosis and inappropriate decisions as determining the start and end of accommodation of patients in private rooms, favoring the risk of tuberculosis infection in health care workers.³

It is important that patients with tuberculosis multi-drug resistant or inadequately treated may remain infectious for long periods, increasing the risk of transmission.⁴

The characteristic of the occupational disease received attention only true in the late 1980s and early 1990s, in which the factors were responsible: the resurgence of tuberculosis with reports of increased incidence of all forms of the disease even in countries where expected count with his control, and co-infection *M. tuberculosis* and human immunodeficiency virus (HIV), which also contributes to increasing indications of hospitalizations of individuals, also favored the illness of health professionals.^{5,6}

This may occasionally affect the care or assistance, which will be offered inappropriately because of unpreparedness of certain professionals, especially with regard to pulmonary tuberculosis that is also strongly associated with prejudice and stigma.

Since 1991, in Brazil there is specific legislation that allows include tuberculosis as an occupational disease (Law n. 8,213 of July 24, 1991), and therefore the disease, when it occurs in healthcare, must be notified on form-specific reporting of accidents work.⁷

The National Program for Control of Tuberculosis⁸ reports that investigation of latent TB infection in health care workers should be performed in placement and periodic examinations by the tuberculin test.

This study was approved by the Ethics Committee under the records of CAAE: 0052.0.258.000-11 on 1st April, 2011.

The institution has studied the Control Program Tuberculosis Hospital (PCTH), constituted by STD on March 15, 2006. Where since July 2007 has been deployed the

application of the tuberculin test as a part of regular workers, students and inpatient hospital examination due to 30 cases for tuberculosis in health care workers (PS) in the period 1997-2000 .

Deal with cases of illnesses record book by PCTH of all employees who performed the tuberculin test in the hospital, in order to facilitate the analysis of data from professionals who have made the annual monitoring was created.

The performance of PCTH is associated to promoting engineering and administrative measures of individual respiratory protection, all seek through education, active surveillance of hospitalized respiratory symptoms, tuberculin register of employees (PPD), environmental control (exhaustion) and use of respirators (N95 masks) and control the spread of TB in the hospital.

The study aimed to: describe the frequency rate of TST positivity among workers of a university hospital in the city of Niterói, in the period from January 2008 to March 2011; - identify the sectors that have occurred in the test tuberculin conversion.

METHOD

This is a cross-sectional, retrospective, descriptive type study, developed from a database provided by PCTH (program to control tuberculosis hospital) in a University Hospital of Niterói - RJ.

The study population consisted of 663 healthcare professionals who performed the tuberculin test in the period January 2008 to March 2011.

The professionals were invited to attend in the health sector and that the worker was offered a tuberculin test (PT), as part of the annual health examination.

Employees who reported a history of tuberculosis (disease), and had already presenting results of PT > 10 mm in the previous reading, were instructed not to take the exam tuberculin.

During the performance of the derivative of tuberculin skin test PPD RT 23 application to the anterior aspect of the left forearm of each professional tuberculin was used. Reading the PT was performed after 72 hours, the professionals who were trained in a reference service in tuberculosis. It was rated the booster effect in this period.

Employees who had tuberculin test result > 10 mm were referred to the health department worker who has a pulmonologist institution.

RESULTS AND DISCUSSION

There were identified 663 records of employees who attended the tuberculin test from January 2008 to March 2011. Being 104 professionals (2008), 324 (2009), 160 (2010) and 75 professionals (2011).

Table 1 - Distribution of test results of tuberculosis during the period from January 2008 to March 2011, Niterói.

	2008	2009	2010	2011	TOTAL
Results	(n= 104)	(n= 324)	(n= 160)	(n=75)	(n= 663)
PPD<10mm	67 (64,4%)	181 (55,9%)	105(65,6%)	49 (65%)	402 (61%)
PPD>10mm	37 (35,6%)	143 (44,1%)	55 (34,4%)	28 (35%)	261 (39%)

Source: Author, 2011.

Table 1 shows that comparing the rate of positive tuberculin skin test (PPD> 10 mm) among professionals ranged from 35,6% to 44,1% during the period from January 2008 to March 2011.

Table 2 - distribution of professionals by gender and age, according to the positivity of tuberculosis test during the period from January 2008 to March 2011, Niterói.

GENDER	RESULT		TOTAL
	> 10 mm	< 10 mm	
Female	180 (37%)	305 (63%)	485
Male	81 (45%)	97 (55%)	178
Age/ average	41,5	52	-

Source: Author, 2011.

It was observed in Table 2 that males had higher rates of positive tuberculin skin test with 45% compared to females (37%), the average age of professionals was 41,5 years old.

Table 3 - Distribution of professionals regarding the working sectors, Niterói. RJ

Sector	2008 N= 36	2009 N= 142	2010 N= 54	2011 N= 25	TOTAL N= 261
Administrative	3 (8,3%)	1(0,7%)	-	3 (12%)	7 (2,7%)
Ambulatorial	1(2,7%)	5 (3,5%)	-	-	6 (2,4%)
Archive	-	-	4 (7,4%)	-	4 (1,5%)
Milk bank	-	-	3 (5,5%)	-	3 (1,1%)
Blood Bank	-	14 (9,8%)	1(1,9%)	-	15(5,7%)
Library	-	-	-	5 (20%)	5 (1,9%)
Broncoscopia	1 (2,7%)	1(0,7%)	4 (7,4%)	1 (4%)	7 (2,7%)
Surgical Center	2 (5,5%)	10 (7%)	3 (5,5%)	-	15 (5,7%)
Medical clinic	-	-	-	-	11 (4,2%)
		10 (7%)	-	1 (4%)	
ICU	-	3 (2,1%)	-	-	3 (1,1%)
Personnel	1 (2,7%)	2 (1,4%)	-	-	3 (1,1%)
Department					
DIP	1 (2,7%)	3 (2,1%)	-	1 (4%)	5 (1,9%)
Dialysis	11 (30,5%)	6 (4,2%)	-	1 (4%)	18 (7%)
Emergency	-	10 (7%)	25 (46,3%)	-	35 (13,4%)
Admission examination	-	6 (4,2%)	3 (5,5%)	-	9 (3,4%)
Pharmacy	-	5 (3,5%)	1(1,9%)	-	6 (2,4%)
Hematology	1 (2,7%)	5 (3,5%)	-	1 (4%)	7 (2,7%)
Hemodynamics	-	1 (0,7%)	-	-	1 (0,4%)
Laboratory	6 (16,6%)	-	1 (1,9%)	-	7 (2,7%)
Laundry	1 (2,7%)	6 (4,2%)	-	8 (32%)	15 (5,7%)
Cleaning	-	1 (0,7%)	-	-	1 (0,4%)
Maintenance	-	1(0,7%)	-	-	1 (0,4%)
Maternity	-	5 (3,5%)	-	-	5 (1,9%)
Nutrition	3 (8,3%)	24 (17%)	4 (7,4%)	-	31 (12%)
Oncology	-	-	1 (1,9%)	-	1 (0,4%)
Orthopedics	-	-	1 (1,9%)	-	1 (0,4%)
Pediatrics	1 (2,7%)	1 (0,7%)	-	1(4%)	3 (1,1%)
Radiology	-	2 (1,4%)	1 (1,9%)	-	3 (1,1%)
NICU	-	7 (5%)	-	-	7 (2,7%)
Coronary unit	-	1(0,7%)	-	1 (4%)	1 (0,4%)
Surgical Clinic	6 (16,6%)	4(2,8%)	1 (1,9%)	-	11(4,2%)
Non informed	-	2 (1,4%)	1 (1,9%)	1 (4%)	4 (1,5%)

Source: Author, 2011.

It can be seen in Table 3, that during the year 2008 the highest rates of positive tuberculin skin test (TST) were on dialysis 11 sectors (30,5%) and lab 6 (16,6%) in the year 2009, the highest rates were in the blood bank 14 (9.8%) and nutrition service 24 (17%), in

2010 the emergency room showed the highest rates of positive PT with 25 (46,3%), in 2011, the sector was the laundry that had the highest rate with 8 (32%). It is worth remembering that for the laundry industry was a case of pulmonary tuberculosis in an employee, where the notification is made by the health service worker in 2011.

Table 4 - sectors that showed the test tuberculin conversion should be advised.

Activities	2008 N=4 (10,8%)	2009 N=11 (3,4%)	2010 N= 9 (5,6%)	2011 N=2 (2,6%)	Total N= 26 (10%)
Conversion rate					
Nutrition	1 (25%)	2 (18,2%)	2 (22,2%)	-	5 (19,2%)
Surgical Clinic	-	2 (18,2%)	1 (11,1%)	-	3 (11,5%)
Emergency	-	-	3 (33,3%)	-	3 (11,5%)
Dialysis	-	3 (27,3%)	-	-	3 (11,5%)
Ambulatory	-	1 (18,2%)	-	1(50%)	2 (7,7%)
Medical clinic	-	1 (18,2%)	-	-	1 (3,8%)
Clinical pathology	2 (50%)	-	1 (11,1%)	-	3 (11,5%)
Pharmacy	-	1 (18,2%)	1 (11,1%)	-	2 (7,7%)
Blood bank*	1 (25%)	1 (18,2%)	1 (11,1%)	1(50%)	4 (15,3%)

Source: Author, 2011.

* blood bank

Table 4 shows that during the period from January 2008 to March 2011, the conversion rate among professionals was 10%, the sectors with higher conversion rates was the service of nutrition and blood bank.

In the present study, the rate of positivity was observed in tuberculin skin test (TST) of 39%. Similar studies involving health professionals in a basic network found positivity percentages PT of 26,7%.⁹ In a study of professionals from a general hospital in Rio de Janeiro found a rate of positivity of 51%¹⁰. A study conducted in a university hospital in Campo Grande (MT) observed a prevalence of 38, 7% positivity PT.¹¹

In a study done in New York City, analyzing cases of TB in health care workers, from 1998-2002, it was found that the age group with the highest proportion of cases was 35-54 years old.¹² In our study, the mean age among professionals who presented results of PT > 10 mm was 41,5 old.

In the study population was predominantly male, consistent with the literature, although variant as the sex ratio, 1,7 to 3,5 men for every woman¹³.

The risk depends for professionals, with some exceptions, the same factors described for patients in hospital, with varying frequency, duration and intensity of exposure and with the functions and workplaces.

Exposure to risk of tuberculosis infection in pulmonology, emergency, bronchoscopy, pathology and clinical pathology laboratory services is higher as compared to the general population¹⁴.

In a 2008 study, which assessed the health worker who performed direct and indirect patient care, a prevalence of 27,1% infected with the TB bacillus was observed, and the risk of acquiring the infection was associated with certain job functions. Laboratory technicians showed a positivity rate of 50%, the clinical division of tuberculosis, 34% nurses, 30%, and administrative staff, 15%¹⁵.

In a study conducted at the University Clementino Fraga Filho, Federal Fluminense University, in Rio de Janeiro, we found a tuberculin conversion rate of 9,2% between health professionals, and these data are higher than those found in a favela in Rio de Janeiro with rates of 4%¹⁶. In the present study the rate of conversion between health professionals was 10%.

CONCLUSION

Because the study used a secondary bank where the industry was only registered employees' work, it was not possible to identify the activity, time on the job, comorbidity, and other socio-demographic data to identify a possible relationship of cause and effect.

In this study the nutritional services, it included butlers and nutritionists, presented the highest conversion rates of tuberculin tests.

The emergency departments, blood bank, laboratory, dialysis center, laundry and nutrition, were the sectors with the highest rates of positive tuberculin skin test.

The finding of the high number of professionals with tuberculin skin test positivity in these sectors may be due to having in common the periodic contact with the public as well as in the wards and clinics, often without knowing the previous diagnosis of patients.

This study indicates that there is risk of tuberculosis infection in health care facilities incidence of tuberculosis. It is hoped that this study to identify the existence of the occupational risk of tuberculosis in your workplace, enables monitoring and systematic monitoring of pulmonary tuberculosis in health care workers, as well as preventive strategies used in intra-hospital environment.

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