HEALTH AND SOCIETY PORTAL JOURNAL

Original Article

EPIDEMIOLOGICAL STUDY OF TUBERCULOSIS-HIV COINFECTION IN THE STATE OF ALAGOAS

ESTUDO EPIDEMIOLÓGICO DA COINFECÇÃO TUBERCULOSE-HIV NO ESTADO DE ALAGOAS

ESTUDIO EPIDEMIOLÓGICO DE COINFECCIÓNTUBERCULOSIS-VIH E NEL ESTADO DE ALAGOAS

Dayane Menezes Santos[1], Déborah do Nascimento Rodrigues[2], Yasmyny Natasha da Silva Cahet[3], Ana Luiza Souza de Faria Lobo[4], Amanda Costa França[5], Bruna Brandão Santos[6]

RESUMO

Objetivo: realizar a análise epidemiológica da coinfecção tuberculose-HIV, no Estado de Alagoas, de 2010 a 2019. **Método:** trata-se de um estudo descritivo, epidemiológico, realizado por meio de levantamento na base de dados do DATASUS. A população do estudo foi composta por todos os casos confirmados de tuberculose e coinfectados por HIV notificados no período de 2010 a 2019 e residentes em Alagoas. **Resultados:** observa-se o registro de 12.765 casos confirmados de tuberculose; destes, 1.296 obtiveram resultado positivo para HIV, o qual apresentou tendência de crescimento ao longo dos anos, com maior registro em 2019, com 180 casos. Observou-se também uma redução gradual, ao longo dos anos, dos índices de pacientes com TB não testados para HIV. O sexo mais acometido foi o masculino, representando 95% dos casos. **Conclusão:** nesta perspectiva, os resultados deste estudo possibilitaram identificar os principais aspectos epidemiológicos da coinfecção em Alagoas. Essas informações servem para subsidiar ações que podem contribuir para a elaboração de estratégias de prevenção, controle, diagnóstico e tratamento oportuno dos agravos, favorecendo a redução da morbidade.

Palavras-chave: Epidemiologia; Coinfecção; Tuberculose latente.

ABSTRACT

Objective: perform the epidemiological analysis of tuberculosis-HIV coinfection, in the State of Alagoas, from 2010 to 2019. **Method:** this is a descriptive, epidemiological study, carried out through a survey in the DATASUS database. The study population was composed of all confirmed cases of tuberculosis and HIV co-infected patients notified in the period from 2010 to 2019 and residents in Alagoas. **Results:** a total of 12,765 confirmed cases of TB were registered; of these, 1,296 were positive for HIV, which has shown an upward trend over the years, with the highest registration in 2019, with 180 cases. A gradual reduction, over the years, of the rates of TB patients, not tested for HIV, was also observed. The most affected sex was male, representing 95% of cases. **Conclusion:** from this perspective, the results of this study enabled the identification of the main epidemiological aspects of coinfection in Alagoas. This information serves to support actions that can contribute to the development of strategies for prevention, control, diagnosis, and timely treatment of diseases, favoring the reduction of morbidity.

Keywords: Epidemiology; Co-infection; LatentTuberculosis.

RESUMEN

Objetivo: realizar el análisis epidemiológico de la coinfección tuberculosis-VIH, en el estado de Alagoas, de 2010 a 2019. **Método:** se trata de un estudio epidemiológico

[1]CESMAC University Center. Maceió (AL), Brazil.
[2]University of Health Sciences of Alagoas/UNCISAL. Maceió (AL), Brazil.
[3,4,6]Federal University of Alagoas/UFAL. Maceió (AL), Brazil.
[5]Tiradentes University Center/UNIT. Maceió (AL), Brazil.

descriptivo, realizado a través de una encuesta en la base de datos DATASUS. La población de estudio estuvo constituida por todos los casos confirmados de tuberculosis y coinfectados por VIH notificados en el período de 2010 a 2019 y residentes en Alagoas. **Resultados:** hay 12.765 casos confirmados de tuberculosis; de estos, 1.296 obtuvieron resultados positivos para el VIH, que mostraron una tendencia de crecimiento a lo largo de los años, con el récord más alto en 2019, con 180 casos. También ha habido una reducción gradual, a lo largo de los años, en las tasas de pacientes con tuberculosis que no se someten a la prueba del VIH. El sexo más afectado fue el masculino, representando el 95% de los casos. **Conclusión:** en esta perspectiva, los resultados de este estudio permitieron identificar los principales aspectos epidemiológicos de la coinfección en Alagoas. Esta información sirve para apoyar acciones que pueden contribuir al desarrollo de estrategias de prevención, control, diagnóstico y tratamiento oportuno de enfermedades, favoreciendo la reducción de la morbilidad.
Palabras-clave: Epidemiología; Coinfección; Tuberculosis Latente.

INTRODUCTION

Tuberculosis (TB) is a disease known to be very old, affecting humanity for approximately five millennia. Also called, in other times, the white plague or typhus, it is a preventable, curable disease; however, because it has been neglected throughout the years, it has reached alarming numbers around the world, especially in underdeveloped countries.[1-2]

Its etiologic agent is Mycobacterium tuberculosis, also known as Koch's bacillus (KB), which is one of the types that can cause TB. In addition, there are M. bovis, M. africanum, M. canetti, M. microti, M. pinnipedi, and M. caprae. The characteristics of KB are that it has a slow growth rate, because its membrane is resistant and hinders the passage of nutrients. In addition, this microorganism is alcohol-acid resistant.[3]

TB has the pulmonary form, which is the most common, and the extrapulmonary form, from which there are several subtypes, such as peripheral ganglionar, meningoencephalic, and pericardial, among others. TB is transmitted through the airways when a smearpositive individual, that is, a person with pulmonary or laryngeal TB, who has a positive sputum smear test, coughs, eliminating aerosol particles in the environment. Data indicate that a smear-positive individual can infect 10 to 15 people, which confirms the importance and the need for early diagnosis and contact investigation in order to break the chain of transmission as soon as possible.[2]

Data from the World Health Organization (WHO) estimated that in 2017, ten million people developed TB and 1.6 million people died, of these, 300,000 people were HIV positive. It is known that people who have HIV are more likely to develop TB when infected. These data justify the global efforts encouraged by WHO to prevent the occurrence of co-infection through various initiatives, such as the

"Interim Policy on TB-HIV Collaborative Activities" launched in 2004 and updated in 2012.[4-5]

In Brazil, the occurrence of co-infection has increased over the years and, generally, HIV is diagnosed concomitantly with TB. In 2017, this was the case in 41.7% of co-infection cases in Brazil. In Alagoas, this percentage of concomitant diagnoses was slightly higher, with about 43.8% in 2017.[5]

The importance of understanding the epidemiology to plan actions to decrease the cases of co-infection is closely linked to the high rates and severity of the problem.

Thus, the following question that guided this research was raised: "What is the epidemiological profile of individuals affected by TB-HIV coinfection in Alagoas?" Given this, the objective of this study was to conduct an epidemiological study of TB-HIV coinfection, in the State of Alagoas, from 2010 to 2019.

METHOD

This study, of descriptive and epidemiological nature, was conducted through a survey in the DATASUS database, public domain data and unrestricted access. The data were collected in September 2020 and refer to the period from 2010 to 2019. The study population was composed of all confirmed cases of tuberculosis and HIV co-infected patients living in the State of Alagoas.

The following variables were selected and arranged in the form of tables in absolute and relative numbers: sex (female and male); age group (<1 year, 15-19, 20-39, 40-59, 60-64, 65-69, 70-79 and 80 and more); clinical form (pulmonary, extra-pulmonary and pulmonary + extra-pulmonary) and HIV (positive).

Data processing and analysis were performed using the TabWin (DATASUS) and Excel (Microsoft®) software, whose results received a simple descriptive statistical treatment and were presented in tabular form.

RESULTS

The record of 12,765 confirmed cases of tuberculosis in the State of Alagoas is observed. Of these, 1,296 were positive for HIV, which has shown a tendency to increase over the years, obtaining the highest record in 2019, with 180 cases. A gradual reduction was also observed over the years in the rates of TB patients not tested for HIV (Table 1).

Table 1 – Number of confirmed cases of tuberculosis and HIV testing results, per

year of notification, in Alagoas.

HIV	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total
Negative	450	501	539	573	620	604	792	846	947	901	**6,773**
Not performed	601	548	451	446	468	358	252	267	206	186	**3,783**
Positive	82	98	110	127	118	100	161	157	163	180	**1,296**
Ongoing	110	213	232	174	67	11	16	19	14	53	**909**
Ign/White	-	1	1	-	-	-	-	1	-	1	**4**
TOTAL	**1,243**	**1,361**	**1,333**	**1,320**	**1,273**	**1,073**	**1,221**	**1,290**	**1,330**	**1,321**	**12,765**

Ign: ignored. Source: Ministry of Health/SVS - Information System of Notifiable Grievances - Sinan Net.

In the present study, men were the most affected sex, accounting for 95% of the cases. Among the types of TB, the pulmonary form was more common among patients co-infected with HIV in all the years evaluated, with a total of 989 cases. The extra-pulmonary form followed, with 247 cases (Table 2).

Table 2 – Number of confirmed cases of tuberculosis co-infected with HIV, according to type of TB, by year of notification, in Alagoas.

Form	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total
Pulmonary	69	77	87	95	83	86	127	113	108	133	**989**
Extrapulmonary	10	16	17	21	23	10	25	38	44	42	**247**
Pulmonary + Extrapulmonary	3	5	6	11	12	4	9	6	11	5	**73**
TOTAL	**82**	**98**	**110**	**127**	**118**	**100**	**161**	**157**	**163**	**180**	**1,309**

Source: Ministry of Health/SVS - Information System of Notifiable Grievances - Sinan Net.

The study also showed that of the cases of HIV/tuberculosis co-infection, the predominant age group was 20-39 years, with 730 cases, followed by 483 in the 40-59 age group (Table 3).

Table 3 – Number of confirmed TB cases, according to HIV, by age group

Age group	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total
White/ IGN	-	-	-	-	-	1	-	-	-	-	**1**
<1 Year	-	-	-	-	-	-	2	-	1	2	**5**
01-04	-	1	-	-	-	-	-	-	1	-	**2**
05-09	-	-	-	1	1	-	1	-	-	-	**3**
10-14	1	4	1	-	1	1	-	-	-	-	**8**
15-19	5	3	5	3	2	-	5	4	2	2	**31**
20-39	47	43	61	65	78	48	83	95	96	109	**730**
40-59	28	45	41	53	31	43	65	54	58	58	**483**
60-64	-	-	1	3	1	5	2	3	3	3	**21**
65-69	1	2	1	2	3	-	1	1	2	5	**18**
70-79	-	-	-	-	1	1	2	-	-	-	**5**
80 and +	-	-	-	-	-	1	-	-	-	1	**2**

IGN = ignored. Source: Ministry of Health/SVS - Information System of Notifiable Grievances - Sinan Net.

DISCUSSION

The fact that the risk of getting sick is higher in vulnerable people, such as homeless people, HIV patients, and people deprived of freedom, makes HIV testing for people with active TB a guideline proposed by the National Tuberculosis Control Plan.[2,6]

The most frequent susceptibility factors for tuberculosis in men are still not well understood; however, what is suggested is that they may be related to self-care deficits, but may also be related to various conditions, such as biological factors and even under-diagnosis in women.[7]

In Acre, as in Alagoas, the pulmonary form of TB affected the majority of the TB population, about 90%.[2,8] Sputum smear microscopy is the most widely used diagnostic method, even though there are other ways of diagnosing the disease on the market, because when compared to other methods available, it is one of the most feasible because of its low cost and simplicity.[9]

As in other communicable diseases, the age group most affected by TB and HIV co-infection patients is the one considered economically active, in which adults and young people predominate, resulting in socioeconomic impacts, due to time off work in severe cases of the disease, and the need for isolation until the potential for disease transmission is reduced.[10]

CONCLUSION

It is noted, in the period from 2010 to 2019, an increase in cases of co-infected patients, especially in recent years, which highlights its epidemiological relevance as a comorbidity of great impact on public health.

From this perspective, the results of this study enabled the identification of the main epidemiological aspects of co-infection in Alagoas, such as the reduction in the number of TB patients not tested for HIV, the higher number of male co-infected patients, and the most common form of TB in HIV co-infected patients being pulmonary.

This information is used to support actions that can contribute to the development of strategies for prevention, control, diagnosis and timely treatment of diseases, favoring the reduction of morbidity and mortality.

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