

Evaluation of tuberculosis as a risk factor for COVID-19 lethality in São Paulo, Brazil

Igor C. Borges, Fernando M. Lino, Alessandra Luna-Muschi, Ester C. Sabino and Sivia F. Costa

Introduction: COVID-19 and tuberculosis (TB) are two ongoing health crises globally. We aimed to evaluate if TB is associated with COVID-19 lethality.

Methods:

- Retrospective cohort study using data from two databases of the state of São Paulo, Brazil:
 - SIVEP-Gripe: acute respiratory distress syndrome (ARDS) from April/2020 to December/2020
 - TBWEB: TB cases from January/2010 to December/202
- Exclusion criteria:
 - ARDS cases that were not caused by COVID-19
 - Non-hospitalized
 - Age <15 years-old.
- Social vulnerability was evaluated using the IPVS score, which estimates the degree of vulnerability based on georeferencing the address of the patient (score-1=least vulnerable; score-7=most vulnerable).
- Multiple logistic regression analysis evaluated the association between TB and COVID-19 lethality.
- Approved by HCFMUSP's ethics committee.

Results:

- 178,477 cases were included in the study
 - 155,446 (87%) cases had confirmed COVID-19 by RT-PCR or antigen tests.
- Most cases were hospitalized in São Paulo metropolitan region
- July/2020 was the most frequent month of symptoms onset

	TB+ (675)	TB- (177.802)
Male	69%	56%
Age (mean)	50 (±16)	59 (±18)
Race		
Black	36%	21%
Non-black	50%	58%
Ignored	14%	21%
Previous diseases		
None	77.506 (45)	293 (44)
One	53.885 (31)	216 (32)
Two	31.607 (18)	110 (17)
Three or more	10.753 (6)	44 (7)
IPVS (mean)	2.3	2.5
Death due to COVID-19	203 (31%)	49,046 (28%)

Table 1. Characteristics of patients with ARDS due to COVID-19 with and without tuberculosis (TB) in São Paulo

- TB was detected in 675 (0.4%) cases, among which concomitant TB and COVID-19 was present in 213 (32%) cases and TB previous to COVID-19 in 463 (68%) cases
- Pulmonary TB was the most common presentation of TB (521/675[77%])
- Current (OR=1.5; 95%CI 1.0-2.2) and previous (OR=1.3; 95%CI 1.1-1.7) TB were independent risk factors for COVID-19 lethality
- Older age, male gender, black race, higher number of previous diseases, higher IPVS score, region of hospitalization, and symptom onset during the first months of the pandemic were also independent risk factors for COVID-19 lethality.

Conclusion: Previous or concurrent TB is an independent risk factor for COVID-19 lethality.

Copenhagen, Denmark
15–18 April 2023

33rd ECCMID

