ISSN 2692-5877
DOI: 10.46998/IJCMCR.2021.18.000426

International Journal of
Clinical Studies & Medical Case Reports

Review Article

Tuberculosis and Covid-19 Co-infection

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Received: January 22, 2022 **Published:** February 07, 2022

Introduction

Tuberculosis (TB) is an infectious disease spread through the air that is caused by Mycobacterium tuberculosis bacteria. M. tuberculosis is primarily a lung infection, but it can infect practically any area of the body. M. tuberculosis infection can progress from latent TB infection, in which the bacteria are isolated within granulomas, to infectious state, in which the patient develops symptoms such as cough, fever, night sweats, and weight loss. Only active pulmonary tuberculosis is infectious [1].

In 2019, 1.4 million people died from tuberculosis. TB is one of the top ten causes of death worldwide, and the main cause of death from a single infectious agent (behind HIV/AIDS.).

Globally, an estimated ten million people got tuberculosis in 2019. (TB).

In the country, there are 5.6 million men, 3.2 million women, and 1.2 million children TB is both preventable and curable.

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) or 2019 novel coronavirus (2019-nCoV) is rapidly spreading from its origin in Wuhan, Hubei Province, China, to the rest of the world [2]. Around 96,000 cases of coronavirus disease 2019 (COVID-19) and 3300 deaths have been documented as of March 5, 2020 [3]

Since December 31, 2019 and as of November 28, 2020, there have been 61 715 119 instances of COVID-19 (according to the case criteria and testing procedures used in the affected areas [4]. Given the enormous global incidence of tuberculosis and the rising burde of COVID-19, the coinfection appears to be more of a coincidental than causal link

Due to the chronic nature of TB, people with active TB are more likely to be exposed to COVID-19 infection. A larger prevalence of multidrug-resistant TB patients in the present supports the theory [5].

Given that both coronavirus disease 2019 (COVID-19) and tuberculosis (TB) have become major causes of death worldwide [6,7], we wanted to see what happen if the two pandemics clash [8].

Given the high transmissibility of SARS-CoV-2, COVID-19 is highly likely to be a major problem for people [9].

Method

The electronic database of PubMed was thoroughly searched for relevant publications ["tuberculosis" OR "TB"], ["SARS" OR "SARS-CoV" OR "SARS-CoV-1"], CoV were the search phrases used.

Article identification, duplicate removal, little abstract screening and eligibility assessment of selected complete texts were all part of search procedure. In addition, research of relevance was examined in the reference lists of valid articles.

Articles were included if they contained information on previous cases of tuberculosis or SARS-CoV-1.

According to review of literature:

The coronavirus disease 2019 is caused by the novel coronavirus extreme as acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (COVID-19). The first COVID-19 was discovered in Turkey on March10.2020. and as of May 18, 2020 148,067 cases had been diagnosed, with 4096 residents having perished

Our laboratory analyzed 4605 respiratory samples for COVID-19 and 185 samples for Mycobacterium TB between March 23 and May18. SARS- COV2 and M. tuberculosis tests were performed in 30 patients on medical and radiological grounds. We described two patients who tested positive for COVID-19 and TB. One patient who had already been diagnosed with tuberculosis developed a high COVID-19 level [10].

TB is responsible for an estimated 2.5 million new cases and 3.75 lakh

deaths each year, despite all of the COVID celebrations. India leads the way here as well, with 6.25 lakh new cases and approximately one lakh deaths every year (mortality rate of 20%).

The situation is exacerbated by the growing number of drug-resistant patients, which is driving up the death rate.

On the other hand, people infected with tuberculosis have a lifetime risk of developing active disease of 5 to 15%, and patients with active tuberculosis can infect 10 to 15 people annually. In addition, the list of tuberculosis-susceptible populations much longer than COVID19 includes immunocompromised people, people living with HIV, malnourished people, diabetic patients, tobacco users, alcohol users, and people with other comorbidities [11].

In fact, tuberculosis and viral respiratory infections, including COVID19, share certain similarities. They are primarily intended to invade susceptible populations by droplet infection or other transmission routes from sources of infection. Patients with tuberculosis also suffer from acute respiratory infections. Liu et al during the 2003 SARS outbreak. Three patients with SARS with chest x-rays consistent with active disease were

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identified as patients with pulmonary tuberculosis among 83 patients with SARS. Patient 1 was also diagnosed with bacteriologically confirmed tuberculosis when he was diagnosed with SARS. Patients 2 and 3 had cases of pulmonary tuberculosis and were known to be infected with SARSCoV after exposure to other patients admitted with SARS. In Singapore, of the 236 potential SARS patients, two were co-infected with tuberculosis. One of them suddenly developed a dry cough and was diagnosed with pulmonary tuberculosis after recovering almost completely from SARS. Another case dates back to sputum culture, where tubercle bacilli were found in sputum. The authors suggested that infection with SARSCoV causes transient suppression of cell-mediated immunity, and that both patients are predisposed to infection [12].

Grosted glassy shading (GGO) is the most common pattern seen on chest computed tomography (CT) in patients with COVID19. Guan et al. Chest x-rays were reported to be abnormal in 840 (76.4%) of the 1099 patients. Of these 840 patients, 550 had GGO and 505 had bilateral patchy shadows. Other common abnormalities include localized patchy shadows and interstitial abnormalities. Significantly severe cases were diagnosed by reverse transcriptase-polymerase chain reaction with no more abnormal radiological findings than non-severe cases, in addition to symptoms. Pan et al. [13] We investigated changes in the chest CT lungs during recovery in 21 patients. The first lung findings on chest CT were small subpleural GGOs that grew in size over the next two weeks with a crazy pattern and hardening. Eventually the lesion was absorbed, leaving an extensive GGO and subpleural parenchyma band. Primary tuberculosis manifests itself in three major entities: parenchymal disease, lymphadenopathy, and pleural effusion. In CT studies, the appearance of parenchymal hardening in primary tuberculosis is most commonly dense and homogeneous [14,15]. In most cases of reactivated tuberculosis, multiple lung areas are affected, with bilateral disease in one-third to two-thirds of cases. Bronchial spread can be confirmed by CT scan in 95% of patients after primary tuberculosis. [16] The appearance of "tree buds" is recommended to assess whether the disease is active. Approximately 50% of patients are affected by cavitation, which is characteristic of post-primary tuberculosis.

Two unique ways TB shows us light at the end of the COVID 19 tunnel. First, individuals with underlying disorders such as diabetes, hypertension, and cardiovascular disease are susceptible to CoVID19 rather than infants without signs of developing severe cases as a result of a highly effective congenital immune response. I understand. We are trying to establish a link between BCG vaccinations that provides some immunity to the disease. For example, the Netherlands and the United States are more affected than countries with a universal and long-standing BCG policy. Countries with long-standing BCG mass vaccination programs have fewer infections and deaths recorded due to CoVID19. India, which has been vaccinated with the world's BCG vaccine, has proven to be very effective against SARS infection, even at reduced intensity. Several years of research have found that BCG vaccines can enhance a strong immune response, but do they provide protection against CoVID19? Second, the extensive experience of studying close contact with tuberculosis patients can be used as a learning tool to propose SARSCoV2 screening and contact tracking strategies in a low permeability community environment. Contact generation is positive and sentinel testing of patients with respiratory symptoms in the general population is performed to quickly detect the onset of persistent community infections and thereby effectively use the available resources. is needed [17].

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