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Commentary

Risk Factors Detection in Tuberculosis

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DESCRIPTION

Although transmission of *Mycobacterium tuberculosis* through transferred solid organs has been widely documented, infection through transplanted tissues is unexpected. In countries in the WHO European region, where rates of drug-resistant tuberculosis are the highest of all WHO regions, we looked into access to genetic and phenotypic *Mycobacterium tuberculosis* drug susceptibility testing, the availability of anti-tuberculosis drugs, and the cost of drugs and treatment regimens. The COVID-19 pandemic has resulted in a significant reorganization of economic, social, and health resources that has had an impact on the prevention, detection, and prognosis of other diseases. Programs for the control and prevention of Tuberculosis (TB) have suffered as a result of resources being redirected to the fight against the epidemic.

According to the World Health Organization, 21% of tuberculosis cases were still undetected in 2020, which led to 500,000 more deaths than the organization's own objectives outlined in its "End TB" plan. The frequency of other infectious illnesses spread by the respiratory route that have a short incubation period, such as influenza and respiratory syncytial virus, has, however, decreased as a result of social isolation and respiratory isolation measures put in place since the pandemic's emergence. It is unclear how anti-COVID-19 methods would affect TB, a disease with a longer incubation period that is also transmitted through the respiratory route.

Date of diagnosis, age, location, chest X-ray characteristics (cavitary/non-cavitary), sputum smear characteristics (*bacilliferous/non-bacilliferous*), source of case data (notification of the treating physician, or active searches of virology and pathology records, Aids registries, penitentiary institution archives, and death records), and time since the onset of symptoms before diagnosis were all examined. The National Institute of Statistics registry was used to acquire demographic information. By comparing proportions, the incidence of TB in the second half of 2020, following the installation of confinement due to the COVID-19 pandemic, was compared to that of the same time in 2019. The Mann-Whitney test was used to compare the number of diagnostic delay days.

To find a potential turning point in the trend, six-month trends going back to 2015 were examined using a Poisson regression analysis, followed by a segmented regression analysis. The cost of diagnosing or treating Latent Tuberculosis Infection (LTBI) has been the subject of several research, but few have looked at the whole cost of the contacts tracing procedure for Tuberculosis (TB) patients. Furthermore, there is still disagreement over the best diagnostic technique for LTI. Type II responses that occur during allergic reactions, fungal infections, and parasitic disorders are commonly linked to eosinophil infiltration into to the lungs. However, eosinophil buildup in lung lesions is a type I inflammatory response to *Mycobacterium tuberculosis* (Mtb) that supports host resistance in humans, macaques, and mice.

After being exposed to Mtb for as little as one week, those eosinophils start to penetrate the lungs of mice and macaques. This influx happens in mice without the participation of CCR3, in contrast to humans and macaque eosinophils that exhibit high amounts of the oxysterol receptor GPR183. Murine eosinophils directly engage with bacilli-filled alveolar macrophages, that up regulate Ch25h, and this connection prevents eosinophil recruitment in mice missing the oxysterol-synthesizing enzyme Ch25h.

CONCLUSION

An essential tactic for preventing TB sickness is the treatment of latent tuberculosis infection. The Tuberculin Skin Test (TST) and two IFN-release assays are the three tests that are utilized in the USA to detect latent tuberculosis infection (T-SPOT.TB and QuantiFERON). To our knowledge, only a few sizable studies have examined results from all three tests in individuals with a high risk of developing a latent TB infection or the illness itself. In order to offer recommendations for their usage in significant risk categories, we sought to evaluate the test agreement between IFN-release tests and TST.

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