StatinTB

Preventing TB relapse and chronic lung disease:
A proof-of-concept, double-blind, randomised, placebo-controlled trial to evaluate the safety and efficacy of atorvastatin to reduce inflammation after TB treatment completion in HIV-infected and HIV-uninfected adults measured by FDG-PET/CT.

FACT SHEET

StatinTB

Acronym
StatinTB

Full Title
Preventing TB relapse and chronic lung disease: A proof-of-concept, double-blind, randomised, placebo-controlled trial to evaluate the safety and efficacy of atorvastatin to reduce inflammation after TB treatment completion in HIV-infected and HIV-uninfected adults measured by FDG-PET/CT.

Programme
EDCTP2

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RIA2017T-2004

ABSTRACT
Mycobacterium tuberculosis (Mtb), the causative agent of tuberculosis (TB), has become the top infectious killer worldwide. According to the 2019 World Health Organization (WHO) Global Tuberculosis Report, TB killed approximately 1.5 million people globally, and 10 million new cases were reported in 2018. There is thus a clear need to develop new, alternative drug treatments for TB.

Mtb has acquired a remarkable ability to exploit cellular host factors for its own survival and persistence. Drugs targeting these factors could thus become promising candidates for adjunctive host-directed drug therapeutics that aim to reduce tissue pathology, Mtb burden, and TB relapse. They may also help shorten the duration of current anti-TB treatments.

Mtb establishes its infection by targeting macrophages primarily in the lung. Active TB patients contain characteristic foamy macrophages in their lung where intracellular host cholesterol ester is accumulated, a major component of lipid droplets. Therefore, the bacterium needs to be able to use cholesterol from the host in order to maintain a chronic infection.

Cholesterol is lowered by statins, which are currently prescribed and licensed globally and have made a significant beneficial impact in patients for reducing the risk and mortality of cardiovascular diseases. However, statins are currently not prescribed anywhere in the world for the treatment of TB. StatinTB introduces statins as adjunctive therapy for TB patients, by repurposing a drug as low-risk and cost-effective method to lower TB relapse and significantly reduce post-TB chronic lung disease. Unlike the conventional antibiotic treatment for anti-TB drugs, statins act directly on host cell functions, thus avoiding the development of TB drug resistance.

Statins could, therefore, become a promising treatment strategy to increase the host antimicrobial responses and to limit chronic inflammation and pulmonary tissue damage. Moreover, the impact on drug development, lead-time to market, and future practical implementation for the use of statins as host-directed therapy for TB could be fast-tracked because statins are already approved for the treatment of cardiovascular diseases by the European Medicines Agency (EMA), the US Food and Drug Administration (FDA), and the South African Medicines Control Council (MCC).

The consortium hypothesises significant improvement after treatment with statins, which will lead to a much higher quality of life by improving lung health, allowing patients to return to a healthy state after the end of their TB treatment.

Duration

66 months (01/01/2019 — 30/06/2024)

Project Funding

4,945,052.34 EUR

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