



New research brings TB vaccine hope

Description

We mark World TB Day on 24 March, the day Dr Robert Koch first discovered the bacillus that causes the disease. The good news is that a new vaccine could represent a major breakthrough in preventing the disease.

Tuberculosis (TB) is a bacterial infection that mainly affects the lungs but can also affect other parts of the body such as the brain, heart, kidneys, bones, lymph nodes and spine. The most common symptoms include a persistent cough (lasting more than two weeks), coughing up blood and chest pains. Other symptoms include fever, weight loss, chills and night sweats.

TB is an airborne disease. When a person with TB coughs, sneezes or speaks, small droplets containing the TB bacteria are released into the air, putting others at risk of becoming infected if they inhale these droplets.

South Africa has a very high incidence of TB, and it's the leading cause of death for those living with HIV.

Who is at highest risk?

Those who have a weakened immune system due to conditions such as diabetes, HIV or chronic renal failure, infants and children (younger than four years), and those who have had latent (infection without symptoms) or active TB infection in the past two years are most at risk.

Can TB be cured?

When someone is diagnosed with TB, healthcare providers will prescribe medication that must be taken for at least six months. To cure TB and avoid the risk of developing drug-resistant TB, it is crucial for the patient to finish the full course of medication.



How can TB be prevented?

Prevention of transmission is possible through early identification and treatment to render infected individuals non-infectious. Currently, BCG is the only licensed TB vaccine. This vaccine only protects infants against severe forms of TB. Adults and adolescents who are at greater risk are not protected.

A vaccine in the works

The development of a new mRNA vaccine provides hope.

- A messenger ribonucleic acid (mRNA) vaccine is a biological substance designed to provide protection against developing a disease.
- It differs from other vaccines where a small amount of damaged or dead virus is injected.
- mRNA vaccines instead contain messenger molecules that will give an instruction to the body to produce a protein, which will be destroyed by the immune system as it is foreign to the body.
- When exposed to the same virus or bacteria in future, the immune system will recognise it and create antibodies that can target and attack it.

Trials under way

Recently, the South African TB Vaccine Initiative (SATVI), in collaboration with Stanford University in the US, studied the role of T-cells, which are immune cells that are critical to control TB in infected people. The researchers identified the bacterial protein targets that are recognised by the T-cells in people that control the infection.

It's believed that promoting T-cell responses to these protein targets may be effective in controlling TB infections. As a result, these proteins are considered promising targets for inclusion in new TB vaccines.

The next step will be to design mRNA-based vaccines of these proteins. This is being pursued by a collaborative team of researchers from the University of the Witwatersrand, South African Medical Research Council, Antiviral Gene Therapy Research Unit and the Experimental Tuberculosis and Immunology Research Group at the University of Cape Town.

Who to contact

If you suspect that you have TB, WhatsApp the Department of Health support line (0600 123 456), where you will be advised if testing is required and be directed to the nearest healthcare facility. People living with HIV are advised to routinely test for TB, and individuals who have had close contact with someone who has TB infection are advised to get tested even if they are not experiencing symptoms.

As TB is a communicable disease and management is part of the PMB requirements, coverage on all scheme options is for diagnosis, acute management and maintenance therapy.

Category

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