Steroid reduces risk of complication when treating HIV and TB patients

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The researchers meet at a trial site in Cape Town. Credit: Graeme Meintjes

An inexpensive and readily accessible anti-inflammatory drug reduces the risk of a potentially dangerous complication in patients starting treatment for both TB and HIV.

The international team which carried out the clinical trial in South Africa included scientists from the Crick. Their results provide the first evidence for an effective strategy to prevent this common complication, which would be an important step in South Africa and other parts of sub-Saharan Africa dealing with the dual epidemics of HIV and TB.

In sub-Saharan Africa, people with HIV frequently also develop TB. People arriving at clinics with TB symptoms are often found to have both HIV infection and active TB disease.

In these patients with immune systems weakened by HIV, TB treatment is first started followed by antiretroviral therapy (ART) for the HIV a few weeks later.

"If you have advanced HIV infection and develop TB, the mortality rate can be as high as 1 in 4," says Robert Wilkinson of the Francis Crick Institute and Imperial College London, one of the study authors.

"Treat the TB, and people begin to get better. Treating the HIV as well with antiretroviral therapy (ART), you see better outcomes - more people survive. But in some patients, in some studies up to 40-50%, the TB suddenly gets much worse. The reason is that, in addition to restoring good immune responses, the ART restores bad immune responses."

This complication is known as TB-associated immune reconstitution inflammatory syndrome, or TB-IRIS for short. About a quarter of patients who develop TB-IRIS require hospital admission and there are no treatments to prevent it at present.

Robert adds: "A lot of TB damage and even death is down to the patient's own immune system and inflammation.

"We carried out a trial that randomized patients to steroids as an anti-inflammatory drug, as well as the TB and HIV treatments. This is perhaps a surprising approach in HIV patients - we're looking to immunosuppress them even more. But we wanted to try and dampen any inflammation that made the TB worse."

The scientists carried out a clinical trial in South Africa to see if a common, inexpensive steroid called prednisone could safely reduce the risk of TB-IRIS in these patients.

Prednisone is a corticosteroid anti-inflammatory drug that costs less than US$3 for a month's supply in South Africa. It is widely used for the treatment of conditions such as asthma and certain forms of arthritis.

The trial included 240 patients in HIV-TB clinics in Khayelitsha township, Cape Town, who were HIV-

positive with a low immune cell count, who had not received ART and had been diagnosed with TB. All patients received TB treatment and ART.

They were randomized to receive either prednisone or a placebo for 4 weeks at the same time as they started ART medication. They were followed intensively for a further 8 weeks.

The proportion of patients diagnosed with TB-IRIS was significantly lower in the group receiving the steroid. 33% of patients in the prednisone group developed TB-IRIS compared with 47% of people receiving placebo.

Prednisone appeared safe in these patients with advanced HIV: adverse events and severe infections were not more common in the prednisone-treated participants.

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