Communication and Marketing Department
Isebe loThungelwano neNtengiso
Kommunikasie en Bemarkingsdepartement

Private Bag X3, Rondebosch 7701, South Africa
Welgelegen House, Chapel Road Extension, Rosebank, Cape Town
Tel: +27 (0) 21 650 5427/5428/5674 Fax: +27 (0) 21 650 5628

www.uct.ac.za

22 March 2017

UCT study shows that urine test is better for diagnosing TB rapidly among hospitalised HIV-infected patients

A study published this week in the journal BMC Medicine by researchers from the University of Cape Town shows that among hospitalised patients with HIV infection, a simple and inexpensive urine test identified more TB diagnoses in the first 24 hours of admission than rapid sputum-based tests.

This urine test (the Determine TB-LAM assay, similar to a pregnancy test) detects components of the cell wall of the TB bacterium in the urine and takes about 20 minutes to undertake without need for special infrastructure.

One of the researchers on the study, Professor Graeme Meintjes said: "The results of this study build on findings of other UCT researchers that this urine test can reduce mortality among HIV-infected patients admitted to hospital by speeding up the diagnosis of TB.

"The findings of these studies challenge the dogma that the first place to look for TB is in the sputum. Among a select group of patients (HIV-infected patients with very weak immune systems admitted to hospital) a combination of tests is required, including urine and sputum tests, to facilitate a quick diagnosis of TB thereby allowing doctors to start patients with TB on appropriate treatment rapidly."

Historically, the laboratory examination of sputum samples has been the method used to diagnose most cases of TB. However, it is well recognised that this approach often fails in patients with HIV infection. In many of these patients, TB spreads from the lungs to the blood and other organs in the body due to poor immunity.

Additionally, there may be few or no TB bacteria found in their sputum, either because they are too weak or ill to produce a good sputum sample or because of less TB cavity formation in their lungs.

The difficulty of diagnosing TB is particularly true for patients with HIV who are sick enough to be admitted to hospital. Notably, in such patients, it is critically important to make a rapid diagnosis of TB so that treatment may be initiated promptly to avoid deaths.

The study was conducted at GF Jooste Hospital prior to it being decommissioned. A total of 427 consecutive patients with HIV infection admitted to the medical wards were screened for TB using sputum, urine and blood tests. In total, one in three (33%) of these patients were diagnosed with active TB disease. Among patients with TB, sputum microscopy and sputum Xpert diagnosed TB within 24 hours of admission in 19% and 27%, respectively, compared to 38% using the urine Determine TB-LAM assay. The urine test was particularly useful for diagnosing TB in the patients with the lowest CD4 counts or weakest immune systems as well as those who were anaemic.

The main reason that the urine test outperformed the sputum test was because of how difficult it was to obtain a sputum specimen from many patients on admission. Whereas almost all patients, even those were very ill, could provide a urine sample.

The study was led by Professor Steve Lawn, who passed away in September 2016, after a long battle with brain cancer. Professor Lawn, originally from the UK, conducted research in Cape Town from 2004 until the time of his death. He made seminal contributions to understanding the interactions between HIV and TB, the role of antiretroviral therapy in preventing TB in HIV-infected people and the important role of new diagnostic tests in improving the diagnosis of TB in HIV-infected people. Professor Lawn published over 100 papers with UCT colleagues on HIV and TB in leading international journals.

Notes for Editors:

Full Title of the Paper: Diagnostic accuracy, incremental yield and prognostic value of Determine TB-LAM for routine diagnostic testing for tuberculosis in HIV-infected patients requiring acute hospital admission in South Africa: a prospective cohort

Authors: Stephen D. Lawn, Andrew D. Kerkhoff, Rosie Burton, Charlotte Schutz, Andrew Boulle, Monica Vogt, Ankur Gupta-Wright, Mark P. Nicol, Graeme Meintjes

Attached Picture: The late Professor Steve Lawn who led the study

ENDS

Issued by: UCT Communication and Marketing Department

Elijah Mohololа
Head: Media Liaison
Communication and Marketing Department
University of Cape Town
Rondebosch
Tel: (021) 650 5674
Fax: (021) 650 3780
Cell: (083) 981 7770
Email: elijah.mohololа@uct.ac.za
Website: www.uct.ac.za