High Hopes for Tuberculosis

Scientists in Bangladesh have found a new way to detect the deadly disease, especially in children and HIV patients

Developed by scientists in Bangladesh, a new test for Tuberculosis (TB) makes it easier to detect the killer disease, particularly in vulnerable groups like children. Medical experts say the test could potentially save lives in the developing world.

"The problem we have in hospitals in developing countries like Bangladesh is how to diagnose TB. The current TB national guidelines are that if the person has some symptoms, you test the sputum, but the problem is that you do not always see TB in the sputum," says Dr Pradip Bardhan, Head of the Special Care Unit, Dhaka Hospital. "One of the most difficult situations to diagnose is when a child is suspected of suffering from TB." TB is an infectious disease that peaks in overpopulated communities with lower socioeconomic conditions.

Bangladesh ranks sixth out of the world's 22 highest burden TB countries, with 300,000 new cases and 70,000 deaths a year, according to the World Health Organization.

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Southeast Asia, meanwhile, accounts for one-third of global TB cases.

"We have been looking for a test we can do irrespective of age to make a positive diagnosis," Bardhan adds.

With that in mind, Dr David A Sack and Rubhana Raqib from the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B), a Dhaka-based non-profit organisation, hit the labs and got to work. The result was the "antibodies produced by peripheral blood lymphocytes in culture supernatant," or ALS.

"The problem with the sputum smear test is that the sensitivity is quite low and if a patient has a low load of bacteria then it will not be detected," says Raqib, ICDDR,B's senior scientist.

ALS involves taking blood samples and separating the white cells from the plasma, culturing the cells in a sealed incubator and then checking to see if the cells release specific antibodies, thus indicating TB.

Successful tests have been carried out on children in Bangladesh, as well as TB/HIV patients in Ethiopia, another group in which TB is difficult to detect, leading to many patients not getting the treatment they need.

Developing new tools to prevent, diagnose and treat TB is essential for beating the disease, says Bobby Ramakant, director of Citizen News Service Stop-TB Initiative.

At the moment, ALS requires sophisticated lab equipment and isn't yet cost efficient, meaning Raqib and his team need to simplify the method, so it's too early to celebrate just yet, says Dr Armand Van Deun, bacteriology consultant of the International Union Against Tuberculosis and Lung Disease.

"This type of test in a simple format would indeed be the ideal TB diagnostic test. Provided the results remain sufficiently accurate, which is really the challenge," he says, adding that previous antibody and antigen testing has often disappointed, especially in countries where TB is endemic. Simplifying the test could be done in a few years with the support of commercial partners, says Raqib.

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