PS-005 POLICY-DRIVEN INTERVENTIONS: TUBERCULOSIS

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Annual tuberculosis (Tb) rates decline by 1.7%, which is inadequate to reach WHO targets. We describe three host-biomarker developments that are entering clinical testing and that could accelerate progress against TB.

Blood mRNA signatures with promising predictive ability for incident TB were recently described in African cohorts. Correlate of risk (COR) positive participants have 7 to 18 times increased risk for progression. A clinical trial is underway in South Africa under leadership of the South African Tuberculosis Vaccine Initiative to evaluate targeted chemoprophylaxis in COR positive people in an area with a very high prevalence of latent TB infection, where untargeted preventative treatment is not practical.

Historical data suggests that 85% of patients are cured after 4 months of TB treatment but attempts to shorten treatment without an unacceptable relapse rate have failed. Treatment shortening criteria based on PET/CT imaging and microbiological criteria were developed. An EDCTP/Bill & Melinda Gates Foundation/NIH co-funded study, led by the Tuberculosis Research Section of the NIH, will start in South Africa and in China in 2017 to evaluate biomarker-driven treatment shortening to 4 months.

To address diagnostic bottlenecks, a blood-based 7-host marker diagnostic signature was recently found with promising screening potential for active TB. An EDCTP-funded project with Africa and EU partners aims to develop a point-of-care, finger stick blood test that can simultaneously measure all 7 markers and rule out 75% of people with symptoms compatible of active TB in whom the diagnosis is subsequently ruled out. Such screening tests could speed up diagnostic work-up and save significant costs. Taken together, biomarker-driven interventions are now being actively tested and hold promise to provide important tools towards the eventual eradication of the TB scourge.