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Unmasking the Hidden Burden of Tuberculosis in Mozambique

Using highly sensitive molecular techniques, a post-mortem study detects tuberculosis cases that would have otherwise been missed

Barcelona, August 1, 2019.— The real burden of tuberculosis is probably higher than estimated, according to a [study](#) on samples from autopsies performed in a Mozambican hospital. The study, led by the [Barcelona Institute of Global Health \(ISGlobal\)](#), an institution supported by "la Caixa", shows that highly sensitive molecular techniques can detect cases that escape clinical diagnosis and even traditional *post-mortem* examination of organs and tissues.

Tuberculosis (TB) is the leading infectious cause of disease globally and the most frequent cause of HIV-related deaths. In 2017, there were 10 million cases and 1 million TB deaths, according to WHO figures. But estimating the real burden of TB mortality is not easy, since clinical diagnosis or verbal autopsies are often unreliable.

Under the framework of **CaDMIA**, a project that seeks to validate the use of **minimally invasive autopsies to determine causes of death** and that is directed by Dr Jaume Ordi, Dr Clara Menéndez and Dr Quique Bassat, a team led by ISGlobal researcher Miguel Martínez performed a post-mortem study to evaluate the real TB burden in a hospital in Southern Mozambique, a region where the HIV and TB epidemics have devastating consequences. The research team analysed clinical data and samples from **223 complete autopsies** performed on children, mothers and other adults. "The detailed **histopathological and microbiological analysis** we performed during the autopsies represents the most reliable way of identifying the cause of death and generating reliable information on the burden of TB," says **Miguel J. Martínez**.

The results indicate that **TB was the cause of death in 31 of the 223 cases**; in 31 other cases disease signs were detected although it was not the cause of death. Most of these cases were **incorrectly diagnosed** by the clinician. In 18 additional cases, genetic material of the *M. tuberculosis* bacterium was detected, without any clinical or histological sign, which could reflect very early stages of the disease.

"This investigation is part of one of the largest autopsy studies conducted to date in sub-Saharan Africa," says **Alberto García-Basteiro**, ISGlobal researcher and first author of the study, "and reveals the **enormous burden of tuberculosis** among population that dies in a reference hospital in Mozambique. Overall, 28% of patients had the disease at the time of death. The TB burden was **even higher in HIV-positive adults** (*M. tuberculosis* was detected in up to 51% of cases).

The results of the study, published in the *European Respiratory Journal*, also reveals the high number of cases that are missed by clinicians. "The routine use of these molecular techniques among patients in severe condition in high-burden TB countries could result in earlier detection of the disease and a better clinical management and prognosis of tuberculosis patients," adds García-Basteiro.

Reference

Garcia-Basteiro AL, Hurtado JC, Castillo P, Fernandes F, Navarro M, Lovane L, Casas I, Quintó L, Jordao D, Ismail MR, Lorenzoni C, Carrilho C, Sanz A, Rakislova N, Mira A, Alvarez-Martínez MJ, Cossa A, Cobelens F, Mandomando I, Vila J, Bassat Q, Menendez C, Ordi J, Martínez MJ. *Unmasking the hidden tuberculosis mortality burden in a large postmortem study in Maputo Central Hospital, Mozambique*. Eur Respir J. 2019 Jul 25. pii: 1900312. doi: 10.1183/13993003.00312-2019. [Epub ahead of print] PubMed PMID: 31346005.

About ISGlobal

The Barcelona Institute for Global Health, ISGlobal, is the fruit of an innovative alliance between "la Caixa" and academic and government institutions to contribute to the efforts undertaken by the international community to address the challenges in global health. ISGlobal is a consolidated hub of excellence in research that has grown out of work first started in the world of health care by the Hospital Clínic and the Parc de Salut MAR and in the academic sphere by the University of Barcelona and Pompeu Fabra University. The pivotal mechanism of its work model is the transfer of knowledge generated by scientific research to practice, a task undertaken by the institute's Education and Policy and Global Development departments. ISGlobal a member of the CERCA programme of the Generalitat de Catalunya.

ISGlobal's Press Office

Aleix Cabrera

aleix.cabrera@isglobal.org

00 34 93 227 18 16 / 00 34 661 913 235

Marta Solano

marta.solano@isglobal.org

00 34 93 214 73 33 / 00 34 661 45 16 00

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