Australian Respiratory Council Research Support Grants 2023/2024 Funding

Project Title: Barriers to Latent Tuberculosis Treatment in Ca Mau, Vietnam

Professor Guy Marks AO, Woolcock Institute of Medical Research

Tuberculosis is a leading infectious disease causing 1.6 million deaths in 2021. The WHO End Tuberculosis Strategy, published in 2014, endorses the goal of eliminating TB as a priority public health issue and sets ambitious targets to reduce TB incidence, compared with 2015 levels, by 90% by 2035. Latent tuberculosis effects 1.7 billion people worldwide and 5-10% of those with LTBI progress to active tuberculosis during their lifetime.

Latent tuberculosis infection (LTBI) treatment is an important element of tuberculosis elimination as this reduces the reservoir of tuberculosis in the community. Historically, the mainstay of LTBI treatment has been six to twelve months of daily isoniazid but the newer shorter regimen of rifapentine plus isoniazid, given once weekly, for three months (3HP) is as effective as using isoniazid daily for nine months and has a higher treatment completion rate with less toxicity.

Though 3HP is largely well tolerated, there is the rare but serious adverse event of hypersensitivity reaction. This serious reaction is a barrier to scaling-up implementation of 3HP - it can cause hospitalisations which is of concern in the context of a preventative therapy. This problem would be mitigated if it was possible to accurately predict those patients who are at risk of developing this reaction and my overall aim is to create a prediction model for clinician use on the ground to allow them to safely use 3HP.

The specific aims of this project are:

1. Establish the mechanism of the hypersensitivity event associated with the 3HP regimen

2. Identify those who are at greater risk of severe hypersensitivity events

3. Develop a tool to predict those who are at risk for this hypersensitivity reaction so they can be either be excluded from using this regimen or prescribed a lower dose of the regimen

4. Test (validate) the effectiveness of this tool in reducing the risk of SDRs with 3HP by using it to exclude patients or modify their regimen.

The results of Professor Marks research project will be published in ARC's 2024 annual report.