

SOUTH AFRICA

Covid chronicles

Local scientists help world grasp full picture of mysterious long Covid

Authors of a paper say there are more than 50 symptoms, and scientists need to understand its 'many faces'

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Dr Rubeshan Perumal and co-authors are helping the world understand the full picture of long Covid, which is affecting 100-million people across the globe. *Image: Supplied*

South African scientists have come up with a long Covid “dashboard” for the global community so all the pieces of this complex disease puzzle they call “the second pandemic” can be put together.

To date, at least 100-million people globally are estimated to suffer from this disease. That is about the same as the populations of Egypt or Vietnam. Clinical records show there are more than 50 symptoms, representing the involvement of almost every organ system in the body.

“Long Covid is a complex problem with little consensus among scientists about the precise biological basis for the diverse range of problems that patients develop,” explains first author of a paper Dr Rubeshan Perumal from the Centre for Aids Programme of Research in South Africa (Caprisa) at the University of KwaZulu-Natal (UKZN).

“Instead, there are several ideas [or hypotheses] about the sequence of events that transpire after infection with SARS-CoV-2 [the virus that causes Covid-19] that may give rise to long Covid.”

He said he and the team were interested in “identifying who is at risk of developing long Covid [risk factors], the abnormalities that develop after the initial infection that may persist over time and disturb the usual functioning of the body [biological mechanisms], and the ways in which these perturbations may manifest in individual patients [clinical phenotypes]”.

He said until now, researchers have “largely been focusing on one aspect of long Covid at a time”. Examples would be a single biological mechanism such as microclots or a clinical phenotype such as fatigue. However, it is “much more likely that there are many abnormalities happening at the same time, and that these mechanisms are related to each other”.

It is also likely that “the interaction between an individual’s risk factors and the unique set of biological abnormalities that follow the initial infection determine the sites of the body which are most affected, and therefore the constellation of symptoms and signs the individual may manifest”.

Explaining the value of the paper, published in science journal *Frontiers in Immunology*, to TimesLIVE, Perumal said: “Our paper proposes a framework to represent the complexity of long Covid, and to serve as a dynamic visualisation of the potential pathways that may have led to a particular case of it.”

He said it will also help scientists to contextualise their own research within the broad network of possibilities, and to “think more critically about how to incorporate this complexity in the design of their research and in the interpretation of their findings”.

It is hoped that the framework will “serve as a dashboard which can evolve alongside the evidence, incorporating new ideas, guiding efforts aimed at improving our understanding of long Covid, and pointing us towards much-needed solutions for the people affected by the condition”.

What does the paper say about risk factors?

It says there are several well-characterised risk factors, including female sex, marginalised social status, weakened immunity (such as HIV), obesity and pre-existing autoimmune conditions.

In terms of clinical phenotypes, Perumal explains that long Covid is difficult to define clinically because patients may present with a “diverse range of symptoms, which tend to evolve in intensity over time”.

Some people may develop predominantly cognitive symptoms (such as brain fog and memory impairment). Others may present with cardiorespiratory symptoms (such as shortness of breath), and others dermatological manifestations (such as discolouration of the toes and fingers).

Some patients may have symptoms related to one organ system, while others “may have symptoms arising from many different organ systems, and others still may start with symptoms arising in one organ system but go on to develop new symptoms arising from a different organ system”.

So, explains Perumal, “there isn’t just one clinical picture of long Covid, but many faces (phenotypes) of the condition”.

TimesLIVE