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Does BCG vaccine really protect SA from Covid-19?

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South Africans are hoping the BCG vaccine, given to newborns at birth, provides a degree of protection against Covid-19.

Recent studies, which looked at a BCG coverage map and compared it with the spread of the virus, found a correlation between the vaccination and a slower spread of the virus.

However, many epidemiologists are cautioning against the hope it has created in countries with a long-standing policy of administering BCG vaccines at birth, saying more evidence is needed.

Madhukar Pai, the scientist whose decade-old BCG Atlas was used in the studies, released a statement in which he said: "We need to tone down the hype and focus on getting stronger trial evidence, because the hypothesis is definitely worth chasing. The good news is that rigorous trials are getting under way to settle the issue, one way or another.

There are two points here. The first is whether the vaccination at birth can help you later in life and the second is whether a shot as an adult can provide protection.

Experts say it is crucial to wait until clinical trials are concluded before making assumptions. Some say the likelihood is extremely low.

Even so, the suggestion that it could be the case has got South Africans asking questions. Here are some answers.

Can a vaccine protect us against something for which it was not designed?

According to Prof Greg Hussey, who leads Vaccines for Africa at the University of Cape Town (UCT), the vaccine first came about in 1921 and was distributed to "a number of laboratories worldwide".

Different forms of the vaccine were then created and today, evidence Hussey calls "somewhat controversial" suggests that newborn BCG vaccinations may improve general protection against certain respiratory infections by the mechanism of "trained immunity" (meaning the immune system is "trained" by the vaccine to recognise a respiratory infection later in life and respond more quickly as a result).

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What we do know is that the BCG vaccine can provide protection against diseases that it doesn't specifically target. But against Covid-19? We just don't know.

How likely is it that I received the vaccine?

In SA, it was first used in the early 1950s, but Hussey says it was "sporadic" at that time and given to school-going children. This means if you were born in the 1940s or earlier, there is a small chance you were vaccinated, but it's not a given.

It was only from "1973 that BCG has been given universally to all newborn infants with very high coverage in SA".

Therefore, says Hussey, only adults in their mid-40s and younger could say that they probably received BCG vaccine (these will include large numbers of our health workforce), while those between 47 and 65 years old "possibly received BCG". However, it is "unlikely that those older than 65 years of age received BCG vaccine".

Also, he adds, because the non-specific beneficial effects of the vaccine are thought to be short-lived, "it seems unlikely that programmatic BCG vaccination of South African infants" would give protection against Covid-19 mortality that mainly affects the elderly.

What about getting the vaccine now to protect against Covid-19?

"A related question is whether older South African adults, who may not have received BCG vaccination in infancy or childhood, should be vaccinated with BCG to possibly prevent or mitigate the severity of Covid-19 infections," says Hussey.

Also, "there are no data to confirm whether the BCG vaccine is safe in older adults".

He says "using any vaccine in the elderly needs to be studied to ensure it is safe".

Further, BCG vaccine "should definitely not be administered to individuals who are immunocompromised, as it can lead to significant complications".

Bottom line is that there is insufficient evidence that BCG vaccinations ... will impact on Covid-19 morbidity

Will there be any trials in SA?

Hussey says "it is conceivable that BCG revaccination of adolescents and young adults without latent tuberculosis infection might offer some non-specific benefit against Covid-19".

Latent tuberculosis means you've been exposed to the bacteria that causes tuberculosis and your body has had an immune response, but you are not actively ill and cannot pass it on.

He said this hypothesis can be tested retrospectively in an ongoing South African trial, but that recruitment for this trial is "currently paused due to Covid-19 lockdown".

So how hopeful should we be?

"The bottom line is that there is insufficient evidence that BCG vaccination of South African adults will impact on Covid-19 morbidity and mortality. The current mainstay for prevention remains social distancing, cough hygiene and hand washing," Hussey says.

Prof Shabir Madhi, a vaccinology expert at Johannesburg's Wits University, concurs. He said: "The current data on BCG and Covid-19 are at best very flawed in the nature of the analysis to suggest any effect."

Prof Salim Abdool Karim, who advises government, said it was "an interesting hypothesis", but it was likely the study was possibly flawed and that he would "wait for the data" to make up his mind "firmly one way or the other".