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COVID-19 vaccination clinical trials should consider multiple doses of BCG

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Letter to the editor

Vaccine repositioning is a hot research topic as an alternative to the traditional vaccine approach, which is a costly and time-consuming process due to the availability of previous safety and toxicology data. Multiple-dose BCG vaccine repurposing for COVID-19 will be an uprising breakthrough of vaccine discovery with safer outcomes. BCG induces cross-protection that might not be related to the target disease as innate immune cells, including monocytes and natural killer cells, contribute to this immune protection as known as “trained immunity” [1]. BCG had multifaceted protection against TB, Leprosy & heterogeneous pathogens [2]. Moreover, it was repositioned as a treatment for type-1 diabetes, many types of cancer & multiple sclerosis [2]. BCG vaccine accelerates the “resetting” of the immune system [3] or “turn on” immunity mechanism that agrees with its pleiotropic repurposing for many diseases. Multiple-dose BCG vaccine was used for reversing type-1 diabetes & for treating bladder cancer [4-5]. While intravesical multiple doses of BCG for bladder cancer showed many complications [6-7], intradermal multiple doses of BCG for diabetes showed high safety profile [4].

As recent studies have shown that upon certain vaccinations, human innate immune cells can undergo extensive metabolic and epigenetic reprogramming, which results in enhanced immune responses upon heterologous re-infection, a process termed trained immunity [8]; The author recommends that COVID-19 vaccination clinical trials should consider multiple doses of BCG. After reviewing the recent COVID-19 literature, although some preliminary studies suggested BCG to fight COVID-19 [9-12], they did not consider the use of multiple intradermal BCG vaccination (at least 2 doses, 4 weeks apart [4]) for the prophylaxis of COVID-19 outbreak. I do recommend that diabetic patients should participate in clinical trials to benefit from the

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reported BCG anti-hyperglycemic effect [4]. What if safe multiple doses of BCG turned on the immunity and protected people from COVID-19 more efficiently than a single dose?

Conflict of interest

The author declares that he has no known competing financial interests or personal relationships that could have appeared to influence the multiple dose BCG vaccination suggested in this “letter to the editor”.

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