Letter to the Editor Regarding "The Non-Significant Benefit of BCG Vaccination for the Treatment of Iranian Patients with Type 1 Diabetes up to 48 Weeks: A Controversial Result"

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Dear Editor

We thought it worthwhile to look more closely at the data of Moghtaderi M et al (1). This open label study, performed in Iran, was to test whether two booster doses of BCG in already diabetic subjects could have an additional beneficial effect on blood sugar control. Since 1947 Iran has administered BCG at birth and sometimes as multiple BCG vaccines in childhood with 99% coverage of the population (2). Therefore, this is a booster study of the possible benefits of revaccination of BCG vaccines for blood sugar control in adults.

In unvaccinated adult populations of type 1 diabetic subjects, such as those residing in the US, primary vaccination with multi-dose BCG successfully treats autoimmunity but it takes about 2-3 years in adults as a primary vaccine to manifest as a clinical improvement. The effect is durable for beyond > 8 years (3, 4). In the present Moghtaderi study of previously vaccinated adult subjects, an acute decrease of about 10% in HbA1c was observed but it was not sustained (Figure 1). In this study there was similarly an early trend in decreased insulin dose and a sustained trend in decreased mean fasting blood sugars (Figure 1). Hopefully the progress of these patients can be followed for an additional few years to see the full effect of BCG.

From tuberculosis studies wherein BCG is commonly administered at birth, it is known that BCG protection begins 2-3 months after vaccinations in newborns and continues to protect for > 40 years (5). Therefore, the durability of the BCG vaccine likely is also sustaining continued off-target benefits within the Iranian diabetic population and account in this study for the observed rapid booster response in both lowering HbA1c and lowering insulin, albeit transiently. It is encouraging that long term the booster vaccine may help reducing mean fasting blood sugars.

Conflict of Interests

The authors declare that they have no competing interests.

References

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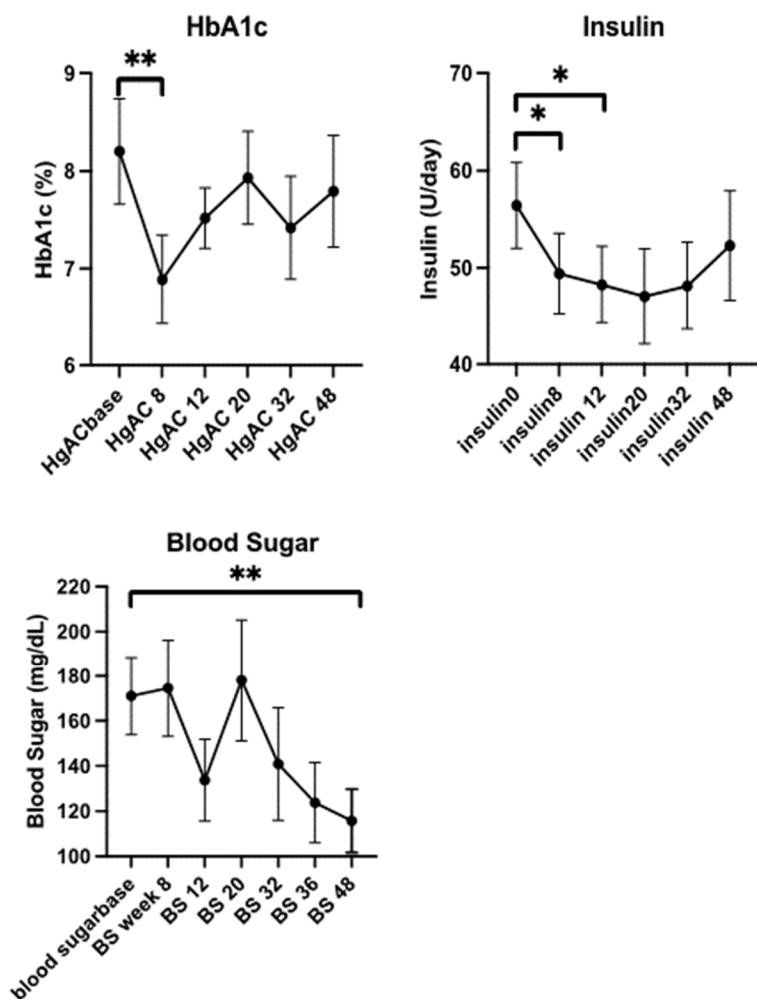1. Massachusetts General Hospital, Harvard Medical School, Boston, US

Figure 1. Mean ± SEM charts of HbA1c, insulin and blood sugar data from Moghtaderi et al (1). While the curves are trending lower, statistics are not consistent, perhaps indicating that more time is needed for BCG to take full effect.
Statistics are paired, one-tailed T-tests.
*$P < 0.05$; **$P < 0.01$