COVID vaccination in patients with diabetes mellitus: A catch 22 situation?

Dear Editor,

Patients with diabetes mellitus who are affected by COVID-19 infection have been shown to have poor outcomes. This results from altered immune response[1] in diabetics and to some extent due to direct damaging effect of hyperglycaemia,[2] thus highlighting the importance of vaccination in diabetics.[3]

In India, three different types of vaccines against COVID-19 have been approved so far.[4] The most popular one is Covishield™ which contains the SARS-CoV-2 spike glycoprotein antigen. The second one is COVAXIN comprising of whole-virion inactivated SARSCoV-2 antigen. The latest addition is the Sputnik V that uses a heterologous recombinant adenovirus approach using adenovirus26 (Ad26) and adenovirus 5 (Ad5) as vectors for the expression of the SARS-CoV-2spike protein.

A period of transient hyperglycaemia has been recorded in some diabetic individuals after vaccination. Bhatti *et al.*[5] reported cases of two individuals whose fasting blood glucose levels got elevated on days 1 and 2 post-vaccination and subsequently settled down by day 3. Similar findings were noted by Mishra *et al.*[6] in their case series in which the blood glucose levels (fasting and post-prandial) got elevated at day 1 post-vaccination in two individuals whereas another patient exhibited a delayed rise after 6 days of vaccination. The blood glucose levels settled down on days 3, 15 and 30 respectively and required increasing the dose of Metformin in one individual.

Hence clinicians need to be aware of this less common adverse effect of vaccination which has been sporadically reported.[4] A case of hyperosmolar hyperglycaemic state following vaccination has been reported following Pfizer-BioNTechCOVID-19 vaccine.[7] The vaccine-induced hyperglycaemia is probably due to initial inflammation and subsequent immune response, though further studies are needed in this regard.

Diabetic patients with COVID should be counselled to keep an eye on their blood glucose levels post vaccination. Although most of the instances reported so far are self-limiting, an increase in dosage of oral hypoglycaemic agents or insulin may be needed for a short period of time to combat the deleterious effects of hyperglycaemia in appropriate patients.

The reports of altered glucose control post-vaccination are very few. However, the interaction of Diabetes and COVID, leading to poor outcomes is very well known. Such sporadic case reports should not deter the primary care physician from advocating routine COVID vaccination in all diabetics and other patients, who are at risk of developing diabetes. It is very important to highlight here, that in today's era, where vaccination seems to be the only way out of this mess; reports such as the ones mentioned above are not highlighted by social media and should not be a deterrent for vaccination, especially in the high-risk groups.

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Conflicts of interest

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Annesh Bhattacharjee[1], Arjun Khanna[2], Manish Gutch[3]

[1]Senior Resident, Department of Neurology, NRS Medical College, Kolkata India, [2]Consultant, Department of Pulmonary and Critical Care Medicine, Yashoda Superspeciality Hospital, Kaushambi, UP, [3]Consultant, Department of Endocrinology, Medanta Hospital, Lucknow, UP

Address for correspondence: Dr. Arjun Khanna, Consultant, Pulmonary and Critical Care Medicine, Yashoda Hospital, Kaushambi, Uttar Pradesh, India.
E-mail: doc.khanna@gmail.com

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