


# Immune Thrombocytopenia Relapse in Patients Who Received mRNA COVID-19 Vaccines [Letter]

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## Dear editor

We have read the research conducted by Hana Qasim et al<sup>1</sup> with great interest. We appreciate the author for sharing her experience and would like to share our outlook which has raised a few questions in our mind.

The authors selected 67 patients for this study; however, it is not mentioned whether any of them had gone through the previous surgery of splenectomy. As splenectomy is the treatment of choice for ITP if the patient becomes refractory to the conventional treatment, so post-vaccination relapse of ITP symptoms even after splenectomy is a big question mark for our diagnosis. Further age-related comorbidities should be discussed such as diabetes mellitus, cataract, GI disease, and some dermatological conditions which have direct association with ITP.<sup>2</sup>

The effect of the vaccine on the level of thrombopoietin should have been highlighted. Previous studies have shown that antibodies that can cross-react with thrombopoietin can induce thrombocytopenia. This is due to molecular mimicry between the human thrombopoietin and the vaccination against SARS-COV 2.<sup>3</sup>

The liver is the major organ which is responsible for the production of thrombopoietin. However, decrease in the thrombopoietin level can be associated with decreased liver function.

Therefore, liver function of all the patients should have been evaluated before labeling them as relapsed ITP secondary to post-COVID vaccination.

Some infections like dengue, malaria, and severe fever with thrombocytopenia syndrome (SFTs)<sup>4</sup> may have resulted in thrombocytopenia. Was any investigation done to rule it out?

In defining patient characteristics, 28 patients received prior treatment with eltrombopag, 2 received romiplostim, and 19 received prior treatment of rituximab. However, no patient having steroid intake is mentioned, as shown in Table 1. As steroid is an ideal non-invasive treatment of ITP, so by specifying steroid-taking patients in the inclusion criteria of Research this could give a better correlation between ITP relapse and steroid intake. Also there seems to be a lack of comparison between the two groups (ie the one who received eltrombopag, romiplostim, and rituximab, and the group who did not receive any treatment) on the effect of the vaccine.

As mentioned in the study, a hyperinflammatory environment in the bone marrow leads to megakaryocytic apoptosis and decrease in platelet concentration. Questions might arise in the reader's mind regarding the pathophysiology. ITP involves dysregulated expansion of specific T-cells subset. The balance between Th-1 and Th-2 subsets regulates the immune response under normal conditions. In contrast, ITP shows an increased Th-1/Th-2 ratio. Also B-cell activating factor (BAFF) may play a pathogenic role in ITP by promoting the survival of CD19(+) and CD8(+) cells, and increasing the apoptosis of platelets and secretion of IFN-gamma.<sup>5</sup>

## Disclosure

The authors report no conflicts of interest in this communication.

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