Successful treatment of COVID-19 vaccine induced idiopathic thrombocytopenic purpura in a 76-yo-gentleman taking Apixaban

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- **Background:** In the era of COVID-19 pandemic the COVID-19 vaccine has brought a hope to the world. However, the cause of Dr. Gregory Michael's death after COVID-19 vaccine has caught the attention of public[1]. Here we are reporting a COVID vaccine induced idiopathic thrombocytopenic purpura (ITP) case while on Apixaban with successful treatment. Since ITP can be lethal while on anticoagulation, our successful treatment of COVID vaccine induced ITP in a geriatric patient on therapeutic dose Apixaban is encouraging. We want to share with medical providers that COVID vaccine induced ITP can be treated successfully, even in patients who are on anticoagulation.

- **Case report:** This is a 76 -year-old male with PMHx of Parkinson's disease, chronic Afib on Apixaban who is admitted for petechiae with PLT 6 $x10^9$/L. Forty-eight hours after his 1st dose Pfizer, EK4176 COVID-19 vaccine, his wife noticed pinpricks rash over his whole body, located to his middle torso, full back, legs, and arms. Otherwise, the patient felt well with no fever, itching or bleeding. On the physical exam he had stable vital signs. There was pinpoint macular rash, non-blanching, most prominent on abdomen and lower back, as well as on arms and legs bilaterally. There was no oozing, bleeding, or erythema. His CBC showed WBC 7.63 $x10^9$/L, HGB 16.7g/dL, PLT 6 $x10^9$/L and an immature platelet fraction of 34%. Peripheral blood smear showed profound thrombocytopenia without schistocytes. His HCV, HIV, TSH, CMP were within normal limits. Since he has no recent medication change, procedure, or illness, he was given a presumptive diagnosis of ITP due to COVID-19 vaccine[2]. Due to his high risk of bleeding with regular Apixaban use, IVIG 1g/kg was given with improvement in platelet count to 25 $x10^9$/L twelve hours later and a 4 day course of dexamethasone 40mg daily was prescribed. His platelet count rose to 56 $x10^9$/L the next day and his Apixaban was restarted. On day 3 he had a continued trend up in platelets to 94$x10^9$/L without evidence of bleeding and he was discharged home.

- **Discussion:** There will be more side effects of COVID vaccine expected when large populations are immunized. ITP itself could be a fatal disease and ITP in patients who are taking an oral anticoagulant has a higher risk of bleeding. IVIG increases the PLT level faster than steroids, so it should be considered the first line therapy when rapid improvement is needed [3]. In summary, we are reporting the first case of mRNA COVID-19 vaccine associated ITP in a patient taking Apixaban. Health care providers and patients need to be aware of this possible side effect and to act quickly to achieve the best outcome.

- **References:**

1. Did the Pfizer/BioNTech COVID-19 vaccine cause a fatal case of ITP? Science-Based Medicine, 2021. (Accessed 01/29/2021, at https://sciencebasedmedicine.org/did-pfizer-biontech-covid-19- vaccine-cause-fatal-case-of-itp/.)
2. Tarawneh OH, Tarawneh HS. Immune Thrombocytopenia in a 22-Year-Old Post Covid-19 Vaccine. Am J Hematol 2021.
3. Neunert C, Terrell DR, Arnold DM, et al. American Society of Hematology 2019 guidelines for immune thrombocytopenia. Blood Adv 2019;3:3829-66.