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Massive Pulmonary Embolism after Pfizer Vaccine

Introduction

Vaccines against COVID -19 have been reported to cause venous thromboembolism (VTE). To our knowledge, this is the first case to report the massive, near-fatal Pulmonary Embolism (PE) associated with BNT162b2 Covid-19 (Pfizer/BioNTech) vaccine and discuss the associated risk factors for PE.

Case

41-year-old, non-smoker, female on OCP, presented for syncope and seizure-like activity. Upon presentation, she was obtunded and tachypneic. Initial labs showed leukocytosis, mild anemia, and thrombocytopenia, respiratory and metabolic acidosis. She deteriorated quickly to cardiac arrest requiring Cardiopulmonary Resuscitation and intubation. Tissue Plasminogen Activator administered for possible PE. Computed Tomography Angiography (CTA) pulmonary confirmed sagittal pulmonary embolism with near-complete occlusion of the right pulmonary artery causing right heart strain. A pulmonary arteriogram and right pulmonary thrombectomy were performed for residual thrombus. IV Heparin was started, later transitioned to xarelto then, lovenox. Hematological and genetic workup including Paroxysmal Nocturnal Hemoglobinuria, JAK2 V617 mutation, Antiphospholipid panel, Factor V leiden, Prothrombin 620210Q were not detected. She was heterozygous for A1298C but C677T hyperhomocysteinemia (MTHFR) was negative.

Discussion

MTHFR C677T has been associated with increased susceptibility to VTE however, no apparent association is known so far between MTHFR A1298C and VTE. Albeit OCP is a known risk factor for VTE, our patient was on a low OCP dose (0.15 mg desogestrel and 30 mcg of ethinyl estradiol) for 8 years. In this patient, with no strong risk factor for VTE and the proximity of the second dose of Pfizer vaccine, we believe the vaccine itself might have triggered the immunological cascade causing VTE. However, further study is needed for clarity. Therefore, close observation is important post Pfizer vaccine, even for a young female with low-risk factors for VTE.