Short Communication

Treatment of ChAdOx1 nCoV-19 Vaccine-Induced Immune Thrombotic Thrombocytopenia Related Acute Ischemic Stroke

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Recently cases of vaccine-induced immune thrombotic thrombocytopenia (VITT) and thrombosis following the adenoviral vector vaccine against the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) were reported. A mechanism similar to heparin-induced thrombocytopenia was proposed with antibodies to platelet factor 4 (PF4). Vaccine related arterial thrombosis in the brain is rare but life-threatening and optimal treatment is not established. We report clinical, laboratory, imaging findings and treatment in a 51-year-old female presenting with acute left middle cerebral artery (MCA) occlusion 7 days after the first dose of ChAdOx1 nCoV-19 vaccine. Due to low platelet count and suspicion of VITT she was not eligible for intravenous thrombolysis (IVT) and proceeded to mechanical thrombectomy (MER) with successful recanalization four hours after onset of symptoms. Treatment with intravenous immunoglobulin (IVIG) and heparin pentasaccharide fondaparinux was initiated. Presence of anti-PF4 antibodies was confirmed. The patient improved clinically with normalization of platelet count. Clinicians should be alert of VITT in patients with acute ischemic stroke after ChAdOx1 nCov-19 vaccination and low platelet counts. MER showed to be feasible and effective. We propose considering MER in patients with VITT and large vessel occlusion despite thrombocytopenia. High-dose IVIG should be started immediately. Alternative anticoagulation to heparin should be started 24 hours after stroke onset unless significant hemorrhagic transformation occurred. Platelet transfusion is contraindicated and should be considered only in severe hemorrhagic complications. Restenosis or reocclusion of the revascularized artery is possible due to the hypercoagulable state in VITT and angiographic surveillance after the procedure is reasonable.

Key Words: Stroke—VITT—Mechanical thrombectomy—Thrombocytopenia

Background and purpose

Recently a rare vaccine-related variant of a prothrombotic disorder that clinically resembles spontaneous heparin-induced thrombocytopenia (HIT) has been identified, referred to as vaccine-induced immune thrombotic thrombocytopenia (VITT).[1,2] An immune mechanism of thrombotic events following vaccination with ChAdOx1 nCoV-19 was proposed, with the identification of anti-PF4 antibodies without previous heparin exposure.[3] Most of the patients with cerebral thrombotic events and thrombocytopenia presented with cerebral venous thrombosis,[4] to our knowledge there are eleven cases of patients who suffered an acute ischemic stroke reported.[3,5–9] Vaccine related arterial thrombosis in the brain is exceedingly rare but potentially a life-threatening situation and the best choice of treatment is yet to be established.

Methods

We report clinical, laboratory and imaging findings along with choice of treatment in a patient, who presented with left middle cerebral artery (MCA) occlusion and thrombocytopenia 7 days after receiving the first dose of the coronavirus disease-19 (COVID-19) vaccine ChAdOx1 nCoV-19. Patient was urgently treated with mechanical thrombectomy (MER) and high-dose intravenous immunoglobulin (IVIG). We used a standard enzyme-linked immunosorbent assay (ELISA) (HAT45G®, Immucor) to detect anti-PF4 antibodies.

Results

Female patient, age 51, previously treated for hyperlipidemia presented to neurology emergency 2 hours after acute onset of global aphasia, right sided hemiplegia and hemianopsia (National Institutes of Health Stroke Scale –

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