



Neuroradiology

Neurological symptoms and neuroimaging alterations related with COVID-19 vaccine: Cause or coincidence?

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ABSTRACT

Although vaccination against Coronavirus disease-2019 (COVID-19) is still occurring, several adverse effects temporally related to these vaccines are already being reported, even if through isolated case reports. In the present study, we describe the lesions seen on magnetic resonance imaging (MRI) of three patients who developed neurological symptoms after receiving the ChAdOX1 nCoV-19 vaccine (Oxford/AstraZeneca). The first patient presented with an ischemic stroke in the posterior limb of the left internal capsule, two days after vaccination. The second patient presented with a left facial nerve palsy, seven days after vaccination. The third patient presented with myelitis, eight days after receiving the vaccine. All patients presented the symptoms after the first dose of the vaccine and did not have a history of previous COVID-19. The real incidence of these types of complications is not known yet, but it is important to consider the possibility of COVID-19 vaccine complications, in patients with a recent history of vaccination and recent development of neurological symptoms, even though this association is only casual. Longitudinal studies are necessary to further analyze the incidence of the adverse effects of each vaccine against SARS-CoV-2.

1. Introduction

Since the beginning of the current Coronavirus disease-2019 (COVID-19) pandemic, a great interest in vaccines has emerged to prevent the disease. In December 2020, several National Health Agencies approved some vaccines for population use.¹ Since the clinical trials of these vaccines, multiple side effects have been reported, ranging from mild symptoms, such as injection site pain, myalgia, fatigue, and fever, to more deleterious ones, including anaphylactic shock.² In addition, concerns about potential neurological complications of COVID-19 vaccination also arose.³

However, as population-level vaccination is still taking place, it is still difficult to determine whether cases of bleeding, thrombosis, encephalitis and/or myelitis reported after vaccination are just coincidental or really related to vaccination.

This article aims to report 3 cases of neurological diseases that began few days after vaccination against COVID-19.

2. Cases description

2.1. Case 1

A 64-year-old man, with systemic arterial hypertension, presented with right superior and inferior limbs paresia, two days after he received the first dose of the recombinant ChAdOX1 nCoV-19 vaccine. The patient did not have a history of COVID-19, and did not present other cardiovascular risk factors. He was not obese, did not have dyslipidemia or diabetes mellitus, and did not smoke. Also, he did not have a history of previous cardiovascular events. Brain magnetic resonance imaging (MRI), performed on eighth post-vaccination day, demonstrated an acute ischemic stroke in the left nucleo-capsular region, affecting the posterior limb of the internal capsule (Fig. 1). The hemogram, including platelets count, was normal. Carotid arteries color-Doppler ultrasonography and echocardiography were also normal. Serum lipids and homocysteine were normal, and the screening for thrombophilia was

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