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Thyroid
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New Onset of Graves’ Disease after COVID-19 Vaccination
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Introduction: Adjuvants are substances that are commonly found in vaccines. They can enhance the efficacy and potency of a vaccine via an immunological response. However, in some susceptible individuals, these adjuvants
can lead to a serious autoimmune response known as autoimmune/inflammatory syndrome induced by adjuvants (ASIA). This can lead to the onset of autoimmune disorders following vaccination. There are many case reports of the onset of autoimmune disorders following COVID-19 vaccination. However, new onset of Graves’ disease within one day after COVID-19 vaccination, is of rare occurrence.

Clinical Case: We present the case of a 33-year-old Caucasian male who presented to his primary care physician with chief complaints of fever ranging between 99.2F to 101.3F, palpitations and hand tremors which started one day after he received his first dose of COVID-19 vaccine. Initial laboratory evaluation included a negative throat swab for Group A Streptococcus, a negative nasal swab for Influenza A & Influenza B and a negative nasopharyngeal swab for SARS-COV-2 RNA. On physical examination, he was afebrile, pulse rate 101/min, blood pressure 125/74 mm Hg and oxygen saturation 98%. Due to persistence of tachycardia, an EKG was done which showed a normal sinus rhythm with no other abnormalities. Further laboratory testing was remarkable for a suppressed TSH 0.005 (0.300-4.00 uUI/ml), elevated FT4 2.36 (0.80-1.80 ng/dl) and an elevated TSH receptor Antibody (TRAb) 8.67 (0.00-1.75 IU/L), which confirmed the diagnosis of Graves’ disease. Subsequently, patient established care at our endocrinology clinic. Labs were repeated which showed persistence of hyperthyroidism with TSH <0.005, high normal FT4 1.56 and an elevated FT3 5.36 (2.00-4.40 pg/ml). Thyroid ultrasound was remarkable for mild thyromegaly with increased vascularity and no discrete nodules. Patient was initiated on Methimazole 10 mg daily and propranolol 10 mg twice daily. During the first follow-up visit, the dose of Methimazole was reduced to 5 mg daily based on improved labs. However, it had to be increased back to 10 mg daily due to subsequent worsening of labs. Since then, patient has been maintained on a stable dose of Methimazole 10 mg once daily and the beta-blocker has been discontinued. It has been almost 1 year since the diagnosis and the Graves’ disease specific Thyroid Stimulating Immunoglobulin (TSI) antibody is still elevated at 1.31 (0.00-0.55 IU/L).

Conclusion: Graves’ disease should be considered high in the differential diagnosis in a patient presenting with fever and tachycardia following COVID-19 vaccination. Our unique case supports the current literature available on the various autoimmune conditions caused by the autoimmune/inflammatory syndrome induced by adjuvants, also known as ASIA.

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