



Vascular Consideration with COVID-19 Vaccination: Clinical Case Report

Haj Abdo M*, Yildirim-Ögüt Z, Housen H, Zistler K, Boulhadid A, Kolletas V, Kadriu E and Seidl K

Department of Cardiology and Intensive Care Unit, The Clinic of Ingolstadt, Germany

Abstract

Coronavirus Disease 2019 (COVID-19), the illness caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) continues to cause significant morbidity and mortality over the World. Globally; numerous vaccines have been developed against COVID-19. In Europe and United states, four vaccines have been approved by the FDA. The Majority of people become Moderna and Pfizer-BioNTech, although certainly side effect may occur, the benefit greatly outweighs the risks. Adverse cardiovascular side effects of the COVID-19 vaccine include myocarditis/pericarditis, Vaccine Induced Thrombotic Thrombocytopenia (VITT) and thromboses, which often related to low platelet levels and VITT in the setting.

Case Presentation (History/Examination)

A 60-year-old female presented to our Emergency Department (ED) after cardiopulmonary resuscitation due to asystole at home. She had been having progressive shortness of breath over 2 to 3 Months that worsened acutely on the admission day with no significant past medical history. She got the COVID vaccination 3 times. On arrival to ED Patient was intubated. She was afebrile. An electrocardiogram was performed, which showed sinus rhythm with a left axis, normal intervals and negative T wave over II, III, aVF and V1-4. An arterial blood gas showed the following results: pH 6.7 (normal 7.35-7.45), pCO₂ 84 (normal 37 mmHg to 43 mmHg), bicarbonate 6.5 (normal 22 mmol/L to 26 mmol/L), lactate 14 (normal 0.5 mmol/L to 2.5 mmol/L), sodium 137 (normal 134 mmol/L to 144 mmol/L), potassium 3.8 (normal: 3.5 mmol/L to 5.5 mmol/L), and anion gap 21.9 mmol/L. There was an absence of ketones in the urinary dipstick, but positive for protein and glucose. Laboratory evaluation revealed markedly elevated creatinine level at 2.2 (normal: 0.7 mg/dl to 1.1 mg/dl) and hs-TNI at 2480 ng/l (normal: 2.3 ng/l to 11.6 ng/l). Takotsubo Cardiomyopathy was ruled out with Cardiac-MRT and ventriculography. The patient underwent a chest Computed Tomography (CT) scan that revealed bilateral pleural effusion without pulmonary embolism. Coronary angiogram was without a significant epicardial coronary artery disease. For further evaluation we measured the microcirculatory resistance (IMR=52) and Coronary Flow Reserve (CFR=1.3) which were pathologic. She was immediately started with CVVHDF and after that with the dialysis 3 times weekly for six weeks, which could be stopped, because the GFR was 61 ml/min/m², urine output >100 ml/h and creatinine 1.3 mg/dl. Because of the unclear cause of her accelerated decrease in kidney function with need for the continuous dialysis a kidney biopsy was performed that showed microthrombi and lymphatic infiltrates as an expression of vaccination damage. Brain CT performed on the first day of admission showed a subacute medullary lesion on the left periventricular side. The Brain MR showed multiple small subacute ischemia's, mainly in the centrum semiovale bds.

Discussion

The cardiovascular complications have been reported with both COVID-19 and its vaccination [1-8]. Vaccination has a significant effort on the prevention of severe SARS-CoV-19 infect and its complications [1-9]. The extra cause of the vaccine complications is not exactly understood, but they are likely due to inflammatory immune system response to components of the vaccine that attack cells and tissue in the body [10]. Blood clots can form in veins and arteries. Typical locations are in legs and hands, less common are in the abdominal organs or brain [11]. The complications are really rare, as example the incidence of the VITT is observed in 1/100.000 vaccine exposures [12].

Conclusion

The COVID-19 continues to cause significant morbidity and mortality over the world. The

OPEN ACCESS

*Correspondence:

Mourad Haj Abdo, Department of Cardiology and Intensive Care Unit, The Clinic of Ingolstadt, Germany, Tel: +49491741985933; E-mail: moradhajabdo86@hotmail.de

Received Date: 10 Jun 2022

Accepted Date: 07 Jul 2022

Published Date: 12 Jul 2022

Citation:

Haj Abdo M, Yildirim-Ögüt Z, Housen H, Zistler K, Boulhadid A, Kolletas V, et al. Vascular Consideration with COVID-19 Vaccination: Clinical Case Report. *Ann Clin Case Rep.* 2022; 7: 2251.

ISSN: 2474-1655

Copyright © 2022 Haj Abdo M. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

COVID-19 vaccines have adverse side effects, which are rare but also sometimes fulminant too.

References

1. Siddiqi HK, Libby P, Ridker PM. COVID-19 - a vascular disease. *Trends Cardiovasc Med.* 2021;31(1):1-5.
2. Solomon AL, Ratchford EV, Armitage KB, Kovacic JC. Vascular disease patient information page: Vascular considerations with COVID-19 vaccines. *Vasc Med.* 2022;27(1):102-6.
3. Meyer AA, Mathews EH, Gous AGS, Mathews MJ. Using a systems approach to explore the mechanisms of interaction between severe COVID-19 and its coronary heart disease complications. *Front Cardiovasc Med.* 2022;9:737592.
4. Nalbandian A, Sehgal K, Gupta A, Madhavan MV, McGroder C, Stevens JS, et al. Post-acute COVID-19 syndrome. *Nat Med.* 2021;27(4):601-15.
5. Carod-Artal FJ. Post-COVID-19 syndrome: Epidemiology, diagnostic criteria and pathogenic mechanisms involved. *Rev Neurol.* 2021;72(11):384-96.
6. Ludvigsson JF. Case report and systematic review suggest that children may experience similar long-term effects to adults after clinical COVID-19. *Acta Paediatr.* 2021;110(3):914-21.
7. Farshidfar F, Koleini N, Ardehali H. Cardiovascular complications of COVID-19. *JCI Insight.* 2021;6(13):e148980.
8. Chang WT, Toh HS, Liao CT, Yu WL. Cardiac involvement of COVID-19: A comprehensive review. *Am J Med Sci.* 2021;361(1):14-22.
9. Luo J, Zhu X, Jian J, Chen X, Yin K. Cardiovascular disease in patients with COVID-19: Evidence from cardiovascular pathology to treatment. *Acta Biochim Biophys Sin (Shanghai).* 2021;53(3):273-82.
10. Soumya RS, Unni TG, Raghu KG. Impact of COVID-19 on the cardiovascular system: A review of available reports. *Cardiovasc Drugs Ther.* 2021;35(3):411-25.
11. Agrawal H, Das N, Nathani S, Saha S, Saini S, Kakar SS, et al. An assessment on impact of COVID-19 infection in a gender specific manner. *Stem Cell Rev Rep.* 2021;17(1):94-112.
12. Aleksova A, Gagno G, Sinagra G, Beltrami AP, Janjusevic M, Ippolito G, et al. Effects of SARS-CoV-2 on cardiovascular system: The dual role of Angiotensin-Converting Enzyme 2 (ACE2) as the virus receptor and homeostasis regulator-review. *Int J Mol Sci.* 2021;22(9):4526.