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Short Communication

Familial Mediterranean fever Attack during COVID-19 Infection and After COVID-19 Vaccination

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ABSTRACT

Coronavirus disease 2019 (COVID-19), the novel coronavirus pneumonia, was caused by Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). SARS-CoV-2 causes of severe pneumonia in human. The general symptoms observed in the infected individuals are fever, cough, dyspnea and lesion in the lungs. In the advanced stage, the symptoms of this virus show pneumonia which progresses to severe pneumonia and acute respiratory distress syndrome. Familial Mediterranean Fever (FMF) and COVID-19 show a remarkable overlap of clinical symptoms and similar laboratory findings. Both are characterized by fever, abdominal/chest pain, elevation of C-reactive protein, and leukocytosis. Our case presents acute attacks of FMF during COVID-19 infection and after COVID-19 vaccination. This case is important because it is the first case of FMF attack after vaccination.

Keywords: COVID-19; FMF attack; Vaccination; SARS-CoV-2

DESCRIPTION

SARS-CoV-2 is a novel, zoonotic, positive-sense, single-stranded RNA beta coronavirus (sub-genus Sarbecovirus, sub-family Orthocoronaviridae). This sub-family also includes SARS-CoV and MERS-CoV (Middle Eastern respiratory syndrome), and the SARS-like (SL) viruses of bats: bat-SL-CoVZC45 and bat-SL-CoVZXC21. Coronavirus disease 2019 (COVID-19), the novel coronavirus pneumonia, was caused by SARS-CoV-2. On January 30, 2020, the World Health Organization (WHO) declared it a Public Health Emergency of International Concern and on February 28 it raised the global risk of COVID-19 to the highest level. On March 11, a global pandemic was declared. Given the rapid global spread of SARS-CoV-2, there is an urgent need for large-sample data analyses and clinical research of cases in worldwide. This would improve the accuracy of our understanding of the epidemiology and clinical characteristics of SARS-CoV-2 and might also reveal pathogenic mechanisms and potential risk factors. A large number of studies and case reports have begun to answer these questions, but there is a lack of systematic analysis and summation [1].

A 43-year-old male patient has been follow-up with a diagnosis of ankylosing spondylitis(AS) and FMF has been using secukinumab 150 mg per month for AS and colchicine 2 mg/day for FMF. He was a hospital staff. He was complaint of sore throat, muscle and joint pain and loss of taste. On systemic examination fever and blood pressure were normal. Initial laboratory findings revealed white blood cells (WBC): 3570/µl (3400-8800/µl), lymphocyte 990/µl (1000-3200/µl), platelets: 175,000/µl (150000-400000/µl), hemoglobin (HBG): 15.4 g/dl (11.0-16.6 g/dl), C-reactive protein (CRP) level was 24 mg/dL (0-8 mg/dL). He was evaluated for a possible COVID-19 infection, and the real-time PCR test was positive. On radiological investigation, thorax CT was normal. The patient was diagnosed with COVID-19. Favipavir, levofloxacin and enoxaparin sodium was started and we suggested that to continue Colchicine treatment. He was discontinued colchicine treatment with own request. On the second day of treatment he admitted with acute abdominal pain, nausea and back pain. He experienced abdominal pain spreading from the perumbilical area to the entire abdomen like acute FMF attacks which he suffered before. We started colchicine treatment again. His abdominal pain was disappeared after colchicine treatment. Patient's complaints regressed after treatment and control COVID-19 PCR test was negative.

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Two months later SINOVAC vaccine administered to him. Five hours after vaccination he suffered fever, abdominal pain, muscle and joint pain. He admitted to our rheumatology department with these complaints. Initial laboratory findings revealed WBC: 14320/µl, platelets: 214,000/µl, HBG: 15.7 g/dl, CRP level was 310 mg/dl and fibrinojen 816 g/l. FMF attack occurred while he was continuing colchicine treatment. He was hospitalized and 40 mg methylprednisolone treatment started for three days [2]. After the treatment patient's complaints regressed and he was discharged.

FMF is an autosomal recessive auto inflammatory disease that occurs worldwide and predominantly affects populations of Mediterranean origin. Clinically, FMF is characterized by self-limiting febrile attacks of polyserositis, lasting on average 24-72 h. acute attacks are followed by attack-free intervals, but subclinical inflammation continues during these periods. The MEFV (Mediterranean fever) gene is associated with FMF and is located on the short arm of chromosome 16. It is suggested that mutated Pyrin, a protein that is encoded by the MEFV gene, may cause uncontrolled inflammation [3].

FMF and COVID-19 show a remarkable overlap of clinical symptoms and similar laboratory findings. Both are characterized by fever, abdominal/chest pain, elevation of crp and leukocytosis. In addition, colchicine and IL-1 inhibitors treatments that are effective in controlling inflammation in FMF patients have recently been proposed for off-label use in COVID-19 patients. Thus, FMF may resemble a milder recapitulation of the cytokine storm that is a hallmark of COVID-19 patients progressing to severe disease. We analyzed the sequence of the MEFV-encoded Pyrin protein-whose mutations cause FMF-in mammals, bats and pangolin. Intriguingly, although Pyrin is extremely conserved in species that are considered either a reservoir or intermediate hosts for SARS-CoV-2, some of the most common FMF-causing variants in humans are present as wild type residues in these species. We propose that in humans, Pyrin may have evolved to fight highly pathogenic infections [4].

CONCLUSION

To date, no serious side effects have been observed in the current vaccines in clinical studies for COVID-19 vaccines. Post-vaccination side effects are often mild. These Mild side effects such as fatigue, headache, fever, chills, muscle/joint pain, vomiting, diarrhea, pain, redness, swelling in the area where the vaccine was applied.

In rare cases, you may have allergic reactions. FMF attack can be seen due to vaccination as in this case. COVID-19 vaccine or emotional stress of vaccination have been associated with FMF attacks in some patients, large number of studies and case reports has begun to answer these questions. It may be effective to cut off colchicine treatment for a one day in the first FMF attack, but it is not expected to trigger the attack in a short time. Despite regular use of colchicine the second FMF attack occurred and we thought that the COVID-19 vaccines could trigger FMF attacks. Therefore, care should be taken while patients with FMF vaccinating.

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The authors declare that they have no competing interests.

PATIENT CONSET

Obtained

COMPANY SUPPORT

Not received. Information collected retrospectively.

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