Persistent Fever and Rising CRP in a Patient With Pustular Psoriasis Deceived the Medical Team to Consider Her as a Case of COVID-19 During the Pandemic

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Abstract- Generalized pustular psoriasis is a rare variant of pustular psoriasis. During the pandemic of COVID-19, every patient referred to medical centers with fever or other flu-like symptoms would be first evaluated for COVID-19. Here, we report a case of pustular psoriasis who were under biologic immunosuppressive treatment (Infliximab) and was admitted to take her every eight weeks injection of infliximab. During evaluations before the injection, persistent fever and high CRP was detected. Due to these findings, she was suspected of having COVID-19, and this suspicion delayed routine medical care and infliximab infusion for her main disease, pustular psoriasis. After two negative results of the COVID-19 PCR test, Infliximab infusion was done, and surprisingly the fever disappeared, and CRP level decreased.

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Keywords: Psoriasis; Coronavirus disease 2019 (COVID-19); Biological treatment; Infliximab

Introduction

Generalized pustular psoriasis is a rare variant of pustular psoriasis. The clinical presentations include sterile tiny pustules located on the edge of erythematous plaques disseminated on the body. There may be systemic symptoms and signs such as fever, malaise, leukocytosis, elevated erythrocyte sedimentation rate (ESR) and c-reactive protein (CRP), and hypocalcemia (1).

During the pandemic of Corona Virus Disease-19 (COVID-19), every patient referred to medical centers with fever or other flu-like symptoms would be first evaluated for COVID-19. Here, we report a case of pustular psoriasis who were under biologic immunosuppressive treatment (Infliximab) and was admitted to take her every eight weeks injection of infliximab. During evaluations before the injection, persistent fever and high CRP was detected. Due to these findings, she was suspected of having COVID-19, and this suspicion delayed routine medical care and infliximab infusion for her main disease, pustular psoriasis.

Case Report

A twenty-eight-year-old woman, known case of pustular psoriasis since five years ago, presented to the hospital with a flare of her disease. According to her medical history, she had used Acitretin, Methotrexate, Cyclosporin, and Etanercept to control her disease. However, none of these medications were efficient. Therefore, since a year and a half ago, she has been under treatment with oral Prednisolone 10 mg daily and Infliximab injection 200 mg every eight weeks, which has been successful in controlling her symptoms. She was supposed to receive her next dose of Infliximab on March 27, 2020. However, due to the special situation raised by the COVID-19 Pandemic, her injection was not done at the due date, and as a result, her disease began to flare up. First, cyclosporine was added to her treatment, but since it did not work for her, eventually, on April 13, 2020, she was admitted to the hospital in order to receive Infliximab.

At the time of admission, she had no fever, her Oxygen Saturation was 98%, and her CXR was normal. But on the second day, she became feverish, and her blood pressure was 90/60, and her laboratory tests revealed a mild leukocytosis with lymphopenia

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(WBC:12200, Neutrophil:91.2%, Lymphocyte:5.6 %, ESR:109, and CRP:81).

Due to these findings, which were suspicious to COVID-19 infection during the pandemic, despite she had no symptoms of upper respiratory tract infection and she did not mention any exposure to a COVID-19 patient, a chest CT scan and COVID-19 PCR was requested for her in addition to blood culture, urine culture, wound culture and procalcitonin level,

In her chest CT Scan, a suspected ground-glass opacity was found in the lower lobe of her right lung, and she was hence suspected of suffering from COVID-19. Also, she was put on medication with Hydroxychloroquine and an empirical antibiotic regimen by Vancomycin and Tazocin.

Two days later, a blood culture showed coagulase-negative staphylococcus, and wound culture showed Enterococcus growth. Urine culture and COVID-19 PCR were both negative, and procalcitonin level was normal. So COVID-19 PCR and blood culture were rechecked, which were both negative again.

After ten days of admission, despite the fact that the third blood culture was also negative and the patient was receiving proper antibiotics, she was still suffering from fever, and her CRP level was rising. Therefore, it was assumed that the first blood culture was false positive due to skin contamination, and it was concluded that the patient's persistent fever and high levels of CRP and ESR were all associated with her underlying disease. So the medical team decided to inject Infliximab for her. Shortly after the injection, her fever stopped, and CRP level started to decrease, and her skin lesions relieved significantly.

Discussion

Corona virus-19 outbreak was first identified in China in December 2019 (2). The World Health Organization (WHO) declared the outbreak a Public Health Emergency of International Concern on 30 January and a pandemic on 11 March 2020 (3,4).

During the pandemic, the treatment of immune-mediated diseases such as psoriasis with immunosuppressive drugs is a great challenge. Paolo Amerio *et al*., through a review, suggested that treatment of psoriasis patients with biological drugs should be continued (5). We believe that one justification for this recommendation is that cessation of biologicals may lead to a severe flare of the diseases, which may require hospitalization and more encountering with the COVID-19 in medical centers. But in this review, they emphasized that for those psoriatic patients who have risk factors for severe COVID-19 disease such as old age, obesity, diabetes mellitus, and hypertension, close follow up should be considered and whenever a little sign of flu-like or COVID-19 specific sign like anosmia develops, the drug should be discontinued, and the patient should be evaluated (5).

Our patient was a young woman and had no other risk factors, so she was considered to take her infliximab infusion. But when fever and elevated CRP was detected, the clinical suspicion of COVID-19 was made. A study in China has shown that 86.3% of COVID-19 patients had elevated CRP (6). Another study later detected almost the same rate of 84% (7). In the latter study, eosinopenia in combination with elevated CRP was also reported as a predictor of COVID-19 with a sensitivity of 69.7% and specificity of 78.2% (7). On the other hand, in Turkey, dermatological diseases presenting before the COVID-19 were evaluated. In this study, one of the most diseases was psoriasis (8). So it was not wrong to consider our patient as a COVID-19 case. The authors of the Turkish study explained that the stress burden of the COVID-19 disease and also the use of immunosuppressives might cause the patients to have a greater risk for COVID-19 infection (8). There is also a successful report of treatment of a patient with concomitant COVID-19 and psoriasis with Guselkumab, an inhibitor of interleukin (IL) 23. In this report, it is stated that IL 23 seems to have no role in the control of the virus but has a pivotal role in the cytokine storm and the related severe symptoms.

In this regard, if we want to use biologicals for the treatment of a psoriasis patient who has concomitant COID-19 infection or is at risk of it, we would better use those targeting IL23, like Guselkumab and Ustekinumab. We should also take into consideration that when the evaluations of COVID-19 PCR or chest CT scan are negative, but the patient is febrile and has elevated inflammatory elements like ESR and CRP, we should not delay the treatment since they may be due to the own inflammatory disease.

In conclusion, we reported a case of recalcitrant generalized pustular psoriasis who had responded just to Infliximab and referred to the hospital for her injection, but because of her persistent fever and high CRP, which were the nonspecific signs of COVID-19 infection, she was suspected as a case of COVID-19, and the infusion of infliximab was postponed although the evaluations of COVID-19 was negative. But when there was no reason for COVID-19 in later complimentary evaluations, and the infusion was done, all of these signs were resolved, indicating that they were inflammatory signs of her own

pustular psoriasis disease. In fact, in inflammatory diseases, the own inflammatory nature of the disease may produce fever. So during the COVID-19 pandemic, whenever the evaluations of COVID-19 are negative, the medical team should not doubt the results. But also should consider that the treatment of the disease may resolve the inflammation and fever.

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