Evolution of COVID-19 infection in four psoriatic patients treated with biological drugs

Editor

Since December 2019, the pandemic coronavirus disease (2019-nCoV; COVID-19) has changed the approach to all dermatological diseases; in particular, psoriatic patients undergoing immunosuppressive drugs, such as biologics, can potentially show an increased risk of infection.1 However, few reports are available on the course of COVID-19 infection in psoriatic patients treated with biological drugs.2 We describe a case series of four psoriatic patients treated with biologics who had a risk contact with COVID-19.

Case 1: A 62-year-old man, affected by hypertension, diabetes, chronic renal failure and overweight (BMI: 29), receiving guselkumab since November 2019, who developed a severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) on February 23; he was admitted to an intensive care unit for 2 weeks. After 1 month of hospitalization, he was discharged with almost complete resolution of respiratory symptoms; despite discontinuation of guselkumab, psoriasis remained in complete remission.

Case 2: A 66-year-old man, health volunteer, affected by hypertension, dyslipidemia and previous myocardial infarction, receiving ustekinumab since 2010; on March 15th, 7 days after the last administration of the drug, he presented asthenia, anosmia and ageusia. On March 18th, he was tested positive for COVID-19 and he did not receive any pharmacological treatment; after a complete remission of symptoms, on April 15th he was tested negative, with maintenance of the remission of psoriasis.

Case 3: A 67-year-old woman, affected by hypertension and metabolic syndrome, receiving adalimumab since September 2019, at the end of February had several contacts with three of her family members suffering from a mild SARS-CoV-2 and she was therefore subjected to quarantine for 15 days, without developing any symptoms of the disease and without stopping psoriasis therapy.

Case 4: A 66-year-old man, affected by hypertension, diabetes, metabolic syndrome and obesity (BMI: 32), receiving secukinumab since October 2018, had a continuous contact with his wife affected by a mild SARS-CoV-2 infection since March 17th; he was therefore quarantined for 15 days, without developing any symptoms of the disease and without stopping psoriasis therapy.

In the last two cases, the biologic therapy was interrupted only during the quarantine period, without worsening of psoriasis and no test has been done for COVID-19.

In SARS-CoV-2 infection, the immune response plays an important role in the development of an excessive inflammatory response, which can evolve towards an acute respiratory distress syndrome (ARDS), potentially lethal for the patient.3 Some key cytokines in the pathogenesis of psoriasis, such as tumour necrosis factor alpha (TNF-α) and interleukin-17 (IL-17), are increased in inflammatory response to coronavirus and viral pneumonia, while IL-23 does not seem to be essential for an effective immune response.4 The increase in inflammatory cytokines is associated with a worsening of clinical conditions of the patients affected by SARS-CoV-2.5,6 Based on these observations, it has been hypothesized that anti-TNF-α or anti-IL-17 drugs could play a potential role to improve COVID-19’s cytokine storm and ARDS.6 For this reason, the use of ixekizumab and adalimumab associated with antiviral drugs is currently studied in China in the treatment for Covid-19.7,8 Despite the presence of risk factors for a worse prognosis (hypertension, diabetes, obesity and male gender), only one patient presented a severe form of SARS-CoV-2, while another one a mild form. Despite a prolonged contact with subjects with COVID-19 infection, the other two cases did not show any symptoms. This could explain the positive course of COVID-19 infection in our four cases, where ongoing treatment with biological drugs could play a protective role against the onset and the evolution of the infection. Further studies are needed to investigate this hypothesis.

Founding source

None declared.
Drug-induced vasculitis in a patient with COVID-19

Editor,

A 57-year-old German woman with a history of skin reactions to unknown antibiotics, depression and high blood pressure presented with a 2-day history of symmetrically distributed pruritic pink-to-red maculopapular exanthema on the trunk and extremities. Due to a 3-week history of a non-productive cough and intermittent fever, she has taken amoxicillin, ibuprofen and metamizole 3 days before. She did not take aspirin or other anticoagulants. This prescription was discontinued and an intravenous bolus of prednisolone as well as antihistamines and topical glucocorticoids were administered.

After 2 days, her rash progressed in purpuric, non-blanching, pruritic and painful maculas and plaques on her trunk and extremities (Figs 1 and 2). Mucous membranes were spared. The patient was afebrile, and her oxygen saturation was 98% while she was breathing ambient air.

The blood count, prothrombin time and partial thromboplastin time were normal. An elevated D-dimer level by 2.051 µg/L was observed. A chest radiograph showed a right lower lobe consolidation suggestive of pneumonia. A test to detect SARS-CoV-2 by real-time reverse-transcription-polymerase-chain-reaction (RT-PCR) assay of a throat swab was positive. A biopsy specimen of the skin lesion revealed a vasculitis. Blood tests for HIV, antinuclear antibodies and antineutrophyle cytoplasmic antibodies were negative.

The patient was treated with 120 mg of prednisolone per day (1.5 mg per kilogram of body weight). After 9 days, the patient’s skin lesions and her respiratory symptoms improved. Two negative SARS-CoV-2 by RT-PCR tests of throat swabs with sampling interval of 24 h were confirmed and the patient was discharged home.

Despite an antibiotic allergy could developed the rash and vasculitis in our patient, it is known that severe COVID-19 induces endothelial damage and thrombosis. Some reports have showed urticaria, rash, vesicles, purpura, chilblain-like and...