Re-exposure with a TNF inhibitor bio-similar was well tolerated and lead to sustained control of psoriatic arthritis after allergic reaction to the TNF inhibitor bio-originator

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Case Report

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Abstract

Background: Infliximab, a chimeric monoclonal antibody against tumour necrosis factor (TNF) α is approved for psoriatic arthritis (PsA) treatment. Infliximab is available as an originator (Remicade®) and as biosimilar (CT-P13, Remsima®, Inflectra®; SB2, Flixabi®).

Case presentation: We present a 38-year-old Caucasian female diagnosed with PsA in 2009 with skin and joint symptoms. After multiple failed treatments including methotrexate, adalimumab, etanercept, certolizumab pegol and secukinumab, the patient was started on infliximab (Flixabi®). After 6 months, symptoms recurred and the patient was switched to infliximab (Remsima®) causing an allergic reaction. Based on the initial response to infliximab (Flixabi®) it was reintroduced. The patient did not develop any allergic reaction and responded excellently reaching controlled disease after 8 weeks with ongoing improvement of symptoms thereafter.

Conclusions: The reasons for the differential response to different infliximab products is unclear and may not necessarily be related to the antibody itself. While switching between bio-originator and bio-similar is widely practiced, we could not find another documented case of an allergic reaction to the infliximab bio-originator being exposed to an infliximab bio-similar later on.

Background

Infliximab, a chimeric monoclonal antibody against tumour necrosis factor (TNF) α is approved for psoriatic arthritis (PsA) treatment. Infliximab is available as an originator (Remicade®) and as biosimilar (CT-P13, Remsima®, Inflectra®; SB2, Flixabi®) (1–4).

Case Presentation

We present a 38-year-old Caucasian female diagnosed with PsA in 2009 with skin and peripheral joint involvement. She received treatment with methotrexate, which was not tolerated before receiving adalimumab ultimately controlling her disease. In 2010 she developed lymph node tuberculosis and was successfully treated with standard tuberculostatic treatment. After cure of tuberculosis she started on etanercept which was maintained until 2013. Treatment with etanercept was stopped due to sustained absence of symptoms related to PsA.

In 2018, after a long drug-free phase, the patient presented with a relapse of PsA with severe arthritis and dactylitis involving the hand, feet and knee joints as well as exacerbation of skin disease. Sequential attempts for treatment of PsA with etanercept, certolizumab pegol and secukinumab failed. The patient was therefore started on infliximab (Flixabi®), which lead to a status of minimal disease activity (MDA). However, after 6 months symptoms recurred and the patient was switched to infliximab (Remsima®), which worsened than improved skin and joint symptoms. Therefore, treatment with infliximab (Remicade®) was started, but led to an allergic reaction with flushing, dizziness, shortness of breath, nausea and shivering. The infusion was stopped and prednisolone controlled the symptoms. Based on

the initial response to infliximab (Flixabi®) and after discussion with the patient treatment with infliximab (Flixabi®) was reintroduced. The patient did not develop any allergic reaction and responded excellently reaching controlled disease after 8 weeks with ongoing improvement of symptoms thereafter. The patient had no concomitant methotrexate treatment as it was not well tolerated.

Discussion And Conclusions

This case is remarkable for two reasons: first, the patient developed an allergic reaction to one of the three different infliximab products and tolerated re-exposure with another infliximab product. Allergic reactions occur in about 5–20% of patients treated with infliximab, those occurring during administration and within 24 hours of infusion are categorized as acute. Their symptoms include headache, hypotension/hypertension, dizziness, shortness of breath, shivering, sweating, rise in temperature and rash/ urticaria (5). The reasons for the differential response to different infliximab products is unclear and may not necessarily be related to the antibody itself. While switching between bio-originator and bio-similar is widely practiced (6, 7), we could not find another documented case of an allergic reaction to the infliximab bio-originator being exposed to an infliximab bio-similar later on. The second interesting finding is that PsA became again responsive to infliximab (Flixabi®), after the allergic reaction against infliximab (Remicade®). Hence, the patient experienced a good response, while the first course of infliximab (Flixabi®) before the allergic reaction only resulted in spurious response with rather rapid secondary failure. The reason for this is also unclear. However, an attractive explanation is the fact that allergic reaction is associated with type 2 immunity and recently eosinophils have shown to be important for resolution of arthritis (8). Hence, the combined activation of pro-resolving pathways in conjunction with eosinophils and TNF inhibition might have shown added efficacy in controlling PsA.

Declarations

Ethics approval and consent to participate: N/A

Consent for publication: the patient involved in this case report regrettably passed away due to his condition

Availability of data and material: supporting data can be anytime accessed in our files

Competing interests: None to declare

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