Paradoxical Psoriatic Arthritis with the Initiation of Brodalumab and Guselkumab

Reem Kashlan
Kristin Slater
Francisca Kartono

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Paradoxical plaque psoriasis reactions have been reported with the usage of biologics, primarily with the use of anti-TNF agents. Brodalumab, a human monoclonal antibody against interleukin-17 receptor A (IL17RA), has been proven to be effective against psoriasis and psoriatic arthritis.1 A newer biologic agent, guselkumab, an interleukin-23 blocker, has also been proven to be effective in the treatment of moderate to severe psoriasis and psoriatic arthritis.2 Both of these biologics have been clinically proven to be contenders for alternative options when a first line biologic agent may have failed, as well as in biologic naïve patients. We report an unusual severe worsening of arthritis in a longstanding psoriasis and psoriatic arthritis patient within days of starting brodalumab, and subsequently within days of starting guselkumab despite a significant clearing of plaque psoriasis.

Case Report

- A 47 year old white male with a long standing history of psoriatic arthritis with worsening plaque psoriasis referred to Dermatology for consideration of adding a different class of biologic or alternative treatment to control his plaque psoriasis while on tocitakinib.
- Patient was started on brodalumab, with a return of his well controlled psoriatic arthritis as a result and the medication was discontinued. However, patient continued to see improvement in his plaque psoriasis for 2 weeks.
- Patient was then started on guselkumab, and the patient saw improvement in his plaque psoriasis until he was hospitalized as a result of a psoriatic arthritis flare
- During his hospitalization, he had fluid drained from both knees and an elevation of WBC. Synovial fluid culture and blood cultures showed no growth. He was hospitalized for five days, with increasing leukocytosis with each additional day he was hospitalized.
- Two weeks after the hospitalization the patient still complained of calf swelling. The patient was given prednisone and fluid was drained from both knees.

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Reem Kashlan MPH, Kristin Slater MS, Francisca Kartono DO
Henry Ford Health System, Detroit, Michigan

Patient prescribed Siliq 210 mg/1.5mL subcutaneous injection

Timeline

One week later, Patient called with joint pain after starting Siliq. Severe pain over the weekend in knees and shoulders. Siliq discontinued

Started Tremfya 100mg/mL subcutaneous injection in office

Several weeks after discontinuing Siliq the patient returned with resolution of his joint pain and a gradual return of his plaque psoriasis (figure 1)

Six days later, Patient was admitted to the hospital due to bad flare up. He had fluid drained from knees and had elevation of WBC. Was bedridden prior to hospitalization.

Tremfya discontinued. Patient had improvement in his symptoms.

Discussion

- Paradoxical reactions have been described in the literature for biologics such as anti-tumor Necrosis Factor Alpha Agents, ustekinumab, secukinumab, ixekizumab3
- It has been hypothesized that paradoxical reactions occur due to a cytokine imbalance resulting in a dysregulation of plasmacytoid dendritic cells (pDC) cells. Normally, TNF-alpha inhibits pDCs which produce IFN-alpha. The underlying mechanism involves an indirect increase of IFN-alpha as a result of TNF-alpha inhibition2
- Paradoxical reactions caused by these newer biologics are more likely to occur as a new onset disease rather than a worsening of prior disease, as seen with our patient2
- Only one case of a paradoxical reaction to brodalumab has been published which manifested as de novo psoriatic alopecia, which was effectively managed with guselkumab3

–This case outlined a sequence of events similar to our patient with rapid improvement upon initiation of brodalumab and subsequent reaction shortly after resolution of initial symptoms

Conclusion

In summary, we report a previously undescribed case of a severe paradoxical psoriatic arthritis flare in the setting of psoriasis improvement with the start of both brodalumab and guselkumab injections. Although paradoxical reactions have been described for biologic agents in the past, this case highlights a possible adverse reaction associated with the initiation of both brodalumab and guselkumab that one should be aware of.

Photos

References


Figure 1. Return of Plaque psoriasis after stopping brodalumab