



# Secukinumab for psoriasis in a patient with familial Mediterranean fever

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## 1 | INTRODUCTION

Psoriasis is an inflammatory skin disease that is often associated with impairment of other body systems, including the eye (Aragona et al., 2018, Cannavò et al., 2018) and ear (Borgia et al., 2018). In psoriasis, overexpression of interleukin (IL)-1 $\beta$ , IL-6, and tumor necrosis factor- $\alpha$  activates the innate immune response (i.e., Th17 and Th1 cells), which leads to chronic inflammation (Dattilo et al., 2018; Guarneri et al., 2018).

Familial Mediterranean fever (FMF) is an autoinflammatory condition caused by mutations in the MEFV gene, which lead to increased IL-1 $\beta$  production and excess inflammation (Ozen & Bilginer, 2014). Although there are some case reports in literature, association of psoriasis with FMF has not been really documented in a cohort (Barut, Guler, Sezen, & Kasapcopur, 2016). However, the prevalence of psoriasis is high in patients with FMF (Erden et al., 2018; Yildiz et al., 2019).

Pathogenesis-oriented targeted therapies are clearly more effective than conventional systemic antipsoriatic drugs. They may also influence the course of comorbidities sharing common inflammatory pathways. Thus, evaluation of co-existing diseases in managing of psoriatic patients remains crucial.

## 2 | CASE PRESENTATION

Here, we report the case of a 55-year-old Caucasian man, who presented in May 2017 with a history of psoriasis since 2013, for which

he had previously received various non-specified systemic and topical treatments with limited and short-lasting benefits. His medical history also included a diagnosis of FMF in 2012 after repeated episodes of fever associated with chest and abdominal pain from 15 years of age. Genetic testing confirmed the presence of two heterozygous MEFV gene mutations (M694V and M680I). No familial history of FMF was reported. Since his FMF diagnosis he had been receiving colchicine with excellent control over the condition, which was clinically not symptomatic at out visit. His pathological anamnesis also reported the occurrence of some oral aphthae in the past, with the suspect clinical diagnosis of Behcet's disease made by general physician. The patient had no other notable medical history.

Upon presentation, physical examination revealed erythematous-squamous psoriatic plaques with mild infiltration, localized mainly on the patient's torso and lower limbs (Figure 1). These lesions corresponded to a Psoriasis Area Severity Index (PASI) score of 14.6 with 25% body-surface area (BSA) involvement. He did not report painful joints or itchiness; however, a Dermatology Life Quality Index (DLQI) score of 10 indicated a moderate effect on his quality of life.

The results of the patient's laboratory tests were within normal limits, including blood count, blood glucose, hepatic, renal and pancreatic function, hepatic markers, and QuantiFERON, and a chest X-ray and electrocardiogram were unremarkable. In June 2017, the patient was prescribed secukinumab 300 mg, administered as two 150 mg subcutaneous injections, once a week for the first four administrations and then once a month thereafter.

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**FIGURE 1** Erythematous squamous plaques with mild infiltration at presentation, with a Psoriasis Area Severity Index score of 14.6 with 25% body-surface area involvement



**FIGURE 2** The patient's skin condition after approximately 12 months of secukinumab treatment (Psoriasis Area Severity Index score 0)

At the patient's first follow-up appointment after 4 weeks of secukinumab, a considerable improvement in his skin condition was observed (PASI score 3.8, BSA involvement 4%, DLQI score 5). The patient continued to undergo quarterly follow-up visits. At his last visit on July 10, 2018, his PASI score was 0 (Figure 2). He reported full physical well-being, with no febrile episodes or aphthosis; his psoriasis remained under control as of September 2018.

### 3 | DISCUSSION

Topical corticosteroids are typically recommended as first-line therapy for mild to moderate psoriasis (Girolomoni et al., 2012), while patients

with moderate or severe psoriasis may require systemic therapy in combination with topical drugs (Di Lernia et al., 2018). Biological drugs can be used to treat patients with moderate to severe psoriasis (Ceccarelli et al., 2019) including those with other immune-mediated disorders (Guarneri, Russo, Mazzeo, & Cannavo, 2014). Although biological drugs are generally well tolerated, cases of adverse skin reactions have been reported with some drugs, including adalimumab (Guarneri, Cannavo, Lentini, & Polimeni, 2011) and ustekinumab (Guarneri et al., 2016). Due to the potential for an increased risk of infections, and given the high prevalence of tuberculosis among patients with psoriasis, it is also important to screen for tuberculosis prior to starting biological therapy (Amerio et al., 2013). Secukinumab is a monoclonal antibody against

IL-17A, and is indicated for the treatment of moderate to severe plaque psoriasis in patients who require systemic treatment.

IL-17 is not only a pivotal cytokine in regulating the innate immune response, but is also crucial in autoinflammation, recruiting neutrophils, activating them and stimulating their production of IL-8. In fact, IL-8 is the main chemoattractor of neutrophils and acts synergistically with TNF- $\alpha$  in maintaining the proinflammatory profile (Marzano, Borghi, Meroni, & Cugno, 2016).

The snapshot of cytokine profile in FMF suggests the scenario of T cell differentiation into more diverse T cell subpopulations than it was recognized before, in particular into the Th17 and Treg lineages. Similarly, Th17 and IL-17 pathways might have a part in the development and activity of Behçet's disease lesions (Leccese & Alpsoy, 2019).

Accordingly, our case presentation and consequent treatment option seem to support a theoretically "tailored" role for secukinumab in these patients, as highly effective in managing moderate to severe plaque-type psoriasis, together with potential activity (and, in absence of active diseases, a reasonable better safety profile than other biological drugs) on other autoimmune/autoinflammatory condition as FMF and Behçet's disease.

For these reasons, we felt confident to use this drug without further attempts using conventional systemic treatments.

To our knowledge, there are no published reports on biological drugs used in psoriatic patients also affected by FMF.

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## CONFLICT OF INTEREST

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## AUTHOR CONTRIBUTIONS

Serafinella P. Cannavò performed case description/discussion and coordinated the study group. Valeria Papaiani, MD and Annunziata Bartolotta, MD contributed to data collection, and literature searching. Claudio Guarneri, MD read and approved drafts.

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## REFERENCES

- Amerio, P., Amoroso, G., Bardazzi, F., Campanati, A., Cassano, N., Conti, A., ... de Simone, C. (2013). Detection and management of latent tuberculosis infections before biological therapy for psoriasis. *The Journal of Dermatological Treatment*, 24(4), 305–311.
- Aragona, E., Rania, L., Postorino, E. I., Interdonato, A., Giuffrida, R., Cannavò, S. P., ... Aragona, P. (2018). Tear film and ocular surface assessment in psoriasis. *The British Journal of Ophthalmology*, 102, 302–308.
- Barut, K., Guler, M., Sezen, M., & Kasapcopur, O. (2016). Increased frequency of psoriasis in the families of the children with familial Mediterranean fever. *Clinical and Experimental Rheumatology*, 34(6 Suppl 102), S137.
- Borgia, F., Ciodaro, F., Guarneri, F., Bartolotta, A., Papaiani, V., Guarneri, C., ... Cannavò, S. P. (2018). Auditory system involvement in psoriasis. *Acta Dermato-Venereologica*, 98, 655–659.
- Cannavò, S. P., Postorino, E., Aragona, E., Bartolotta, A., Papaiani, V., & Guarneri, C. (2018). Secukinumab for plaque psoriasis with ocular comorbidity: A clinical experience. *The Journal of Dermatological Treatment*, 29(sup1), 9–11.
- Ceccarelli, M., Venanzi Rullo, E., Vaccaro, M., Facciola, A., d'Aleo, F., Paolucci, I. A., ... Guarneri, C. (2019). HIV-associated psoriasis: Epidemiology, pathogenesis, and management. *Dermatologic Therapy*, 32(2), e12806.
- Dattilo, G., Imbalzano, E., Casale, M., Guarneri, C., Borgia, F., Mondello, S., ... Cannavò, S. P. (2018). Psoriasis and cardiovascular risk: Correlation between psoriasis and cardiovascular functional indices. *Angiology*, 69(1), 31–37.
- Di Lernia, V., Guarneri, C., Stingeni, L., Gisondi, P., Bonamonte, D., Calzavara Pinton, P. G., ... Cannavò, S. P. (2018). Effectiveness of etanercept in children with plaque psoriasis in real practice: A one-year multicenter retrospective study. *The Journal of Dermatological Treatment*, 29, 217–219.
- Erden, A., Batu, E. D., Seyhoğlu, E., Sari, A., Sönmez, H. E., Armagan, B., ... Kalyoncu, U. (2018). Increased psoriasis frequency in patients with familial Mediterranean fever. *Upsala Journal of Medical Sciences*, 123, 57–61.
- Girolomoni, G., Vena, G. A., Ayala, F., Cannavò, S. P., De Pità, O., Chimenti, S., & Peserico, A. (2012). Consensus on the use of the fixed combination calcipotriol/betamethasone dipropionate in the treatment of plaque psoriasis. *Giornale Italiano di Dermatologia e Venereologia*, 147, 609–624.
- Guarneri, C., Aguenouz, M., Guarneri, F., Polito, F., Benvenga, S., & Cannavò, S. P. (2018). Autoimmunity to heterogeneous nuclear ribonucleoprotein A1 in psoriatic patients and correlation with disease severity. *Journal der Deutschen Dermatologischen Gesellschaft*, 16, 1103–1107.
- Guarneri, C., Cannavò, S. P., Lentini, M., & Polimeni, G. (2011). Adalimumab-induced disseminated superficial PoroKeratoses. *The Annals of Pharmacotherapy*, 45, 280–281.
- Guarneri, C., Lentini, M., Polimeni, G., Giuffrida, R., & Cannavò, S. P. (2016). Ustekinumab-induced drug eruption resembling lymphocytic infiltration (of Jessner-Kanof) and lupus erythematosus tumidus. *British Journal of Clinical Pharmacology*, 81, 792–794.
- Guarneri, C., Russo, M., Mazzeo, A., & Cannavò, S. P. (2014). Etanercept for psoriasis and psoriatic arthritis in a patient with Charcot-Marie-Tooth disease. *The Annals of Pharmacotherapy*, 48, 550–551.
- Leccese, P., & Alpsoy, E. (2019). Behçet's disease: An overview of Etiopathogenesis. *Frontiers in Immunology*, 10(10), 1067.
- Marzano, A. V., Borghi, A., Meroni, P. L., & Cugno, M. (2016). Pyoderma gangrenosum and its syndromic form: Evidence for a link with autoinflammation. *The British Journal of Dermatology*, 175, 882–891.

- Ozen, S., & Bilginer, Y. (2014). A clinical guide to autoinflammatory diseases: Familial Mediterranean fever and next-of-kin. *Nature Reviews Rheumatology*, *10*, 135–147.
- Yildiz, M., Adrovic, A., Tasdemir, E., Baba-zada, K., Aydin, M., Koker, O., ... Kasapcopur, O. (2019). Evaluation of co-existing diseases in children with familial Mediterranean fever. *Rheumatology International*. <https://doi.org/10.1007/s00296-019-04391-9>

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