Hindawi
Dermatologic Therapy
Volume 2023, Article ID 5557255, 3 pages
https://doi.org/10.1155/2023/5557255

Research Article

Intraclass Switching among IL17 Inhibitors in Psoriasis: A Real-Life, Long-Term Single-Center Experience

Francesco Cavallo, Silvia Borriello, Luca Mastorino, Paolo Dapavo, Pietro Quaglino, and Simone Ribero

Section of Dermatology, Department of Medical Sciences, University of Turin, Via Cherasco 23, Turin 10126, Italy

Correspondence should be addressed to Francesco Cavallo; fcavallo93@gmail.com

Received 5 January 2023; Revised 29 March 2023; Accepted 11 April 2023; Published 20 April 2023

Academic Editor: Jaime Piquero-Casals

Interleukin 17 (IL-17) inhibitors such as secukinumab, ixekizumab, and IL17 receptor (IL17RA) inhibitor brodalumab have proved to be highly effective and safe in psoriasis treatment. Still, a substantial proportion of patients show a primary or secondary inefficacy. When this happens, the clinician can change the therapeutical axis (swap) or perform an intraclass switch among IL-17 inhibitors. The latter option could allow us to address some comorbidity better, spare the other axis in case of the future inefficacy, and avoid interacting with other molecules with a different safety profile. To date, no sufficient data are available on the efficacy of a second IL-17 inhibitor therapy. Our study included 29 patients with moderate to severe psoriasis undergoing an intraclass switch among IL-17 inhibitors. The mean PASI dropped from 11.1 ± 6.1 to 5.2 ± 6.6 at week 16, with response maintained at week 28 and week 52 (3.4 ± 4.2 and 3.0 ± 4.3, respectively) with no occurrence of serious adverse events. Our data support the evidence that intraclass switch among IL-17 inhibitors is a safe and effective therapeutic option in these patients. This trial is registered with SS_DERMO_20.

1. Introduction

The treatment of moderate to severe psoriasis has recently undergone a breakthrough with the introduction of biologic drugs. By targeting the IL-23/IL-17 axes, which represents a mainstay of the increased inflammatory response observed in psoriasis, IL-17 inhibitors such as secukinumab, ixekizumab, and IL17 receptor inhibitor (IL17RA) brodalumab proved to be highly effective and safe both in clinical trials and real-life settings, with a significant and rapid impact in terms of psoriasis area severity index (PASI) 90 and 75, achieved in about 60% and 80% of cases at week 12, respectively [1, 2]. Unfortunately, a substantial proportion of patients shows a primary or secondary inefficacy to the treatment, as well as the onset of adverse events leading to discontinuation of the treatment. In the abovementioned cases, the clinician can face the challenge of changing the therapeutical axis (swap) or keep maintaining the same axis by performing an intraclass switch.

Real-life studies add important clinical information to daily dermatological clinical practice since they include patients typically excluded by the rigid inclusion and exclusion criteria of clinical trials, such as patients suffering from other forms than plaque psoriasis and patients with multiple comorbidities [3]. To date, limited data are available on patients undergoing intraclass switching among IL-17 inhibitors. Real-life preliminary data suggest the efficacy of switching to another IL-17 inhibitor [4, 5] in the previous reported settings. Moreover, a meta-analysis [5] on 655 patients confirmed the clinical activity of a second treatment with an IL-17 inhibitor, even if most studies included only ixekizumab as a second-line treatment or was retrospective chart reviews with no information on the response to the previous IL-17 inhibitor. This topic is of major interest since intraclass switching could represent a further option for patients, allowing to avoid interacting with other molecules with a different safety profile. Moreover, intraclass switching may represent a good choice in the case of certain

Table 1: Clinical outcomes after the anti-IL17 intraclass switch.

	Absolute PASI, *n* (sd)	PASI 90 (%) (*n*)	PASI 100 (%) (*n*)
16 weeks			
Ixekizumab to brodalumab	7.4 (10.7)	33.3% (3/9)	33.3% (3/9)
Secukinumab to brodalumab	5.3 (5.2)	36.4% (7/11)	36.4% (7/11)
Secukinumab to ixekizumab	3.0 (2.2)	50.0% (4/8)	12.5% (1/8)
Brodalumab to secukinumab	1	100% (1/1)	100% (1/1)
28 weeks			
Ixekizumab to brodalumab	1.9 (1.0)	44.4% (4/9)	44.4% (4/9)
Secukinumab to brodalumab	5.3 (6.4)	44.4% (4/9)	44.4% (4/9)
Secukinumab to ixekizumab	2.7 (2.0)	50.0% (4/8)	12.5% (1/8)
Absolute PASI < 3% (n)			
16 weeks		58.6% (17/29)	
28 weeks		75% (18/24)	

Note. PASI, psoriasis area severity index; *n*, number of patients.

comorbidities where IL-17 inhibitors are indicated (e.g., arthropathic arthritis) and it permits to spare of the other axis in the case of future inefficacy.

2. Report

In this study, we retrospectively reviewed the medical charts of moderate to severe psoriasis patients treated at the Dermatology Clinic of the Turin University Hospital, to identify the patients who underwent intraclass IL-17 switching in the last three years. Among a total of 648 patients undergoing IL-17 inhibitors for moderate to severe psoriasis, 29 patients (13 females and 16 males) underwent intraclass switching among IL-17 inhibitors. In all cases, the switch was performed without a wash-out period or intercurrent therapy. At the time of the switch, the mean age was 55.1 years (range 21–88), with a mean onset of psoriasis at age 28.8 ± 15.7. The mean body mass index (BMI) was 28.7 ± 6.6. Concerning comorbidities, 11 patients were obese (BMI > 30), 13 reported cardiovascular comorbidities, and 4 were diabetic. 26 patients (86.2%) suffered from psoriasis vulgaris (among these, 7 patients had associated inverse psoriasis), 2 patients from erythrodermic psoriasis, and 1 patient showed a pustular form at the beginning of the first line of IL-17 inhibitors. 16 patients (55.2%) had concomitant psoriatic arthritis. 8 patients (27.6%) underwent one or more prior biologic therapy for psoriasis (6 patients took adalimumab, 3 etanercept, 2 ustekinumab, and 1 infliximab). In our sample, a higher arthritic involvement (55% vs. 29%, $p > 0.01$) was observed with respect to our general population. Apart from this, no statistically significant differences were observed regarding sex, age, age of onset of psoriasis, arthritic involvement, BMI, diabetes, and cardiovascular diseases (Table 1). The first IL-17 inhibitor treatment used in these patients and then discontinued for primary (defined as nonresponse to treatment after 3-4 months) or secondary inefficacy (defined as loss of efficacy during treatment) was secukinumab in 19 cases (11 switched to brodalumab and 8 to ixekizumab), ixekizumab in 9 (all switched to brodalumab), and brodalumab in 1 (switched to secukinumab). 6 patients (20.7%) discontinued treatment because of primary inefficacy, 21 patients (72.5%) due to secondary inefficacy, and 2 (7%) for the onset of adverse events (tinea cruris and mood deflection in one case, otitis in the other). The mean PASI at the intraclass switch was 11.1 ± 6.1 which subsequently dropped to 5.2 ± 6.6. 9 patients (31%) achieved PASI 100 at week 16. In the following weeks, the response was maintained with the mean PASI at weeks 28 and 52 of 3.4 ± 4.2 and 3.0 ± 4.3, respectively. No statistically significant differences were observed between the mean PASI drop in bio-naïve and bio-experienced patients or between patients switching because of primary or secondary inefficacy ($p = 0.262$ and $p = 0.228$, respectively). Reported adverse events after the intraclass switch were injection-site reactions ($n = 2$) and postinjectional fatigue ($n = 1$). The median follow-up time of treatment after switching was 18.7 months (4–50 months). Currently, all patients are continuing treatment except for two patients (due to the detection of malignancy and uncontrolled joint pain, respectively).

3. Discussion

Following these results, some considerations can be made. Although all the 3 biologic drugs operate on the IL-17 pathway, they do this by acting on different targets and different affinities. Brodalumab, by inhibiting the IL-17 receptor also blocks other cytokines than IL-17A (e.g., IL17C-E-F) and can therefore obtain a different profile of response after intraclass switching [1]. In this regard, a study by Kromer et al. [6] investigated 23 patients who switched from secukinumab or ixekizumab to brodalumab showing a PASI75 response obtained in 47.8% of patients. Although both secukinumab and ixekizumab inhibit IL17A with an excellent efficacy [7], ixekizumab showed a higher affinity and a higher persistence rate than secukinumab [1], partially explaining the difference in responses as previously reported [4, 5, 8]. These data are supported by real-life findings, e.g., a case series by Bokor-Billmann et al. on twelve patients switching from secukinumab to ixekizumab showed a PASI90 achievement in 100% of cases at week 12 [9]. Other possible mechanisms remain unknown and should be investigated by further clinical and molecular studies. Further studies will be needed on a larger patient population;

however, our data, together with the available data in the literature, clearly confirm that intraclass switching among IL-17 inhibitors may be a safe and effective therapeutic option for patients who show inefficacy from the first IL-17 inhibitors line.

Data Availability

The data used to support the findings of this study are available from the corresponding author (FC) upon reasonable request.

Ethical Approval

Protocol no. 0056095, 20th May 2021.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

Authors' Contributions

All authors contributed to the article and approved the submitted version. Francesco Cavallo and Silvia Borriello equally contributed and shared the first authorship. Pietro Quaglino and Simone Ribero equally contributed and shared senior authorship.

References

[1] K. Ghoreschi, A. Balato, C. Enerbäck, and R. Sabat, "Therapeutics targeting the IL-23 and IL-17 pathway in psoriasis," *The Lancet*, vol. 397, no. 10275, pp. 754–766, 2021.

[2] P. Dapavo, N. Siliquini, L. Mastorino et al., "Efficacy, safety, and drug survival of IL-23, IL-17, and TNF-alpha inhibitors for psoriasis treatment: a retrospective study," *Journal of Dermatological Treatment*, vol. 33, no. 4, pp. 2352–2357, 2022.

[3] A. Ruggiero, G. Fabbrocini, E. Cinelli, and M. Megna, "Real world practice indirect comparison between guselkumab and risankizumab: results from an Italian retrospective study," *Dermatologic Therapy*, vol. 35, no. 1, Article ID e15214, 2022.

[4] E. Sotiriou, K. Bakirtzi, I. Papadimitriou et al., "Real-life intraclass switch among IL-17 inhibitors in psoriasis: results from a single-centre, 24-week, retrospective study," *Journal of the European Academy of Dermatology and Venereology: JEADV*, vol. 36, no. 11, pp. e952–e953, 2022.

[5] N. Loft, A. S. Halling, A. Egeberg, and L. Skov, "Efficacy of a second interleukin 17 inhibitor in patients with psoriasis: a systematic review and meta-analysis," *Journal of the American Academy of Dermatology*, vol. 84, no. 1, pp. 130–138, 2021.

[6] C. Kromer, D. Wilsmann-Theis, S. Gerdes et al., "Changing within the same class: efficacy of brodalumab in plaque psoriasis after treatment with an IL-17A blocker - a retrospective multicenter study," *Journal of Dermatological Treatment*, vol. 32, no. 8, pp. 878–882, 2021.

[7] T. Torres, A. Balato, C. Conrad et al., "Secukinumab drug survival in patients with psoriasis: a multicenter, real-world, retrospective study," *Journal of the American Academy of Dermatology*, vol. 81, no. 1, pp. 273–275, 2019.

[8] C. Cariti, P. Dapavo, L. Mastorino et al., "Comparison of Secukinumab and Ixekizumab in psoriasis: a real-life cohort study on the efficacy and drug survival of 445 patients," *Journal of the European Academy of Dermatology and Venereology: JEADV*, vol. 36, no. 3, pp. e233–e235, 2022.

[9] T. Bokor-Billmann and K. Schäkel, "No need to change the drug class: ixekizumab- following secukinumab-therapy in psoriasis," *Journal of Dermatological Treatment*, vol. 30, no. 3, pp. 216–220, 2019.