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ORIGINAL RESEARCH

Real-Life Experience with Tildrakizumab in Plaque Psoriasis with Palmoplantar Involvement: A Multi-Center Retrospective Italian Study

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ABSTRACT

Introduction: Palmoplantar psoriasis (PPp) has a profound negative impact on patients' quality of life, and it represents a therapeutic challenge, as palms and soles are difficult to treat area. Although the efficacy profile of tildrakizumab has been well evaluated in the literature, data on its use for PPp are still limited. The objective of the study was to evaluate the efficacy and safety of tildrakizumab on moderate-to-severe plaque psoriasis with involvement of the palmoplantar area.

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Methods: A multicenter, retrospective, real-life study was performed enrolling patients with moderate-to-severe plaque psoriasis involving the palmoplantar area undergoing treatment with tildrakizumab with a follow-up of at least 52 weeks. At baseline, demographic and clinical data were assessed. Psoriasis severity was evaluated by using Psoriasis Activity Severity Index (PASI), body surface area (BSA), Psoriasis Global Assessment (PGA), Pruritus-Numerical Rating Scale (P-NRS) and Dermatology Life Quality Index (DLQI). Palmoplantar PASI (ppPASI) was used to evaluate psoriasis severity in the palmoplantar region. Clinical improvement was evaluated at each follow-up visit [week (W) 4, 16, 52].
Results: A total of 99 patients were enrolled. A reduction in PASI, BSA, PGA, P-NRS and DLQI was observed at each time point. Mean ppPASI at baseline was 16.9 ± 13.2, which started to improve at W4 (8.9 ± 9.1) and continued to decrease at W16 (2.1 ± 3.1) and W52 (0.5 ± 1.0). Moreover, a sub-analysis showed that the probability of achieving ppPASI50 at W4 increased in case of nail psoriasis ($p < 0.05$) and decreased in bio-experienced patients ($p < 0.001$). Similarly, the probability of achieving ppPASI75 at W4 decreased in the case of prior biologic exposure ($p < 0.05$). Finally, patients with nail psoriasis showed a higher probability of reaching ppPASI75 at W16 ($p < 0.05$), whereas patients previously treated with systemic therapies for psoriasis reported a reduced probability of ppPASI75 achievement at this time point ($p < 0.05$).
Conclusion: Tildrakizumab was shown to be a fast and effective treatment for patients with PPp, being able to achieve significant results already after only 4 weeks of treatment. Moreover, the identification of potential clinical factors predictive of response may improve the selection of the best treatment in patients with PPp.

Keywords: IL23 inhibitors; Palmo-plantar psoriasis; Tildrakizumab

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Key Summary Points

Why carry out this study?

Palmoplantar psoriasis (PPp) has a profound negative impact on patients' quality of life, and it represents a therapeutic challenge, as palms and soles are difficult to treat areas. Although the efficacy profile of tildrakizumab has been well evaluated in the literature, data on its use for PPp are still limited.

The aim of this study was to evaluate efficacy and safety of tildrakizumab on moderate-to-severe plaque psoriasis with involvement of the palmoplantar area.

What was learned from the study?

Tildrakizumab was a fast and effective treatment for patients with PPp, being able to achieve significant results after only 4 weeks of treatment. Moreover, identification of potential clinical factors predictive of response may improve the selection of the best treatment in patients with PPp.

INTRODUCTION

Psoriasis is a chronic inflammatory disease with an estimated prevalence of 2–3% of the global population [1]. Due to its severe skin manifestations, psoriasis significantly impacts patients' quality of life, leading to psychologic distress, disability and overall reduced quality of life [2]. Specific areas frequently affected by psoriasis are termed "difficult to treat areas" because of their higher resistance to treatment. These areas include the genitals, scalp, nails, palms and soles [3–10]. Notably, palmoplantar psoriasis (PPp) has a profound negative impact on patients' quality of life, affecting work productivity and leading to significant social stigma. The choice of treatment typically depends on the severity of the manifestations. First-line therapies often include high-potency topical steroids and phototherapy, followed by systemic treatments such as methotrexate and acitretin [11]. However, as

noted, PPp is often resistant to topical therapies; thus, advanced treatments should be considered even in early stages of the disease to reduce the burden associated with this localization, which is generally more severe than in other forms of psoriasis [11–13]. Biologic treatments revolutionized the management of psoriasis, being associated with high clear skin rates, even in patients with difficult-to-treat forms of psoriasis like PPp. Indeed, several biologics have already been linked to high effectiveness on palmoplantar psoriasis [12–16]. Tildrakizumab is a humanized IgG1 κ monoclonal antibody specifically targeting the p19 subunit of IL-23. It is approved for the treatment of moderate-to-severe plaque psoriasis in patients who are undergoing systemic therapy [17–19].

Although the safety and efficacy profiles of tildrakizumab have been well evaluated by clinical trials and several real-life studies [20–27], data on its efficacy for PPp are still limited. Herein, we report the results of a 52-week, retrospective, real-life study aiming to evaluate the efficacy and safety of tildrakizumab on moderate-to-severe plaque psoriasis involving the palmoplantar area.

MATERIALS AND METHODS

A multicenter, retrospective, real-life study was performed enrolling patients with moderate-to-severe plaque psoriasis involving the palmoplantar area from 13 dermatology clinics in Italy.

The dermatologic clinical centers were part of the Italian National Health System, and patients had undergone tildrakizumab treatment with at least 52-week follow-up.

IRB approval was waived, the study was conducted respecting the Declaration of Helsinki, and all patients signed an informed consent before starting the study.

The primary aim of the study was to evaluate the efficacy and safety of tildrakizumab in patients with plaque psoriasis involving the palmoplantar area in a real-world setting.

Inclusion criteria were age ≥ 18 years, eligibility for treatment with tildrakizumab according to regional guidelines in the absence of contraindications to the administration of the drug and diagnosis of plaque psoriasis involving the palms of the hands and/or soles of the feet.

The exclusion criteria included clinically significant ongoing infections, pregnancy, breastfeeding or reluctance to employ suitable contraceptive measures among women of childbearing age. Also excluded were patients with medical conditions deemed by the investigator to pose risks to the patient and with a previous allergic reaction to any component of tildrakizumab.

Tildrakizumab was administered at a dosage of 100 mg by subcutaneous injection at weeks 0 and 4, followed by maintenance injections every 12 weeks. Patients already on biologic therapy needed a suitable wash-out period before starting tildrakizumab.

At baseline, demographic (age, sex) and clinical data [age of psoriasis onset, body mass index (BMI), presence of psoriatic arthritis (PsA), comorbidities, previous systemic conventional and biologic treatments for psoriasis, involvement of the palmoplantar area (isolated palmar involvement, isolated plantar involvement, palmar and plantar involvement, presence of pustules)] were assessed.

Psoriasis severity was evaluated using the Psoriasis Activity Severity Index (PASI), body surface area (BSA), Psoriasis Global Assessment (PGA), Pruritus-Numerical Rating Scale (P-NRS) and impact on quality of life using the Dermatology Life Quality Index (DLQI). In particular, the Palmoplantar Psoriasis Area and Severity Index (ppPASI) was used to evaluate psoriasis severity in the palmoplantar region; this score was based on the PASI but applied only to the palms and soles: each palm contributed 20% and each sole contributed 30% to the total palmoplantar surface area.

Therefore, psoriasis severity was evaluated at each follow-up visit (week 4, week 16, week 52).

Moreover, PASI75, PASI90 and PASI100 responses, defined as the reduction of at least 75%, 90% and 100% of PASI, were evaluated at the same time points. Similarly, ppPASI50, ppPASI75, ppPASI90 and ppPASI100 responses, defined as at least 50%, 75%, 90% and 100% reduction of ppPASI, were calculated after 4, 16 and 52 weeks of treatment.

Data on potential safety issues and adverse events (AEs), as well as reasons for possible discontinuation of tildrakizumab, were recorded at each follow-up visit as well.

The present study was conducted respecting the Declaration of Helsinki, and all patients signed an informed consent before starting the study.

Statistical Analysis

A statistical assessment was conducted to determine the significance of the findings. Clinical and demographic data were depicted using descriptive statistics, expressed as mean ± standard deviation for continuous variables and as numbers and proportions for categorical variables.

Effectiveness data were analyzed utilizing the last observation carried forward method, wherein, if a patient withdrew from the study, the latest available value was extended until the conclusion of the treatment period. A p-value < 0.05 was considered statistically significant. Student's t-test was used to assess the significance of clinical improvement at the different time points of treatment compared with baseline.

Binomial logistic regressions were used to evaluate factors associated with achieving PGA 0/1 or PASI75, PASI90 and PASI100 at week 4, week 16 and week 52 and ppPASI50, ppPASI75, ppPASI90 and ppPASI100 at the same time points. Gender, age, years of disease, BMI, psoriasis duration, baseline PASI and ppPASI, comorbidities, number of previous therapies and presence of PsA were included as covariates. Odds ratios with 95% CIs were computed.

RESULTS

A total of 99 patients (53 male, 53.5%; mean age: 53.2 ± 13.3 years, mean age of psoriasis onset: 36.2 ± 15.8 years, mean BMI 27.3 ± 5.8) were enrolled.

Clinical and demographic features are summarized in Table 1.

Overall, 10 (10.1%) patients were also affected by PsA, and nail involvement was observed in 24 patients (24.2%).

Forty-one (41.4%) patients had at least one comorbidity, with hypertension (n = 37, 37.4%), dyslipidemia (n = 31, 31.3%), diabetes (n = 9, 9.1%) and psychiatric disorders (n = 9, 9.1%) being the most common.

A total of 93 (93.9%) patients had received at least one systemic conventional treatment before starting tildrakizumab, with methotrexate (n = 55, 55.6%), acitretin (n = 44, 44.5%) and cyclosporin (n = 33, 33.3%) being the most frequently used.

Finally, 50 (50.5%) patients were bio-naïve. Among the bio-experienced patients, adalimumab was the most common biologic administered (n = 32, 32.3%) followed by etanercept (n = 11, 11.1%) and secukinumab (n = 10, 10.1%).

Psoriasis severity at baseline and each follow-up visit is reported in Table 2.

At baseline, mean PASI, BSA and PGA were 12.6 ± 5.7, 25.8 ± 16.5 and 3.2 ± 1.2, respectively. All scores started to reduce at week 4 (PASI: 6.8 ± 3.9; BSA: 14.0 ± 10.0; PGA: 2.3 ± 1.1), continuing to improve up to week 52 (PASI: 1.0 ± 1.3; BSA: 1.2 ± 2.1; PGA: 0.4 ± 0.7). Moreover, PASI75/90/100 were reached by 15.2%/6.1%/4.0% of patients at week 4, 64.6%/43.3%/38.4% of subjects at week 16 and 85.6%/57.6%/49.5% of participants at week 52 (Fig. 1).

Tildrakizumab also demonstrated effectiveness in reducing pruritus, with a P-NRS improvement from baseline (5.2 ± 3.4) to week 4 (3.5 ± 3.2), week 16 (1.7 ± 1.7) and week 52 (1.0 ± 1.3).

DLQI scores also decreased from baseline (18.1 ± 5.7) to week 4 (13.2 ± 6.6), week 16 (5.9 ± 4.0) and week 52 (3.3 ± 3.6).

Regarding palmoplantar involvement, isolated palmar involvement was found in 27 (27.3%) patients, isolated plantar involvement in 18 (18.2%) patients, both palmar and plantar involvement in 54 (54.5%) patients and pustules in 39 (39.4%) patients. In particular, mean ppPASI at baseline was 16.9 ± 13.2, starting to improve at week 4 (8.9 ± 9.1) and continuing to reduce at week 16 (2.1 ± 3.1) and week 52 (0.5 ± 1.0) (Fig. 2).

Table 1 Clinical and demographic characteristics of the study population

Number of patients	99
Sex	
Male	53 (53.5%)
Female	46 (46.5%)
Mean age (years)	53.2 ± 13.3
Age of onset of psoriasis (years)	36.2 ± 15.8
Body mass index	27.3 ± 5.8
Presence of psoriatic arthritis	10 (10.1%)
Presence of nail psoriasis	24 (24.2%)
Patient with at least one comorbidity	41 (41.4%)
Hypertension	37 (37.4%)
Dyslipidemia	31 (31.3%)
Diabetes	9 (9.1%)
Psychiatric disorders	9 (9.1%)
Cardiovascular diseases	8 (8.1%)
Others IMIDs	13 (13.1%)
Previous systemic treatments (conventional and small molecules)	
Methotrexate	55 (55.6%)
Acitretin	44 (44.5%)
Cyclosporin	33 (33.3%)
Phototherapy	26 (26.3%)
Apremilast	8 (8.8%)
Dymethil fumarate	5 (5.5%)
Bio-naïve	50 (50.5%)
Bio-experienced	
Anti-TNFα	51 (51.5%)
Adalimumab	32 (32.3%)
Etanercept	11 (11.1%)
Certolizumab	5 (5.1%)
Infliximab	3 (3.0%)
Golimumab	0
Anti-IL12/23	9 (9.1%)
Anti-IL17	16 (16.2%)
Secukinumab	10 (10.1%)
Ixekizumab	3 (3.0%)
Brodalumab	3 (3.0%)
Anti-IL23	1 (1.0%)
Guselkumab	1 (1.0%)
Risankizumab	0
Age of onset of PPp (years)	38.6 ± 14.6
PPp features	
Isolated palmar involvement	27 (27.3%)
Isolated plantar involvement	18 (18.2%)
Palmar and plantar involvement	54 (54.5%)
Presence of pustules	39 (39.4%)

BMI body mass index, *IMID* immune-mediated inflammatory diseases, *PPp* palmoplantar psoriasis

ppPASI50 and ppPASI75 responses were achieved by 46.5% and 19.2% of patients at week 4, 94.9% and 68.7% at week 16 and 88.9% and 78.8% at week 52, respectively. Additionally, ppPASI90 responses were achieved by 8.1%, 54.5% and 67.7% of patients at weeks 4, 16 and 52, respectively, while ppPASI100 responses were achieved by 6.1%, 45.5% and 49.5% at the same time points (Fig. 3).

Regarding safety, two (2.0%) patients reported one AE (1: headache; 1: dizziness), which did not require treatment interruption. Six patients (6.1%) discontinued treatment for inefficacy, without treatment interruption for AEs registered.

A sub-analysis was performed to investigate the association between various factors (gender, age, years of disease, BMI, psoriasis duration, baseline PASI and ppPASI, comorbidities, number of previous therapies, presence of PsA) and achieving ppPASI50, ppPASI75, ppPASI90 and ppPASI100 at weeks 4, 16 and 52 as well

Table 2 Clinical severity of psoriasis at baseline and after 4, 16 and 52 weeks of treatment with tildrakizumab

	Baseline	Week 4	Week 16	Week 52
Mean PASI	12.6 ± 5.7	6.8 ± 3.9	2.5 ± 2.6	1.0 ± 1.3
Mean BSA	25.8 ± 16.5	14.0 ± 10.0	3.6 ± 5.5	1.2 ± 2.1
Mean PGA (0–4)	3.2 ± 1.2	2.3 ± 1.1	0.8 ± 0.7	0.4 ± 0.7
Mean DLQI	18.1 ± 5.7	13.2 ± 6.6	5.9 ± 4.0	3.3 ± 3.6
Mean P-NRS	5.2 ± 3.4	3.5 ± 3.2	1.7 ± 1.7	1.0 ± 1.3
PASI75	NA	15 (15.2%)	64 (64.6%)	85 (85.6%)
PASI90	NA	6 (6.1%)	43 (43.3%)	57 (57.6%)
PASI100	NA	4 (4.0%)	38 (38.4%)	49 (49.5%)
Mean ppPASI	16.9 ± 13.2	8.9 ± 9.1	2.1 ± 3.1	0.5 ± 1.0
ppPASI50	NA	46 (46.5%)	94 (94.9%)	88 (88.9%)
ppPASI75	NA	19 (19.2%)	68 (68.7%)	78 (78.8%)
ppPASI90	NA	8 (8.1%)	54 (54.5%)	67 (67.7%)
ppPASI100	NA	6 (6.1%)	45 (45.5%)	49 (49.5%)

PASI Psoriasis Activity Severity Index, *BSA* body surface area, *PGA* Psoriasis Global Assessment, *ppPASI* palmoplantar Psoriasis Area and Severity Index, *DLQI* Dermatology Life Quality Index, *P-NRS* Pruritus-Numerical Rating Scale (P-NRS), *NA* not applicable

as PGA 0/1 or PASI75, PASI90 and PASI100 at these time points.

The analysis revealed that the probability of achieving PGA 0/1 at week 16 was higher in male patients ($p < 0.05$) and in patients with longstanding psoriasis ($p < 0.05$). Conversely, patients with plantar psoriasis compared to those with PPp ($p < 0.05$) and subjects who had already undergone biologic therapy ($p < 0.01$) showed a reduced probability of reaching PGA 0/1 following 16 weeks of treatment.

Similarly, the probability of PASI90 achievement decreased at week 16 in the case of prior biologic treatment ($p < 0.0001$) and increased at week 52 in the presence of pustules ($p < 0.05$).

Finally, bio-experienced patients showed a reduced probability of reaching PASI100 response at week 16 ($p < 0.001$) and week 52 ($p < 0.05$), respectively. BMI did not significantly affect therapeutic outcomes. Regarding PPp, our analysis showed that the probability of achieving ppPASI50 at week 4 increased in case of nail psoriasis ($p < 0.05$) and decreased in bio-experienced patients ($p < 0.001$). Similarly, the probability of achieving ppPASI75 at week 4 decreased in the case of prior biologic exposure ($p < 0.05$).

Finally, patients with nail psoriasis showed a higher probability of reaching ppPASI75 at week 16 ($p < 0.05$), whereas patients previously treated with systemic therapies for psoriasis reported a reduced probability of ppPASI75 achievement at this time point ($p < 0.05$).

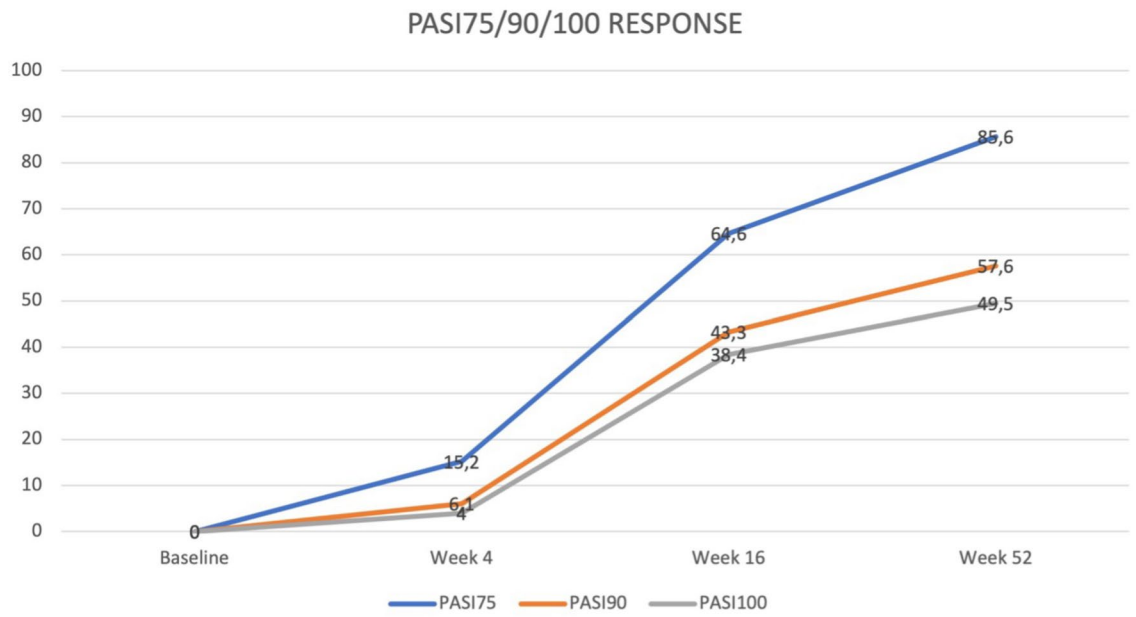

Fig. 1 PASI50/75/90/100 response following 4, 16 and 52 weeks of treatment with tildrakizumab

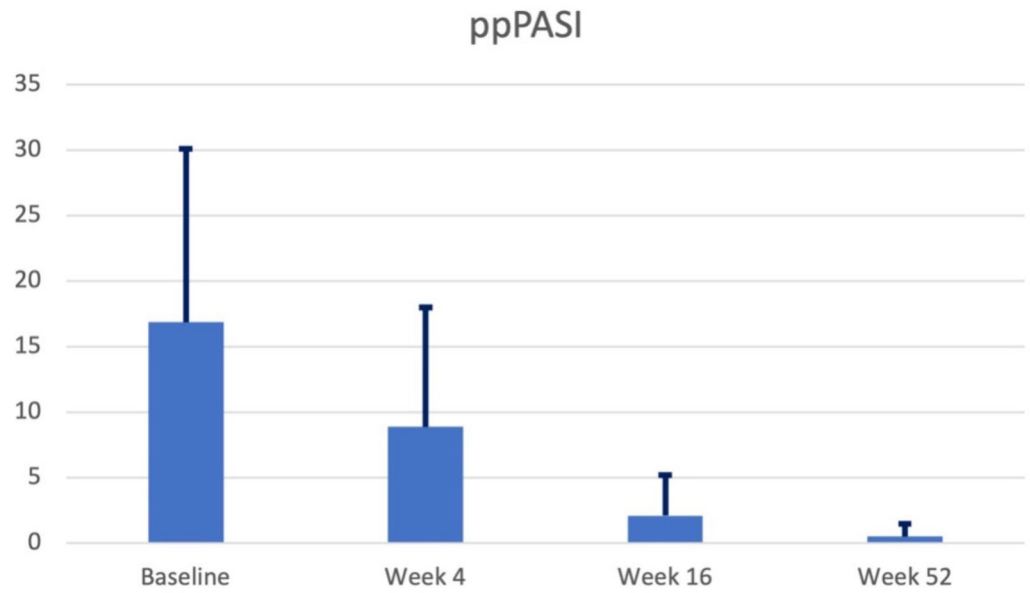

Fig. 2 ppPASI value at baseline and after 4, 16 and 52 weeks of treatment with tildrakizumab

DISCUSSION

PPp is characterized by erythematous and hyperkeratotic plaques, frequently associated with the presence of fissures, which are typically disabling, due to the pain and the impairment on daily activities [28].

Involvement of the palms and soles is frequently observed in severe psoriasis, though it

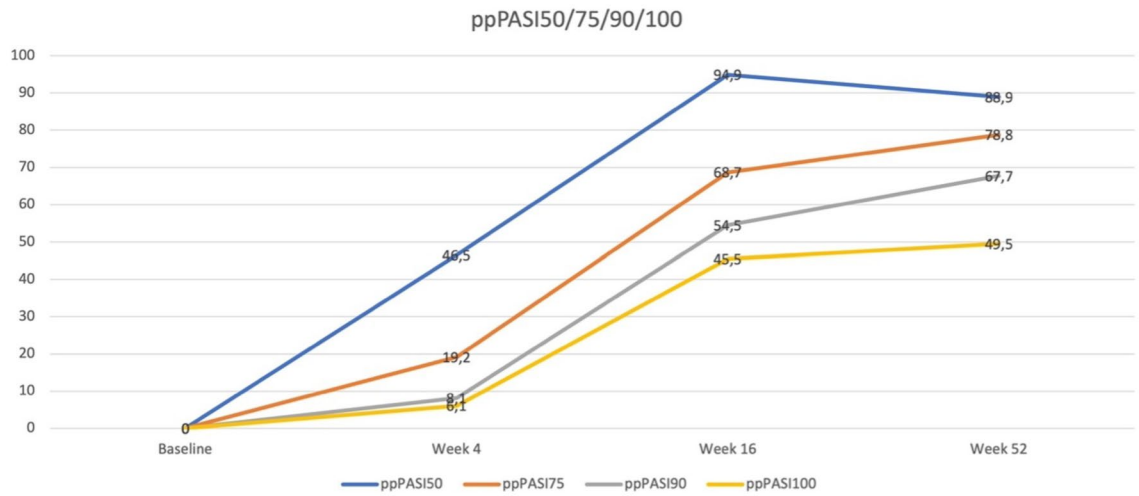

Fig. 3 ppPASI 50/75/90/100 response following 4, 16 and 52 weeks of treatment with tildrakizumab

may also be the sole manifestation of the disease (3–4% of cases). Moreover, the palmoplantar area is classified among the "difficult to treat areas" because of the resistance shown by psoriatic manifestations at these sites. Thus, the management of PPp is still considered a challenge for dermatologists [29]. The exact pathophysiology of PPp is still not clarified. Hyperactivation of the IL23/17 pathway seems to have a key role in the development and reactivation of the disease [30]. Indeed, Th17 and Th22 lymphocyte activation is induced by IL-23, which is produced by antigen presenting cells. The activation of these subtypes of lymphocytes is linked to the upregulation of several pro-inflammatory cytokines, such as IL-22 and IL-27, which act by promoting and increasing local skin inflammation and by stimulating keratinocyte hyperplasia [30]. Several biologic treatments, as well as conventional therapies (such as methotrexate and retinoids) and small molecules, have been proposed as effective strategies to manage PPp [29]. However, to date, only few clinical trials have been specifically designed to assess the efficacy of different biologics on PPp. The efficacy of TNF inhibitors (adalimumab, etanercept, infliximab) in the management of PPphas been contradictory, with studies showing a mild efficacy, particularly with better results showed with infliximab than other anti-TNFs [31].

Contrasting data have also been published for ustekinumab, which has shown promising results for managing palmoplantar pustulosis [32]. Among the few available trials, promising results have been reported for anti IL-17 (secukinumab, ixekizumab and bimekizumab), while only limited data are available for the more recent class of biologics, anti-IL-23, tildrakizumab, guselkumab and risankizumab [33–35].

Tildrakizumab is a humanized IgG1 κ monoclonal antibody targeting the p19 subunit of IL-23, approved for the management of moderate to severe forms of plaque psoriasis in adult patients who are eligible for systemic treatment [17–19]. The efficacy and safety profiles of tildrakizumab have been well evaluated in clinical trials, confirming excellent results in up to 5 years of follow-up [21, 36].

Moreover, more recent real-life studies also confirmed the promising results showed by trials in terms of both effectiveness and safety in daily clinical practice [26, 37, 38].

However, for other biologics, to date only limited data have been published on the efficacy and safety of tildrakizumab in difficult to treat areas, particularly on PPp. Among the first studies evaluating tildrakizumab on PPp, Galluzzo et al. [39] reported the results of a retrospective study, evaluating its effectiveness on difficult to

treat areas, focusing also on PPp [39]. Notably, the authors evaluated the efficacy on palmoplantar psoriasis in seven patients, with ppPASI at baseline of 5.3, decreasing to 0 after 28 weeks of treatment. Thus, these results first suggested tildrakizumab as a valid option for PPp [39]. In another case series of seven patients, the authors reported tildrakizumab as an effective treatment on PPp. Notably, all these patients had severe involvement of the palms and/or soles, showing a baseline mean ppPASI of 19.2, which decreased to 13.5 at week 16, and up to 5.2 after 28 weeks of treatment with tildrakizumab [40]. Few data are available from other real-life studies evaluating tildrakizumab in daily dermatologic practice. In the ESTER study, evaluating tildrakizumab in elderly patients, the authors reported a significant improvement of pp-PGA from baseline to week 24 [41]. However, even in this case, data referred to a small number of patients (8 patients).

To the best of our knowledge, our study was the first to specifically investigate the efficacy and safety profiles of tildrakizumab in the management of PPp, involving a wide patient collection.

Notably, 99 patients were enrolled in the study. During the follow-up, we found a significant reduction in ppPASI score, which decreased from 16.9 ± 13.2 at baseline to 8.9 ± 9.1 at week 4 and continued to reduce at week 16 (2.1 ± 3.1) and week 52 (0.5 ± 1.0).

Our data highlighted the significant fast response to treatment, visible as early as week 4 of follow-up, where ppPASI50 and ppPASI75 were reached by 46.5% and 19.2% of patients, with an increasing rate of response at week 16, 94.9% and 68.7%, respectively, and up to 88.9% and 78.8% at week 52. Furthermore, at the same follow-ups, ppPASI90 was reached by 8.1%, 54.5% and 67.7%, respectively, while ppPASI100 by 6.1%, 45.5% and 49.5%, respectively.

In our analysis, we also evaluated the presence of an association between the achieving ppPASI50, 75, 90 and 100, with several variables, to determine possible predictive response factors.

Interestingly, we found that the probability of reaching PGA 0/1 at week 16 was higher in male patients ($p < 0.05$) and in patients with long-standing psoriasis ($p < 0.05$). These results are inconsistent with data commonly reported in the literature on the response to tildrakizumab in plaque psoriasis and need to be confirmed by further studies.

Conversely, patients with plantar psoriasis compared to those with PPp ($p < 0.05$) and subjects who had already undergone biologic therapy ($p < 0.01$) showed a reduced probability of reaching PGA 0/1 following 16 weeks of treatment.

Similarly, the probability of PASI90 achievement at week 16 decreased in the case of prior biologic treatment ($p < 0.0001$) and increased at week 52 in case of presence of pustules ($p < 0.05$).

Finally, bio-experienced patients showed a reduced probability of reaching PASI100 response at week 16 ($p < 0.001$) and week 52 ($p < 0.05$), respectively.

Although elevated BMI has been previously reported as a negative predictive factor regarding treatments, in our analysis it did not seem to affect therapeutic outcome.

The presence of pustules as positive predictive factors for long-term response (week 52) could be surprising as some literature data have supported greater involvement of IL7 in pustular psoriasis compared to IL23 [42, 43] in the long term.

However, some emerging data highlight the efficacy of IL23 inhibitors in palmoplantar pustular forms [44–46], and it cannot therefore be excluded that the increased inflammation and/or the higher disease activity at baseline may have made the response to therapy more dynamic and detectable. Similar considerations could also explain why the probability of achieving ppPAS150 at week 4 was increased in cases with nail psoriasis at baseline. However, data confirming these hypotheses are required.

During the study, tildrakizumab was also confirmed as a safe treatment option, with only two (2.0%) patients reporting one AE (1: headache; 1: dizziness), which did not require treatment interruption.

STRENGTHS AND LIMITATIONS

Main strengths of the study are the focus on PPp, the real-world setting, the large patient cohort and the long-term follow-up. However, some limitations should be discussed. In particular, the retrospective design, lack of a control group, small subgroup analyses for predictive factors and specific patient characteristics, single-country data and limited focus on safety reduce the generalizability of our results.

CONCLUSIONS

PPp remains a challenge for dermatologists due to the resistance to treatments and the severe impact that this localization may have on patients' quality of life. To the best of our knowledge, this study was the first specifically assessing the efficacy and safety profile of tildrakizumab in the management of PPp. Our data showed tildrakizumab as a fast and effective treatment for this subgroup of patients, being able to achieve significant results already after only 4 weeks of treatment. Another interesting finding was the identification of potential clinical factors predictive of response, which may improve selection of the best treatment in patients with PPp. However, further research is needed to better understand the correlation between treatment response and these identified clinical factors to precisely identify patients who may benefit from an earlier introduction to advanced therapies.

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Declarations

Conflict of Interest. A. Campanati has served as consultant/advisor, received speaker honoraria and/or grants, and/or is investigator Abbvie, Galderma, Celgene, Janssen-Cilag, Leo-pharma, Eli Lilly, Merck Sharp & Dohme, Novartis, Pfizer, UCB, Almirall, Sanofi-Aventis, Boehringer-Ingelheim, Bristol Myers Squibb, Incyte; M Burlando has acted as speaker or advisory board member for Abbvie, Amgen, Leo-pharma, Eli Lilly, Novartis, UCB, Almirall; E. Cozzani has acted as speaker or advisory board member for Abbvie, Amgen, Leo-pharma, Eli Lilly, Novartis, UCB, Almirall; K. Hansel has acted as investigator and speaker for Abbvie, Almirall, Amgen, Novartis, and Sanofi; L. Stingeni has acted as investigator and speaker for Abbvie, Almirall, Amgen, Leo Pharma, Lilly, Novartis, Pfizer, and Sanofi; L. Bianchi has acted as speaker or advisory board member for Abbvie, Leo-Pharma, Eli Lilly, Novartis, Pfizer, UCB, Almirall, Sanofi-Aventis, Biogen, Bristol, Boehringer, Johnson & Johnson; M. Galluzzo acted as a speaker and/or consultant for AbbVie, Almirall, Eli-Lilly, Johnson & Johnson, LeoPharma, Novartis, and Sanofi; he has participated in clinical trials for AbbVie, Almirall, Boehringer-Ingelheim, Eli-Lilly, Incyte, Johnson & Johnson, Leo Pharma, Novartis and Sanofi.; M. Esposito has served as consultant/speaker from Abbvie, Amgen, Eli Lilly, Janssen, Leo Pharma, Novartis, UCB, Sanofi/Regeneron; MC Fargnoli has served as consultant/advisor, received speaker honoraria and/or grants, and/or is investigator for AMGEN, Almirall, Abbvie, Boehringer-Ingelheim, BMS, Galderma, Kyowa Kyrin, Incyte, LEO Pharma, Pierre Fabre, UCB, Lilly, Pfizer, Janssen, MSD, Novartis, Sanofi, Regeneron, Sun Pharma, Takeda; M. Megna has acted as a speaker or consultant for Abbvie, Amgen, Almirall, BMS, Boehringer, Leo-pharma, Eli Lilly, Janssen, Novartis, UCB; A. Balato has acted as speaker or advisory board member for Abbvie, Amgen, Almirall, BMS, Boehringer, Leo-pharma, Eli Lilly, Novartis, Pfizer, UCB, Sanofi. Federico Diotallevi, Pietro Quaglino, Luca Mastorino, Claudio Feliciani, Lucia Gallo, Agostina Legori, Giuseppe Argenziano, Federico Bardazzi, Paolo Gisondi, Francesco Bellinato, Tommaso Bianchelli, Giovanni Marco D'Agostino, Giulia Matacchione have no conflict of interest to declare. Anna Campanati is an Editorial Board member Dermatology and Therapy. Anna Campanati was not involved in the selection of peer reviewers for the manuscript or any of the subsequent editorial decisions. All authors read and approved the final version of the manuscript.

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