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Conflicts of interest

None declared.

Acknowledgments

We are grateful for the invaluable collaboration of Dr. Mario Wagner and Dr. Tatiana Wittee Neetzow Nunes.

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Received 30 August 2021; accepted 15 November 2021
Available online 20 September 2022

https://doi.org/10.1016/j.abd.2021.11.005
0365-0596/

Treating hidradenitis suppurativa patients with adalimumab: a real-life experience of a tertiary care center in Lisboa, Portugal*

Dear Editor,

Hidradenitis Suppurativa (HS) is a debilitating, potentially mutilating, chronic, inflammatory systemic skin disease.[1–3] A long delay between HS onset and its diagnosis is common,[1,4,5] and it appears to have an impact in response to biological treatment.[5] Currently, adalimumab is the sole biological approved for the treatment of moderate-to-severe HS.

We conducted a retrospective study to analyze HS patients treated with adalimumab at a terciary health care center in Lisboa, between 2016 and 2019. Epidemiological, clinical, and therapeutic information was retrieved. HS activity and response to adalimumab were monitored at baseline and Weeks 16 (W16), 24 (W24), and 52 (W52). A baseline observation at the clinic and a minimum of 16 weeks of follow-up were required for inclusion. Patients

* Study conducted at the Department of Dermatology and Venereology, Hospital de Santo António dos Capuchos, Centro Hospitalar Universitário de Lisboa Central, Lisbon, Portugal.

Table 1 Epidemiological and clinical data comparing adalimumab and non-biological HS patients.

Features	Adalimumab patients (n = 36)	Non biological (n = 147)	Statistical significance
Fermale prevalence, n (%)	25 (69.4%)	101 (68.7%)	0.981
HS onset (years)[a]	27.7	24.7	0.192
Diagnosis delay (years)[a]	8.0	10.8	0.151
Number of comorbidities[a]	3.8	3.4	0.206
Number of affected sites[a]	3.5	2.7	0.003
BMI[a]	29.3	28.3	0.350
Past/present smoking history, n (%)	26 (72.2%)	95 (64.6%)	0.558
Initial iHS4[a]	16.7	4.1	<0.001
Hurley stage[a]	2.6	1.7	<0.001
Initial DLQI[a]	15.4	10.4	0.001

BMI, Body Mass Index; HS, Hidradenitis Suppurativa.
[a] Data are reported as means.

on adalimumab increased doses and cases of paradoxical HS were excluded. Patients could have adjuvant medical treatments when considered suitable. Severity assessment tools were employed, namely Hurley Staging System, International Hidradenitis Suppurativa Severity Score System (iHS4), Dermatology Life Quality Index (DLQI), and visual analog scale for pain (VAS pain). Response to treatment was evaluated using Hidradenitis Suppurativa Clinical Response (HISCR).

Analysis was performed using IBM SPSS Version 24. Independent samples *t*-Test was used to test differences between continuous and categorical variables at a significance level of 0.05. Fischer's exact test was used to test differences between 2 categorical variables at a significance level of 0.05, two-tailed.

Out of 198 HS patients, 51 started treatments with a biological agent and, of these, 36 were on adalimumab and met the study criteria. The comparison between these 36 patients under adalimumab and the 147 patients without biological treatment can be found in Table 1. At baseline, the severity was significantly higher in the adalimumab group, using both objective (Hurley: 2.6 vs. 1.7; $p < 0.001$; iHS4: 16.7 vs. 4.1; $p < 0.001$) and subjective criteria (DLQI: 15.4 vs. 10.4, $p = 0.002$). Most patients on adalimumab presented with severe disease (iHS4 > 10: 75%; n = 27; iHS4 $\leq$ 10: 25%; n = 9), 58.3% (n = 21) with Hurley III and 41.7% (n = 15) with Hurley II.

At W16, HISCR was achieved in 27 patients (75%). This percentage was similar in patients with moderate (89%, n = 8) and severe disease (70.4%, n = 19) ($p > 0.05$), The mean iHS4 was reduced from 16.7 to 7.2 ($p < 0.001$).The time from HS onset to diagnosis was similar (6.7 years vs. 11.8; $p = 0.282$). At W24 the iHS4 reduction was significant (mean iHS4 = 6.5; ($p < 0.001$). At W52, the mean iHS4 was 4.7 ($p < 0.001$), and HISCR was still achieved in 76.7% (n = 23/30) of the patients. Between baseline and W52, DLQI and VAS pain shifted from a mean value of 15.4 to 10.5 ($p = 0.001$) and 4.4 to 1.8 ($p < 0.001$), respectively.

Within the first 16 weeks, in order to successfully control HS inflammatory activity, adjuvant, transitory, and medical treatments were employed in 72% (n = 26) of the cases. During the remaining period, adjuvant therapeutics were needed in 20 patients to control episodic flares.

Addressing the differences between patients staged as Hurley II and III (Table 2), 82% (n = 9) of male patients were classified as Hurley III, compared to 48% (n = 12) of females who presented such severity ($p = 0.044$). At baseline, Hurley II patients presented similar severity (mean iHS4: 13.7 vs. 18.8; $p = 0.085$) but with a significantlower number of draining fistulae (2.0 vs. 3.9; $p = 0.002$). While both groups recorded HS improvement under treatment, significantly better control of disease activity at W52 was observed within Hurley II patients (iHS4: 1.3 vs. 7; $p = 0.003$). Otherwise, the response to adalimumab measured by HISCR achievement at W16 and W52 was superior and similar in Hurley II patients (W16: 93% vs. 61.9%, $p = 0.051$; W52: 83.3% vs. 72.2%; $p = 0.669$), respectively.

Considering the last clinical evaluation of all patients, 78% (n = 28) witnessed a reduction of at least 50% of their iHS4 at baseline ($p < 0.001$). Within the group that did not achieve such a response (n = 8), half presented with more than five draining fistulas at baseline and two of them switched biological treatment.

Clinical trials have shown that adalimumab is an effective treatment for moderate-to-severe HS with inadequate response to conventional treatments,[6–8] with HISCR achievement rates ranging from 40%–60% in monotherapy.[4,6,8,9] The present study's results showed superiority in terms of HISCR achievement at W12/16, W24 and W52 when compared to PIONEER I and II clinical trials and to Marzano et al. multicentre study.[4,6–8] We associated the better results (75% HISCR achievers at W16) with the use of adjuvant intralesional and systemic therapeutics. This, we believe, may be a necessary practice in a real-life setting in order to further reduce inflammation and pain in notably severe cases along with adalimumab induction. Additionally, as flares can still be observed in patients on adalimumab monotherapy, adjuvant therapies may be required to treatment optimization.

The present results showed a greater response to adalimumab in Hurley II patients when compared to Hurley III, especially observable in the mean iHS4 reduction. Also, the delay to HS diagnosis was higher in the Hurley III group. These findings follow the trend within the ''Window of Opportunity'' hypothesis, which has postulated an inverse relationship between HS duration and/or diagnostic delay and adalimumab effectiveness.[4,9,10] It has been suggested that starting adalimumab earlier, when HS is characterized

Table 2 Clinical characterization and therapeutic response of Hurley II and Hurley III HS groups.

	Hurley II	Hurley III	Statistical significance (p<0.05)
Number of affected sites	3.1	3.9	0.121
HS onset (years)[a]	29.1	26.7	0.595
Diagnosis delay (years)[a]	6.7	8.9	0.508
Initial iHS4 (n=36)[a]	13.7	18.9	0.085
Initial number of draining fistulas (n=36)[a]	2.0	3.9	0.002
W16 iHS4 (n=36)[a]	3.8	9.6	0.038
W24 iHS4 (n=33)[a,b]	1.2	10.4	<0.001
W52 iHS4 (n=30)[a,c]	1.3	7	0.003
W52 number of draining fistulas (n=30)[a,c]	0.1	1.9	0.002
W16 HISCR (n=36)[a]	93.3% (n=14)	61.9% (n=13)	0.051
W52 HISCR (n=30)[c]	83.3% (n=10)	72.2% (n=13)	0.669
W52 Adalimumab only (n=30)	41.7% (n=5)	27.8% (n=5)	0.461

[a] Data are reported as means.
[b] n=33 – two patients were evaluated only at W16 and one had adalimumab discontinued due to primary failure.
[c] n=30 – two patients had their last evaluation at W24 and one had adalimumab discontinued due to secondary failure.

by reversible lesions, encompasses the potential to prevent disease progression, development of fistulas, and permanent deformities.[4,10] Hurley III patients enclose a more severe clinical status, which may justify lower effectiveness of adalimumab. The present findings further highlight the importance of precocious diagnosis, in order to effectively treat and prevent HS natural evolution.

In conclusion, adalimumab is a useful and effective treatment for HS although in monotherapy may not be sufficient to allow optimal control in some patients. This study supports the need for a proactive treatment, underlining the importance of early referral, the precocious use of adalimumab, and of the benefit of adjuvant therapies in patients under adalimumab. We highlight that real-life evidence is still scarce and more studies must be performed to allow more suitable evidence-based therapeutic guidelines.

Financial support

The authors received no financial support for the research, authorship, and/or publication of this article.

Authors' contributions

José Miguel Neves: Approval of the final version of the manuscript; critical literature review; data collection, analysis, and interpretation; effective participation in research orientation; intellectual participation in propaedeutic and/or therapeutic management of studied cases; manuscript critical review; preparation and writing of the manuscript; statistical analysis; study conception and planning.

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Conflicts of interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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Received 21 September 2021; accepted 22 December 2021
Available online 10 September 2022

https://doi.org/10.1016/j.abd.2021.12.004

Treatment of pediatric psoriasis with TNF-antagonists: a real-life single-center case series*

Dear Editor,

Psoriasis is a chronic inflammatory skin disease.[1] About 30% of cases include pediatric patients.[1] It impacts not only children themselves, but also their parents and caregivers, affecting their quality of life.[2] Most forms are mild and benefit from topical therapy.[3] However, when unresponsive or more severe, they may require systemic treatments, including phototherapy, conventional (acitretin, methotrexate, and cyclosporine), or biological agents.[4,5] Biological therapy represents a novel and precious therapeutic option for pediatric patients, although data regarding their efficacy and safety are scant as most of the available clinical trials are run on small study populations and less severe forms of the disease. Hence, the importance to provide information on real-life experiences on pediatric psoriasis under biologicals is not trascurable. Nowadays, anti-Tumour Necrosis Factor (TNF)-α (adalimumab and etanercept) have been approved for children from 4 and 6 years of age, respectively, anti-Interleukin (IL) 12/23 (ustekinumab) for patients from 6 years,[6–8] and anti-IL17 (secukinumab and ixekizumab) in children from 6 years of age.[9,10] In Italy, only anti-TNF-α agents are currently reimbursable by the National Health Care System, whereas ustekinumab and anti-IL17 are awaiting reimbursement. Herein, we report the real-life experience of reimbursable biologicals for pediatric psoriasis patients referred to the Psoriasis Unit of the University Hospital Federico II, Naples, from September 2018 to September 2020. The inclusion criteria of the retrospective study were: i) Moderate-to-severe plaque psoriasis (defined as PASI > 10, and/or BSA > 10 and/or DLQI > 10) diagnosed at least one year before inclusion; ii) Age < 18 years-old; iii) Wash-out period $\geq$ 4 weeks for systemic therapies (UV treatment included) and $\geq$2 weeks for topical ones; iv) Subjects starting biological treatment (adalimumab or etanercept originator or biosimilar).

Treatment was given at a pediatric dosage, based on the patient's body weight. At baseline: i) Personal and demographic data; ii) Psoriasis duration and localization; iii) Presence of psoriatic arthritis (PsA) and duration; iv) Comorbidities; v) Previous systemic therapies; vi) Psoriasis severity using Psoriasis Area and Severity Index (PASI) and Body Surface Area (BSA); vii) Dermatology Life Quality of Index score (DLQI) in patients and caregivers; viii) Blood tests [blood count, transaminases, creatinine, azotemia, glycemia, erythrocyte sedimentation rate, C-reactive protein, cholesterol and triglyceride levels, protein electrophoresis] were recorded. At each follow-up visit (every 12 weeks), PASI and BSA were evaluated. Moreover, the safety profile was assessed by treatment-emergent AEs, physical examination, and laboratory test monitoring. The Declaration of Helsinki was respected through the whole study and informed consent was obtained and signed by each patient or caregiver before the beginning of the study. Continuous variables were displayed as mean $\pm$ standard deviation and categorical variables or as the number and proportion of patients. Unpaired Student's *t*-test was used to calculate the significance of differences in mean values at the different time points of treatment. A p-value of <0.05 was considered statistically significant. All statistical analyses were performed using GraphPad Prism 4.0 (GraphPad Software Inc., La Jolla, CA, USA). Ten patients were included: 60.0% (n = 6) girls, and 40.0% (n = 4) boys with a mean age of 13.90 $\pm$ 4.25 years. They all had plaque psoriasis mean duration of 5.20 $\pm$ 3.36 years. None had PsA. One patient presented anemia; no other comorbidities were found. All patients were previously treated with topical

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