Research Letters

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Prednisone and amoxicillin/clavulanic acid for the treatment of hidradenitis suppurativa flares: a prospective observational study

Keywords: amoxicillin, emergency, flare, hidradenitis suppurativa, prednisone, treatment

Introduction

Despite long-term management, patients with hidradenitis suppurativa (HS) often experience disease flares. We routinely treat flares with a combination of prednisone and amoxicillin/clavulanic acid and evaluated the effectiveness of the regimen in this study.

Methods

A prospective observational institutional review board-exempt study was conducted at Beth Israel Deaconess Medical Center's tertiary referral HS clinic from September 2021 to November 2022. Patients contacting the clinic for an HS flare (defined as an increase in pain/drainage or new lesions) were triaged by a physician, and, if clinically appropriate, were prescribed amoxicillin/clavulanic acid of 875 to 125 mg twice daily for 10 days and a 40 mg prednisone taper (decreasing by 10 mg every 3 days), but no additional analgesics. Subjects were then offered the opportunity to participate in the study.

Efficacy was measured by patient-reported outcomes (HS pain scale [0–10], Dermatology Life Quality Index,[1] patient-global-impression-of-severity,[2] and patient-global-impression-of-change[3]; see Supplementary Table, http://links.lww.com/IJWD/A48) obtained by phone on days 0, 3, 7, and 14. A paired *t* test was utilized (IBM SPSS Statistics-version-28.0.1.0, Armonk, NY). Demographics, disease severity, and current treatments were also collected.

Results

Ninety-two patients contacted the clinic 147 times for flares from September 2021 to November 2022. Fifty-eight (63.0%) patients were clinically appropriate for the treatment regimen and offered participation; 44 (47.8%) consented (Table 1).

With treatment, there was a significant decrease in Dermatology Life Quality Index scores from 16.3 at baseline to 10.5, 7.7, and 8.6 on days 3, 7, and 14, respectively, all $P < .001$. There were similar significant decreases in HS pain from 6.4 at baseline to 3.2, 2.2, and 3.1 and patient-global-impression-of-severity from 5.5 to 3.7, 3.1, and 3.1 on days 3, 7, and 14, respectively, all $P < .001$. There was a positive patient-global-impression-of-change trend with 25 (77.4%) patients reporting "much improved" or "very much improved" by day 7 (Table 2).

No enrolled patients presented to the emergency department (ED) but 2 of 92 presented to the ED prior to contacting us.

Discussion

Patients with HS, even on immunosuppression, flare frequently and although some flares may resolve without treatment, patients frequently present to EDs/urgent care for pain. Oral outpatient management is needed for patients intolerant to procedural interventions, those with multiple/larger lesions, or travel limitations and can serve as a bridge until an in-office visit.

Our regimen was derived from using prednisone for inflammatory conditions and amoxicillin/clavulanic acid for inflammatory bowel disease. HS microbiome studies have implicated Gram-positive, Gram-negative, and anaerobic organisms: penicillins with beta-lactamase inhibitors have shown effectiveness against these strains in HS.[4] Long-term antibiotics are in the HS treatment guidelines.[5] Although there may be concerns for antibiotic resistance, this regimen is short and patients generally require a course 1 to 2 times a year. Cephalosporins

What is known about this subject in regard to women and their families?

- Hidradenitis suppurativa (HS) occurs more commonly in women.
- Hormonal changes and menstrual cycle are well-established triggers for HS flares.

What is new from this article as messages for women and their families?

- Our cohort was representative of the general demographics of HS and 77.2% of the cohort was comprised of women.
- Our regimen of a combination of oral prednisone and amoxicillin/clavulanic acid ameliorated HS flares and associated pain.
- This data will help clinicians effectively manage flares as our regimen decreases emergency department presentations and can serve as a bridge to in-person visits and long-term management.

Portions of this data were submitted and accepted as an abstract for the 7th Annual Symposium on Hidradenitis Suppurativa Advances in Miami, Florida, October 7–9, 2022.

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Table 1

Characteristics of flaring hidradenitis suppurativa patients

	Total	Included	Excluded
Total number, *n* (%)	92 (100%)	44 (47.8%)	48 (52.2%)
Completed all visits[a]	NA	34 (77.3%)	NA
Gender, *n* (%)			
Female	71 (77.2%)	29 (65.9%)	42 (87.5%)
Male	20 (21.7%)	14 (31.8%)	6 (12.5%)
Transgender male	1 (1.1%)	1 (2.3%)	0 (0%)
Mean age at time of flare (standard deviation)	37.5 (13)	37.1 (12.9)	37.8 (13.2)
Race, *n* (%)			
Black	19 (20.7%)	7 (15.9%)	11 (22.9%)
White	48 (52.2%)	24 (54.5%)	24 (50%)
Asian	5 (5.4%)	2 (4.5%)	3 (6.3%)
Other	7 (7.6%)	4 (9.1%)	3 (6.3%)
Unknown	13 (14.1%)	6 (13.6%)	7 (14.6%)
Ethnicity, *n* (%)			
Non-Hispanic	66 (71.7%)	30 (68.2%)	37 (77.1%)
Hispanic	14 (15.2%)	9 (20.5%)	5 (10.4%)
Unknown	12 (13.0%)	5 (11.4%)	6 (12.5%)
Mean Hurley stage (standard deviation)	2.1 (0.7)	2.2 (0.7)	2 (0.6)
Mean HS-PGA (standard deviation)	2.7 (1.1)	2.9 (1.1)	2.5 (1.1)
Long-term management at time of flare, *n* (%)[b]			
Antibiotics (oral)	10 (10.9%)	3 (6.8%)	7 (14.6%)
Antibiotics (topical)	6 (6.5%)	4 (9.1%)	2 (4.2%)
Antibiotics (as needed only)	1 (1.1%)	1 (2.3%)	0 (0%)
Hormonal (oral contraceptive pill, spironolactone)	16 (17.4%)	5 (11.4%)	11 (22.9%)
Adalimumab	19 (20.7%)	12 (27.3%)	7 (14.6%)
Acitretin	3 (3.3%)	1 (2.3%)	2 (4.2%)
Apremilast	2 (2.2%)	2 (4.5%)	0 (0%)
Infliximab	10 (10.9%)	4 (9.1%)	6 (12.5%)
Ixekizumab	1 (1.1%)	0 (0%)	1 (2.1%)
Secukinumab	1 (1.1%)	1 (2.3%)	0 (0%)
Upadacitinib	3 (3.3%)	3 (6.8%)	0 (0%)
Ustekinumab	1 (1.1%)	0 (0%)	1 (2.1%)
Biologic and Janus kinase inhibitor	3 (3.3%)	1 (2.3%)	2 (4.2%)
None (including patients who self-discontinued treatment)	16 (17.4%)	7 (15.9%)	9 (18.8%)
Potential trigger, *n* (%)			
Not on meds/stopped meds	14 (15.2%)	6 (13.6%)	7 (14.6%)
Recent illness	7 (7.6%)	3 (6.8%)	3 (6.3%)
Stress	4 (4.3%)	1 (2.3%)	4 (8.3%)
Other[c]	4 (4.3%)	0 (0%)	4 (8.3%)
Unknown	63 (68.5%)	34 (77.3%)	30 (62.5%)
Comorbidities, *n* (%)[d]			
Obesity	44 (47.8%)	21 (47.7%)	23 (47.9%)
Acne	23 (25%)	10 (22.7%)	13 (27.1%)
Depression	18 (19.6%)	6 (13.6%)	12 (25%)
Anxiety	15 (16.3%)	7 (15.9%)	8 (16.7%)
Pilonidal cyst	12 (13%)	5 (11.4%)	7 (14.6%)
Polycystic ovarian syndrome	12 (13%)	6 (13.6%)	6 (12.5%)
Hypertension	11 (12%)	5 (11.4%)	6 (12.5%)
Nicotine use	11 (12%)	9 (20.5%)	2 (4.2%)
Asthma	10 (10.9%)	6 (13.6%)	4 (8.3%)
Hyperlipidemia	6 (6.5%)	2 (4.5%)	4 (8.3%)
Inflammatory arthritis	6 (6.5%)	5 (11.4%)	1 (2.1%)
Inflammatory bowel disease	4 (4.3%)	1 (2.3%)	3 (6.3%)
Reason for exclusion, *n* (%)			
Offered regimen and survey: patient declined to answers surveys	NA	NA	10 (20.8%)
Offered regimen and survey: patient preferred intralesional steroid	NA	NA	4 (8.3%)
Allergy	NA	NA	13 (27.1%)
Did not offer regimen	NA	NA	8 (16.7%)
Infection (eg, COVID-19, cellulitis, upper respiratory infection)	NA	NA	6 (12.5%)
Restarted/represcribed long-term maintenance regimen	NA	NA	3 (6.3%)
Pregnancy/in vitro fertilization (IVF)	NA	NA	2 (4.2%)
Not English speaking/inability to answer questions	NA	NA	2 (4.2%)
Hospitalization	2 (2.2%)	0 (0%)	2 (4.2%)
Number of flares per patient			
Patients contacted for 1 flare	61 (66.3%)		
Patients contacted for 2 flares	15 (16.3%)		
Patients contacted for 3 or more flares	16 (17.4%)		

(*Continued*)

Table 1

(Continued)

	Total	Included	Excluded
Season of flares			
Summer	52 (35.7%)		
Autumn	37 (25.2%)		
Winter	37 (25.2%)		
Spring	33 (22.4%)		

HS-PGA, hidradenitis suppurativa physician's global assessment; NA, not applicable.

[a] 5 (11.4%) prematurely discontinued due to side effects or confirmed COVID-19 infection, and 5 (11.4%) were lost to follow-up.

[b] Only included primary treatment if on multiple treatments (counted primary treatment in the following order: biologics > acitretin > spironolactone > antibiotics > other). "Other" treatment included metformin and clobetasol.

[c] 1 IVF, 1 pregnancy, 1 summer heat, 1 long-term management not optimized.

[d] Other comorbidities in included patients: atrial fibrillation, celiac disease, cirrhosis, fibromyalgia, herpes simplex, migraines, paroxysmal supraventricular tachycardia, atopic dermatitis, psoriasis, thyroid disorders, keloids, ankylosing spondylitis, chronic myeloid leukemia, erythema nodosum, glucose-6-phosphate dehydrogenase deficiency, melanoma, nonalcoholic steatohepatitis, mitral regurgitation, adrenal nodule, pyoderma gangrenosum, rheumatic heart disease, palmoplantar pustulosis, multiple sclerosis, breast tubular carcinoma, pseudotumor cerebri, Sjogren's syndrome.

or azithromycin can be considered in patients with penicillin allergies.

The regimen works rapidly with the largest improvement from baseline to day 3. The slight increase in scores from day 7 to 14 as the treatment ended, although still lower than baseline, demonstrates short-term efficacy. Limitations include lack of control or monotherapy group and randomization, self-report of ED utilization, and assessment of flares by telephone.

Prednisone and amoxicillin/clavulanic acid oral combination may be a helpful short-term regimen for treating HS flares and pain and appears to reduce ED visits.

Conflicts of interest

The authors made the following disclosures: A.B.K.'s institution received grants from Abbvie, Admirx, Anaptys Bio, Aristea, Bristol Myers Squibb, Eli Lilly, Incyte, Janssen, Moonlake, Novartis, Pfizer, Prometheus, UCB; Sonoma Bio; she received consulting fees from Abbvie, Alumis, Bayer, Boehringer Ingelheim, Eli Lilly, FIDE, Janssen, Moonlake, Novartis, Pfizer, Priovant, Sonoma Bio, Sanofi, UCB; Target RWE, Ventyx; and serves on the board of directors of Almirall. M.L.P. is a consultant and/or investigator for Abbvie, Bristol Meyers Squibb, Janssen, Eli Lilly, Moonlake, Novartis, Pfizer, Trifecta Clinical (on behalf of acelyrin), UCB, Aristea, Regeneron, Innovaderm, Bayer, and Incyte. R.S.G.'s fellowship was funded through the National Psoriasis Foundation. R.S.G. is an investigator for Abbvie, Janssen, Regeneron, Eli Lilly, Novartis, UCB, Aristea, Incyte, Innovaderm, Bayer, and Moonlake. C.L.S. has no conflicts of interest to disclose.

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None.

Study approval

N/A

Table 2

Averaged patient-reported outcomes over time

Patient-reported outcome	Day	Average score[a]	*P* value compared to baseline (day 0)
DLQI	Day 0	16.3	
	Day 3	10.5	<.001*
	Day 7	7.7	<.001*
	Day 14	8.6	<.001*
HS pain	Day 0	6.4	
	Day 3	3.2	<.001*
	Day 7	2.2	<.001*
	Day 14	3.1	<.001*
PGI-S	Day 0	5.5	
	Day 3	3.7	<.001*
	Day 7	3.1	<.001*
	Day 14	3.5	<.001*

PGI-C	Day 3 *n* (%)	Day 7 *n* (%)	Day 14 *n* (%)
Very much improved	5 (15.2)	13 (41.9)	12 (38.7)
Much improved	10 (30.3)	12 (38.7)	13 (41.9)
Minimally improved	15 (45.5)	6 (19.4)	5 (16.1)
No change	2 (6.1)	0 (0)	1 (3.2)
A little worse	1 (3.0)	0 (0)	0 (0)
Much worse	0 (0)	0 (0)	0 (0)
Very much worse	0 (0)	0 (0)	0 (0)
Total number of patients	33	31	31

DLQI, Dermatology Life Quality Index; HS, hidradenitis suppurativa; PGI-C, patient-global-impression-of-change; PGI-S, patient-global-impression-of-severity.

[a] Missing data points for a specific day were kept blank and data was not filled in.

* *P* value was determined using paired *t* tests. Statistically significant value at 95% confidence level.

Author contributions

RSG, MLP, and ABK: Participated in conception and design. RSG, MLP, ABK, and CLS: Participated in data collection and analysis and in manuscript writing. All authors have read this manuscript and approved it for publication.

Patient consent

Verbal consent was obtained from the included patients.

Data availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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Supplementary data

Supplementary material associated with this article can be found at http://links.lww.com/IJWD/A48.

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