

RESEARCH LETTER

Seasonal Trends of Ambulatory Visit Burden in Hidradenitis Suppurativa Patients

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ABSTRACT

Introduction: Patients with hidradenitis suppurativa (HS) report HS flares with increased heat and sweat. However, there is a paucity of literature on whether there is an increased ambulatory visit burden for HS patients during the warmer months.

Methods: We used a nationally representative database of ambulatory visits in the United States, the National Ambulatory Medical Care Survey to examine the seasonal trends of ambulatory visits for patients with HS. Data analyses were performed using SAS Studio 9.04.01 (SAS Institute, Cary, N.C., USA), and variance in the complex survey design is accounted for by utilizing survey weights to create national estimates and confidence intervals.

Results: We identified approximately 2.33 million outpatient visits (95% confidence interval 1.95 million-2.71 million) between 2008-2018 with a diagnosis of HS. Approximately 21% of visits occurred during Winter to early Spring (January to April), 51% during late Spring to Summer (May to August), and 28% during Autumn (September to December). The number of visits differed significantly between these three time periods ($X^2=13.1$, $p=0.0014$).

Conclusion: Awareness of the increased burden of HS during summer months may help guide management, including anticipatory counseling on strategic lifestyle modifications and initiation of anti-hyperhidrosis treatments.

INTRODUCTION

Hidradenitis suppurativa (HS) is a chronic, debilitating inflammatory skin condition characterized by painful nodules, abscesses, and tunnels often in intertriginous areas. Patients with HS have reported exacerbation of HS with heat,

friction, and sweating,¹ particularly in warmer climates. Despite this, the seasonal trends of the ambulatory visit burden due to HS have not been well characterized. Herein, we examine the seasonal burden of ambulatory visits due to HS in the United States.

METHODS

The National Ambulatory Medical Care Survey (NAMCS) is conducted annually by the National Center for Health Statistics (NCHS), which utilizes a stratified, random sample of patient visits to nonfederal, ambulatory office-based physicians. We searched publicly available NAMCS data between 2008 to 2018 for visits with a

diagnosis of HS (ICD-9 code 705.83, ICD-10 code L73.2). Descriptive statistics were completed for visit demographics and characteristics. Chi-squared tests and multivariate logistic regressions analyzed trends visits while controlling for race, sex, and age. All data analyses were performed using SAS Studio 9.04.01 (SAS Institute, Cary, N.C., USA). Variance in the complex survey design is accounted for by utilizing survey weights to create national estimates

Table 1. Survey-weighted visit demographics and characteristics of hidradenitis suppurativa visits

Demographics	% Of Total	95% CI
Age (years), mean ± SD (range)	37.9 ± 1.0 (range 12-69)	
0-17	3.7	0.0 - 7.5
18-39	54.7	45.2 - 64.2
40-59	31.5	20.8 - 42.3
60+	10.1	6.3 - 13.9
Female sex	71.1	59.6 - 82.6
Ethnicity, Hispanic or Latino	5.7	0.4 - 11.0
Race		
White	75.6	67.9 - 83.3
Black	23.0	15.4 - 30.6
Other	1.4	0.6 - 2.2
Types of payment		
Medicare	8.8	5.0 - 12.6
Medicaid, CHIP, or other state-based program	29.7	18.6 - 40.7
Private insurance	57.2	45.6 - 68.7
Self-pay	1.1	0.0 - 2.6
Specialty of provider		
Dermatology	30.2	20.5 - 39.9
General/family practice	24.2	16.4 - 32.0
General surgery	18.9	13.2 - 24.6
Internal medicine	6.6	0.0 - 15.8
Pediatrics	1.2	0.1 - 2.4
Obstetrics and gynecology	0.4	0.3 - 0.4
Region		
Northeast	20.9	13.3 - 28.5
Midwest	49.3	40.7 - 57.8
South	22.5	18.2 - 26.8
West	7.4	5.9 - 8.8

Issue 5

Abbreviations: CHIP, Children's Health Insurance Program

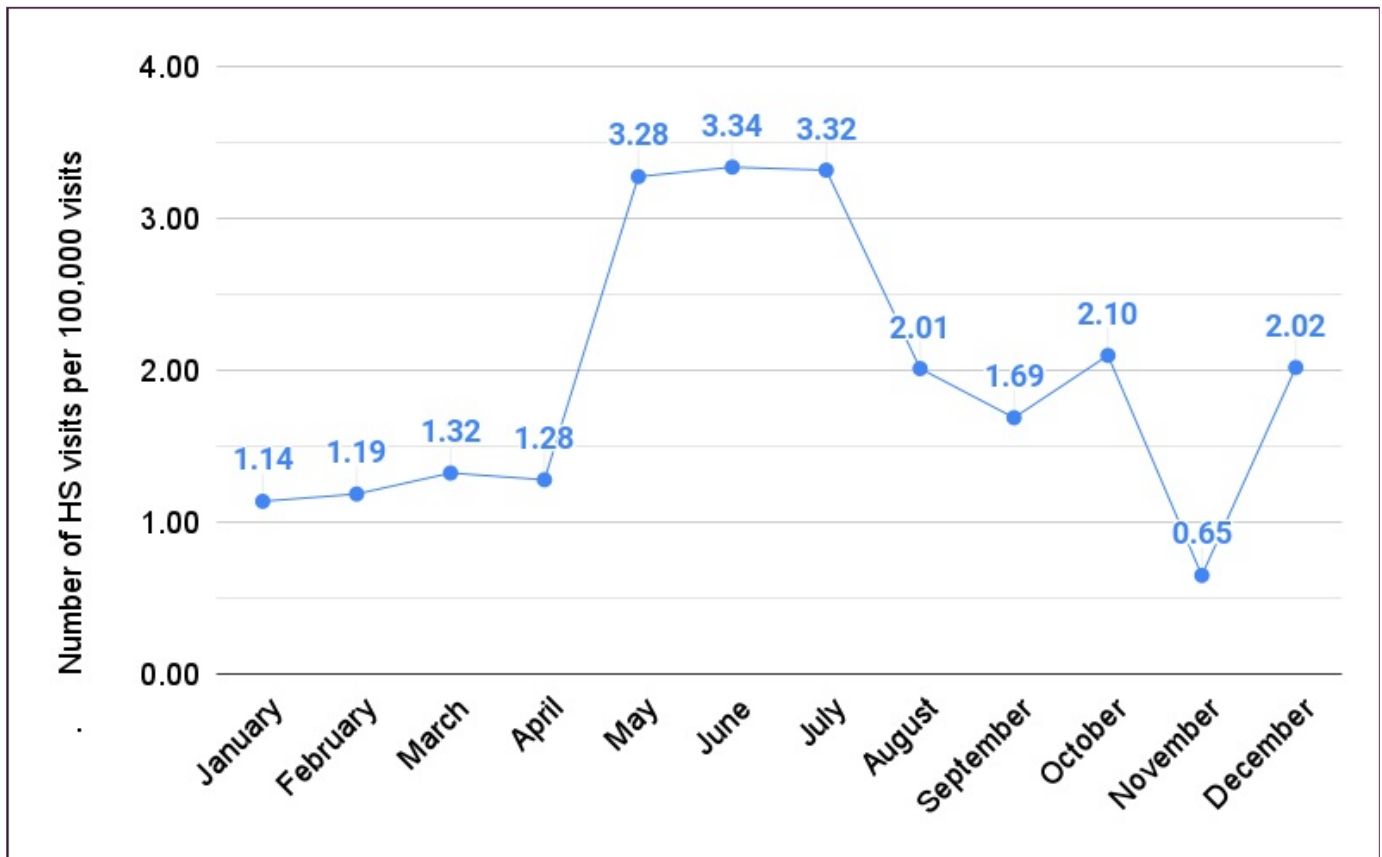
and confidence intervals.

RESULTS

From the 2008-2018 NAMCS datasets, approximately 2.33 million visits (95% confidence interval 1.95 million-2.71 million) had a diagnosis of HS. Of these visits, 71.1% of patients were female, 75.6% were White, and the mean age was 37.9 ± 1.0 (Table 1).

Visit frequency were highest in the months of May (14.0%, CI 9.6%-18.5%), June

(5.3%) (Figure 1). Approximately a fifth of visits occurred from Winter to early Spring (January to April, 21.1%, CI 13.3-28.9%), approximately half from late Spring to Summer (May to August, 51.2%, CI 40.1-62.3%), and the remainder from Autumn (September to December (27.7%, CI 16.6-38.7%). The number of visits were significantly different between these three time periods ($X^2=13.1$, $p=0.0014$). Multi-variate analyses identified no significant differences in visit number during these months based on gender, race, region, insurance status, and whether the provider was a dermatologist.



(14.3%, CI 5.3%-23.3%), and July (14.2%, CI 2.0%-26.5%), and lowest in January (4.9%, CI 0.0%-10.9%), February (5.1%, CI

DISCUSSION

Figure 1. Survey-weighted number of HS visits per 100,000 visits by month

2.0%-8.2%), and November (2.8%, CI 0.3%-

This nationally representative cohort highlights the increased ambulatory burden of patients with HS during the months of May to August. This parallels the higher burden of national emergency department visits due to HS in the summer.² The temporal patterns may be due to increased hyperhidrosis and friction during warmer climates, both identified by patients as exacerbating factors of HS that impair quality of life.³ Patients report sweating, heat, and exercise to be common aggravating HS factors.⁴ Seasonal aggravation has also been described for other skin conditions such as acne.⁵

Anticipation of seasonal disease burden and changes in management, such as initiating or adjusting dosing of anti-hyperhidrosis medications,⁶ may help improve disease control. A systematic review of anti-hyperhidrosis treatments in HS have identified botulinum toxin to improve disease in some HS patients, with or without concomitant hyperhidrosis. Clinicians may also counsel patients on measures to keep cool and minimize friction. Ensuring continued monitoring of the mental and emotional well-being of patients during the warmer months where flares may be more frequent is also important.

Limitations of NAMCS include the lack of data on long-term continuity of care and severity of HS disease. The number of HS ambulatory visits may be underrepresented overall given frequent misdiagnoses or delayed diagnoses.

Our findings can help dermatologists anticipate a higher burden of HS management during late spring and summer months to help ensure continued access to care and address potential season-related HS triggers such as hyperhidrosis early.

Conflict of Interest Disclosures: JLH is on the Board of Directors for the Hidradenitis Suppurativa

Foundation, has served as a consultant for Boehringer Ingelheim, Novartis, and UCB, and has served as a consultant and speaker for AbbVie. VYS is on the board of directors for the Hidradenitis Suppurativa Foundation (HSF), is a stock shareholder of Learn Health and has served as an advisory board member, investigator, speaker, and/or received research funding from Sanofi Genzyme, Regeneron, AbbVie, Eli Lilly, Novartis, SUN Pharma, LEO Pharma, Pfizer, Incyte, Boehringer-Ingelheim, Aristea Therapeutics, Menlo Therapeutics, Dermira, Burt's Bees, Galderma, Kiniksa, UCB, WebMD, TARGET-Pharmasolutions, Altus Lab, MYOR, Polyfin, GpSkin and Skin Actives Scientific. There was no financial transaction for the preparation of this manuscript. All other authors report no conflicts of interest.

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