EPH171

Burden of Disease in Adolescent Hidradenitis Suppurativa: An Observational Cohort Study

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Background

Hidradenitis suppurativa (HS) is a chronic inflammatory skin disease primarily affecting intertriginous areas. It is characterized by recurrent nodules, abscesses, and sinus tract formation.

HS is increasingly recognized in adolescents, presenting before adulthood and associated with substantial physical[1], psychosocial, and quality of life burdens. This study describes the characteristics and comorbidity profile in this age group, including endocrine disorders, obesity, metabolic syndrome, acne, anxiety, and depression, as well as Hurley stage and treatments.

Objective

To describe and compare demographic and clinical characteristics of adolescent (age 10–18) vs. adult (age >18) HS patients using a large real-world dataset.

Methods

Data Source:
OM1 Dermatology Network (linked EHR + claims)

Study Design:
Retrospective cohort study

Index Date:
First available HS diagnosis code; study period 2013-2024

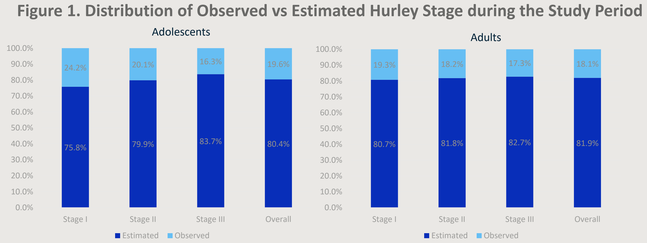
Population:
Patients with HS age 10–18 at first encounter with an HS diagnosis. Contemporaneous adult (>18 years at index) population included for comparison.

Stratification:
Adolescents (age 10–18) vs. Adults (age >18) at index

Outcomes:
Demographics, comorbidities, Hurley stage (estimated or observed), lesion sites (extracted from clinical notes), medications

Estimated Hurley Stage
eHurley stages were estimated by an artificial intelligence (AI) model that categorized patients at distinct visits into three stages based on severity and extent of scar formation as described in clinical notes (I = mild, II = moderate, and III = severe). The eHurley model was validated on a dataset with 3,500 patients and 5,117 notes. Model performance metrics were as follows: PPV 0.80, NPV 0.68, AUC 0.83 (calculated by converting Hurley stages to a binary outcome: Stage I vs. Stage II–III).

Figure 1. Distribution of Observed vs Estimated Hurley Stage during the Study Period



Results

The study included 5,861 adolescent patients, majority of whom were female (82%), white (65%) and non-Hispanic (89%) (**Figure 2**). A comparator group of 46,606 adults was also included.

Lesion location was available and extracted from clinical notes for 31.1% of adolescents and 32.6% of adults. Most common lesion locations included groin, axilla, and lower extremities (**Table 1**). Adolescents had relatively more axillary involvement than adults (36.3% vs. 29.1%), while groin involvement was similar across age groups.

Many adolescent patients (43%) had acne reported prior to HS diagnosis, which was less common in adults (26%) (**Figure 3**).

Hurley stage estimation increased the proportion of patients with a Hurley stage available from 11.8% to 60.3% in adolescents, and from 11.0% to 60.6% in adults; an increase of approximately 5× in both cohorts. Of patients with a Hurley stage, similar proportions of adolescents and adults had an eHurley stage available (80.4% vs. 81.9%) (**Figure 1**).

Among patients with a Hurley stage available, being male and adult at time of first diagnosis was associated with higher stage (71% Stage 2 or 3) as compared to adult females (63.1% Stage 2 or 3) and adolescents (58.8% Stage 2 or 3; **Table 1, Figure 4**). Over the full study period, similar proportions of adolescents and adults had Stage 1, 2, and 3 disease (**Table 1**).

Treatment with topical steroids (43%) and antibiotics (70%) was common in adolescents, as was injectable steroids (32%), antidepressants (34%), and anxiolytics (39%). Rates of advanced therapies (e.g., TNF inhibitors and IL-17 inhibitors) were similar to that seen in adults (**Figure 5**).

Conclusions

- Adolescents present a clinically distinct profile from adults.
- Higher rates of acne and ADHD in adolescents contrast with greater obesity, depression, and metabolic comorbidities in adults.
- Adult male patients had higher Hurley stage at index; adolescents were more likely to present with stage 1 or 2 disease.
- Adolescents received isotretinoin more frequently, reflecting current dermatologic practice patterns in younger patients.
- AI models can improve the availability of clinical characteristics and outcomes in dermatology real-world data (RWD) studies.
- These findings underscore the need for age-stratified care pathways and real-world evidence to guide HS management across the lifespan.

Adolescents N=5,861

Adults N=46,606

Figure 2. Baseline Demographics

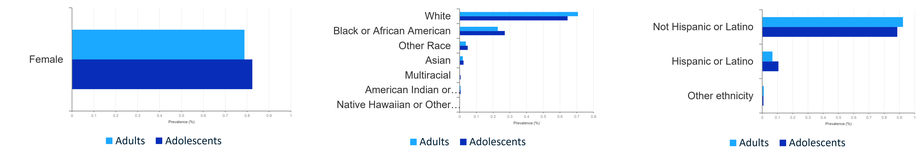
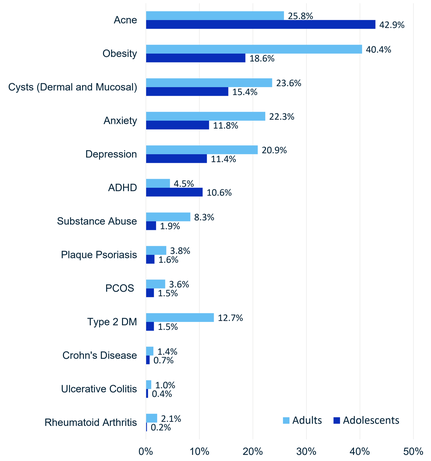


Table 1. Baseline Clinical Characteristics by Age Group

Characteristic	Adolescents (N=5,861)	Adults (N=46,606)
Mean Age (SD)	15.7 (2.0)	39.0 (13.8)
Mean BMI (SD)[1]	29.6 (8.7)	33.8 (9.7)
Lesion Locations[1-2], n (%)	**1,825**	**15,177**
Groin/Inguinal fold	685 (37.5%)	5,586 (36.8%)
Axilla	663 (36.3%)	4,418 (29.1%)
Lower extremities	382 (20.9%)	2,979 (19.6%)
Buttock(s)	240 (13.2%)	2,410 (15.9%)
Breast(s)	160 (8.8%)	1,594 (10.5%)
Hurley Stage at Index[1], n (%)	**1,805**	**14,295**
Stage I	744 (41.2%)	5,040 (35.3%)
Stage II	765 (42.4%)	6,205 (43.4%)
Stage III	296 (16.4%)	3,050 (21.3%)
Hurley Stage Full Study Period[1], n (%)	**3,535**	**28,225**
Stage I	710 (20.1%)	5621 (19.9%)
Stage II	1458 (41.2%)	11172 (39.6%)
Stage III	1367 (38.7%)	11432 (40.5%)
Procedures of Interest		
Deroofing	883 (15.1%)	8,292 (17.8%)

Figure 3. Baseline Comorbidities by Age Group (%)



1. Among patients with available data. 2. Lesion locations are extracted from clinical notes as available. ADHD=attention deficit hyperactivity disorder; BMI=body mass index; DM=diabetes mellitus; HS=hidradenitis suppurativa; PCOS=polycystic ovary syndrome.

Figure 4. Distribution of Hurley Stage Closest to Index, by Age Group and Sex

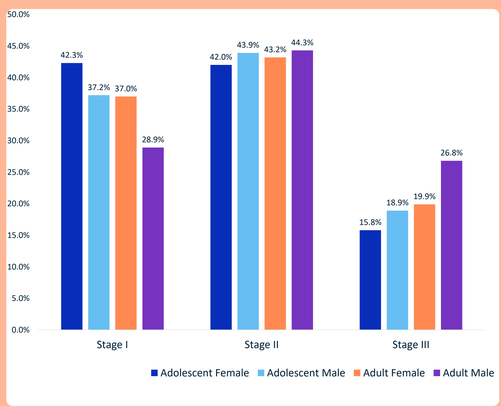
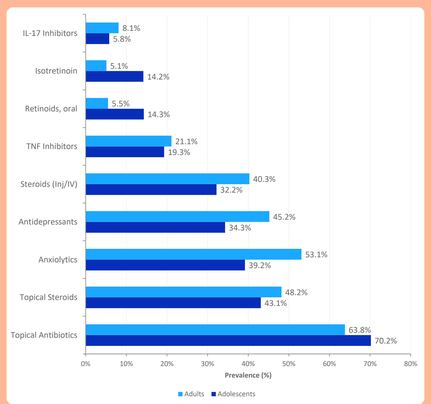


Figure 5. Medication Use Adolescents vs. Adults



IL=interleukin; TNF=tumor necrosis factor

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References

Liy-Wong C, Kim M, Kirkorian AY, et al. Hidradenitis Suppurativa in the Pediatric Population: An International, Multicenter, Retrospective, Cross-sectional Study of 481 Pediatric Patients. JAMA Dermatol. 2021;157(4):385-391. doi:10.1001/jamadermatol.2020.5435