Hidradenitis Suppurativa and Comorbid Metabolic Disease: Heightened Need for Screening and Multidisciplinary Management

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Introduction

- Hidradenitis suppurativa (HS) is a chronic inflammatory disease characterized by recurrent intertriginous lesions that are often painful and burdensome to patient quality of life. HS has been proposed as a state of systemic inflammation and those who suffer from it often have metabolic markers suggestive of metabolic syndrome (MetS). [1,2]

- Pathophysiologic links between HS and MetS have been suggested due to interplay between high inflammatory states with cytokine mediators that affect both adipose tissue and systemic organ systems. It has been suggested that impaired Notch signaling in HS may cause tumor necrosis factor elevations and downstream insulin signaling dysregulation.[3,4]

- MetS has been been proposed to vary in prevalence in HS populations between 10.4% to 50.6%.[4] Additionally, compared to controls, MetS has reported odds of 1.8-2.2 times greater than that of controls in patients with HS.[4] In this study, we aimed to provide current prevalence's and characteristics of patients with HS and metabolic/cardiovascular comorbidities in a single institution cohort.

Methods

In this single institution, IRB-approved study, a retrospective cohort of patients with HS were identified from January 2011-December 2020. Electronic medical records were utilized to gather data such as demographics, clinical characteristics, diagnoses, lab values, body mass index, and treatment regimens. As Hurley staging data was not available, disease severity was categorized as mild to moderate disease and severe disease. Those who received biologic immunomodulator therapy were considered to have severe disease. Data was analyzed using descriptive statistics and Fisher's exact tests were used to evaluate for differences between disease severity groups.

Results

- The cohort consisted of 400 patients with HS and available metabolic data. The mean age was 45 years old, and the cohort was predominantly female (72.5%) and Black or African American (76%). Median BMI of the cohort was 36.5.

- The majority of patients had elevated HbA1C values (64%) and had hypertension (HTN) (63%). Many were diagnosed with type II diabetes (44%), hyperlipidemia/hypercholesterolemia (47%), and were classified as being morbidly obese (43%). A description of the cohort can be found in table 1.

- Most patients had elevated HbA1C values, with 154 in prediabetic ranges (5.7-6.4%) and 100 in diabetic ranges (>6.5%). Median total cholesterol was 172, with 28% having values above 200. Median LDL was 107, with over half of patients having levels greater than 100 (56%). White and Asian patients had the highest overall average total cholesterol and LDL.

- Seventy-two patients had severe disease, of which 88% had one or more metabolic disease diagnosis and were two times as likely to have chronic kidney disease in comparison to the mild/moderate group (OR 2.12, p=0.028). Prevalence of anxiety/depression did not differ significantly based on disease severity. Fisher's exact tests and odds ratios for comorbidities based on mild-moderate vs severe groups are listed in table 2.

Results

Variable (n, %)	Cohort (n=400)
Age (mean)	45
Gender	
Male	110 (27.5%)
Female	290 (72.5%)
Race	
White	77 (19.3%)
Black or African American	308 (77%)
Asian	15 (3.7%)
Ethnicity	
Hispanic or Latino	6 (1.5%)
Non-Hispanic or Latino	384 (98.5%)
Disease Severity based on Biologic Status	
Mild-Moderate disease	328 (82%)
Severe Disease	72 (18%)
Comorbidities	
Hypertension	253 (63%)
Type II Diabetes	176 (44%)
Obesity	171 (43%)
Hyperlipidemia	187 (47%)
Chronic Kidney Disease	48 (12%)

Table 1: HS Cohort characteristics and comorbidities

Comorbidities	Mild-Moderate Disease (n=328)	Severe Disease (n=72)	P Value	Odds Ratio (Confidence Interval)
Hypertension	203	50	0.28	1.40 (0.81-2.42)
Diabetes	141	34	0.90	1.12 (0.71-1.99)
Obesity	135	35	0.29	1.35 (0.81-2.25)
Hyperlipidemia	154	33	0.90	0.96 (0.57-1.60)
CKD	34	15	0.018	2.28 (1.16-4.45)
CAD	18	2	0.4	0.49 (0.11-2.17)

Table 2: Comparison of comorbidities based on disease severity
(Mild-Moderate Disease vs Severe Disease)

Discussion

HS is also commonly seen in a third of individuals with a family history of this condition and affects three times as many women as men as well as increasing incidence rates of HS which is believed to be due to better diagnosis because of increasing awareness of the disease.[1] HS patients are more likely to meet criteria for obesity and have increased triglycerides and glucose intolerance when compared to control subjects.[4] HS is considered a form of systemic inflammation, so it is not clear if metabolic syndrome inflammation leads to HS initiation or vice versa (Mintoff et al, Gold et al). MetS and HS share similar socioeconomic and demographic characteristics in that there is a high prevalence of both diseases in non-Hispanic Black adults of low socioeconomic status.[2]

Screening patients with Hidradenitis Suppurativa for Metabolic Syndrome is important to consider as part of disease management due to the associations hypothesized between the two conditions. Dermatologic providers should consider screening patients for preliminary markers of metabolic syndrome like hemoglobin A1C, glucose levels, and hyperlipidemia. Additionally, they could encourage patients to establish care with a primary care provider if they do not already see one, to prevent development or worsening of comorbid conditions down the line, that may in fact help with HS severity as well.

Conclusions and Future Directions

Evidence of MetS is prevalent among patients with HS, with multifactorial disease contributors including emotional stressors, genetic predisposition, and comorbid diagnoses that can contribute to poor overall health and quality of life. Current rates of metabolic and cardiovascular conditions remain high in this population with a heightened need for early screening and intervention to prevent development and worsening of these reciprocally involved diseases.

- Dermatologists should be aware of comorbid associations between metabolic syndrome and hidradenitis suppurativa.
- For younger patients presenting with hidradenitis suppurativa, dermatologists should either order basic metabolic screening labs or encourage establishment of care with a primary care provider to assess for insulin resistance syndromes to be identified early

References

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