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Postpartum Depression Risk in Hidradenitis Suppurativa: A Matched Cohort Study and Case–Control Analysis

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Short Report

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Abstract

Introduction

Hidradenitis suppurativa (HS) disproportionately affects women of reproductive age and is associated with psychiatric comorbidity, but its relationship with postpartum depression (PPD) is unclear. We conducted two complementary studies to assess PPD risk in HS and associated factors among postpartum patients with HS.

Methods

Part A: TriNetX EHR data (2005–2023) were used to identify postpartum females aged 18–45 years. Patients with pre-delivery HS were compared with those without HS. PPD was defined by ICD-10 codes (F53.0, F32.0–F32.3) within 365 days postpartum, excluding MDD in the 12 months pre-pregnancy. Cohorts were propensity score–matched 1:1 on demographics, psychiatric history, and comorbidities.**Part B**: In the Mass General Brigham Research Patient Data Registry, we conducted an age-matched case–control study among postpartum females aged 18–45 years with dermatologist-confirmed HS. Cases had PPD within 1 year postpartum; controls had no PPD. Demographic, psychiatric/substance use, obstetric, and HS-related factors were compared using univariable tests.

Results

Part A: PPD occurred in 4.9% of patients with HS versus 2.1% without HS (RR 2.31; 95% CI, 2.10–2.54; P<.0001). The association persisted after matching for age and race/ethnicity (RR 2.15; 95% CI, 1.82–2.55; P<.0001) and after additional adjustment for psychiatric comorbidities and obstetric complications (RR 1.32; 95% CI, 1.14–1.52; P=.0002). New antidepressant/anxiolytic prescriptions were higher in HS (RR 1.44; 95% CI, 1.28–1.62; P<.0001).**Part B**: Among 46 cases and 37 controls (95 vs 67 deliveries), race/ethnicity differed (cases more often White, less often Asian; χ^2 P=.0075). Prior depression (P=.0396) and trauma- or stressor-related disorders (P=.0190) were more common in cases along with peripartum complications (63.2% vs 26.9%; P<.0001), and higher BMI at delivery (P=.0012). Cases were younger at first clinician-documented HS diagnosis (P=.0001) and less often reported HS symptoms preceding diagnosis (P=.0207). No differences were observed in Hurley stage, HS-related utilization, or treatment exposure.

Conclusions

HS may represent a postpartum window of heightened depression risk, with increased PPD incidence after adjustment for confounders. Peripartum complications, higher BMI, and psychiatric history may

identify highest-risk patients. Prospective studies are needed to confirm predictors and inform screening.

Introduction

Hidradenitis suppurativa (HS) is a chronic inflammatory skin disorder that disproportionately affects women of reproductive age [1, 2]. Patients with HS experience a high burden of psychiatric comorbidity, including major depressive disorder (MDD) and anxiety disorders [3]. Despite this elevated baseline risk, the relationship between HS and postpartum depression (PPD) has not been well-characterized.

We conducted 2 complimentary studies: (1) a retrospective cohort study evaluating PPD risk among women with HS compared with those without HS, and (2) a case–control study assessing risk factors for PPD among women with HS.

Methods

Study A: Retrospective Cohort Study

TriNetX Research Network, a federated, de-identified electronic health record database was used. Female patients aged 18–45 years with a documented live birth between January 1, 2005, and December 31, 2023, were eligible. Exposure cohort included patients with a diagnosis of HS prior to delivery; comparators had no documented HS diagnosis.

PPD was defined using ICD-10 codes for postpartum-onset depressive disorders (F53.0) and MDD (F32.0–F32.3) recorded within 365 days following delivery. Patients with MDD documented during the 12 months preceding pregnancy were excluded. All patients were required to have at least 12 months of observable follow-up after delivery.

Exposure and comparator cohorts were propensity score–matched 1:1 on age at delivery, race and ethnicity, psychiatric history, and selected medical comorbidities. Psychiatric history was included as a binary covariate, defined as the presence of any documented ICD-10 psychiatric diagnosis prior to the index pregnancy (yes/no), rather than individual psychiatric disorders or severity categories. Propensity score matching was performed using nearest-neighbor matching without replacement.

Study B: Case–Control Study

Data from the Mass General Brigham (MGB) Research Patient Data Registry (RPDR) was used. Female patients aged 18–45 years with HS and ≥ 1 live birth were eligible. Cases had HS (identified using ICD codes in Part A and confirmed by dermatologist documentation) and PPD diagnosed within 1 year postpartum using ICD codes in Part A. Controls were patients with HS and ≥ 1 delivery but no PPD diagnosis, age-matched to cases. Only live births with sufficient HS and obstetric documentation were

included. The final cohort included 46 cases and 37 controls, contributing 95 and 67 eligible deliveries, respectively; patients could contribute > 1 delivery.

Demographic, psychiatric, obstetric, and HS clinical characteristics were abstracted from the medical record, with HS severity and treatment exposure assessed cumulatively up to each eligible delivery.

Continuous, binary, and categorical variables were compared using independent-samples t-tests, z-tests for proportions, or chi-square tests, as appropriate, with Welch's correction applied when indicated. Statistical significance was defined as a two-sided $P < .05$, with Bonferroni-adjusted thresholds explored in sensitivity analyses. Multivariable modeling was not performed due to limited sample size. The MGB IRB deemed the study exempt.

Results

Part A: Retrospective Cohort Study

PPD occurred in 4.9% of females with HS and 2.1% without HS (risk ratio [RR], 2.31; 95% CI, 2.10–2.54; $P < .0001$) (Table 1). After matching for age at childbirth and race and ethnicity, PPD remained more common among females with HS (4.9% vs 2.28%; RR, 2.15; 95% CI, 1.82–2.55; $P < .0001$).

Additional matching for psychiatric comorbidities attenuated but did not eliminate the association between HS and PPD (RR, 1.35; 95% CI, 1.17–1.56; $P < .0001$). In a separately propensity score–matched cohort that additionally included obstetric complications, HS remained associated with higher PPD incidence (RR, 1.32; 95% CI, 1.14–1.52; $P = .0002$).

Among patients without prior antidepressant or anxiolytic use, new prescriptions for these medications were more common in patients with HS than in those without HS (11.5% vs 8.0%; RR, 1.44; 95% CI, 1.28–1.62; $P < .0001$). Among patients with HS, PPD incidence did not differ by biologic treatment exposure (RR, 0.83; 95% CI, 0.49–1.40; $P = .48$).

Part B: Case–Control Study

Demographic characteristics

Race and ethnicity differed between HS patients with and without PPD (χ^2 $P = .0075$), with patients with PPD more frequently White and less frequently Asian (**Table 2, Supplementary Table S3**). No differences were observed by income source, insurance, employment or caregiving status (single parent, co-parenting, or no custody of children).

Psychiatric and substance use history

Prior depression ($P = .0396$) and trauma- or stressor-related disorders ($P = .0190$) were more common among patients with PPD.(**Table 2, Supplementary Table S2**). Substance use history was more common among patients without PPD ($P = .0278$), while smoking history did not differ.

Obstetric characteristics

Peripartum complications, including hypertensive disorders of pregnancy, infection, postpartum hemorrhage, genital tract injury, and breastfeeding-related complications, were more frequent among women with postpartum depression (63.2% vs 26.9%; P < .0001) (**Table 2, Supplementary Table S2**). Body mass index (BMI) at delivery was also higher among women with postpartum depression (P = .0012) (**Table 2, Supplementary Table S1**). No significant differences were observed for gravidity, parity, planned pregnancy, preterm birth, intrapartum complications, or neonatal intensive care unit admission.

HS-related characteristics

Patients with PPD were younger at first clinician-documented HS diagnosis (P = .0001), and patient-reported HS symptoms or diagnosis preceding clinician documentation were less common (P = .0207) (**Table 2, Supplementary Table S3**). No differences were observed in Hurley stage at diagnosis or delivery, HS-related healthcare utilization, or HS treatment exposure.

Discussion

PPD occurs more frequently among patients with HS than among patients without HS, even after accounting for demographic, psychiatric, and obstetric factors. While HS is well recognized to be associated with an increased burden of depression and anxiety, these findings extend that association specifically to the postpartum period (PPP), identifying this interval as a distinct window of vulnerability [4–6].

HS frequently flares in the PPP which may increase the physiologic and psychosocial demands of the already demanding PPP [2, 7]. In addition, systemic inflammation associated with HS, including elevated levels of TNF–α, has been implicated in perinatal mood disorders, suggesting a potential shared inflammatory pathway linking HS and PPD [8, 9].

The case–control analysis examined whether specific demographic, psychiatric, obstetric, or HS-related characteristics differed between patients with HS with and without PPD. After adjustment for multiple comparisons, peripartum complications and higher BMI at delivery were most strongly associated with PPD, suggesting that increased physiologic burden during pregnancy may contribute to elevated PPD risk among patients with HS. Markers of HS severity, including Hurley stage, treatment exposure, and HS-related hospitalizations, did not differ between groups, consistent with prior studies showing that depression and anxiety risk in HS is not strongly correlated with disease severity [10].

This study has several limitations. Both analyses were retrospective and relied on electronic health record data, which may be subject to misclassification and residual confounding. Postpartum depression was identified using diagnostic codes rather than standardized screening instruments, which may underestimate prevalence. In the retrospective cohort, patients with major depressive disorder prior to pregnancy were excluded to isolate incident PPD; however, this excluded a high-risk subgroup,

potentially limiting generalizability and underestimating overall PPD burden among women with HS. The case–control analysis was limited by sample size and incomplete longitudinal capture of HS disease activity, precluding multivariable modeling and limiting power to detect modest associations. These findings are hypothesis-generating and require confirmation in prospective studies. If confirmed, women with HS may represent a population warranting closer PPD screening and support.

Declarations

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Data availability statement: The data underlying this article cannot be shared publicly due to privacy and ethical restrictions. De-identified patient-level data are available from the Mass General Brigham Research Patient Data Registry upon reasonable request and with appropriate institutional approvals.

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Tables

Table 1 to 2 are available in the Supplementary Files section.

Supplementary Files

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