



Review

Is substance use disorder more prevalent in patients with hidradenitis suppurativa? ☆



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ARTICLE INFO

Article history:

Received 18 June 2019

Received in revised form 5 September 2019

Accepted 26 September 2019

Keywords:

Hidradenitis suppurativa

Substance abuse

Alcohol

Opioid

Cannabis

Pain

Psychosocial health

ABSTRACT

Hidradenitis suppurativa (HS) is a chronic inflammatory skin condition that disproportionately affects women and is associated with significant physical and psychosocial impact. Recent studies have reported an increased prevalence of substance abuse among patients with HS, including increased alcohol, opioid, and cannabis use. Whether substance use disorder is more prevalent among patients with HS is controversial because these data come from small studies and a major confounder is that patients with HS are often prescribed opioids for HS-associated pain. This review summarizes the current literature on substance use in HS to investigate whether substance use disorder is more likely in this patient population. We also highlight possible cofounders and areas of unmet need in HS that are potential causes of abuse, such as adequate pain control and impaired quality of life, and suggest opportunities for provider intervention. Evidence suggests that there is an increased prevalence of substance use disorder in patients with HS, but the full extent is still difficult to determine. However, with early screening and appropriate referrals to specialists, dermatologic providers may properly intervene and prevent substance use disorder in patients with HS.

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☆ No human subjects were included in this study. No animals were used in this study.

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Introduction

Hidradenitis suppurativa (HS) is a chronic inflammatory skin condition characterized by recurrent, painful, or suppurating

<https://doi.org/10.1016/j.ijwd.2019.09.007>

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lesions that predominantly affect intertriginous areas (Saunte and Jemec, 2017). With an estimated prevalence between 1% and 4% and a female-to-male ratio of 2–3:1, HS is associated with significant comorbidity, including smoking, obesity, and depression (Shalom and Cohen, 2019). Recently, a large study reported an increased prevalence in substance abuse among patients with HS. In a multisystem cross-sectional analysis, Garg et al. (2018) found that the prevalence of substance use disorder (SUD) among patients with HS was twice that in controls (4.0% vs. 2.0%). Additionally, patients with HS had 1.5 times the odds of SUD compared with those without HS. The most commonly reported abused substances among patients with HS included alcohol, opioids, and cannabis (Garg et al., 2018). Other studies have reported similar findings, but this study was one of the first to pose this observed increased prevalence as abuse.

Whether a problem with substance abuse truly exists in patients with HS is controversial. First, data on substance use in patients with HS are limited and often based on small studies in patients with more severe disease (Puza et al., 2018; Revuz et al., 2008). Additionally, many patients are prescribed opioids for painful lesions; therefore, pain control may simply not be adequate among this patient population. Furthermore, with the increasing legalization of marijuana use across the United States and throughout the world (for medical and/or recreational use), deciphering what constitutes true abuse of this substance is difficult.

Although it may be challenging to determine the extent of substance abuse among patients with HS, there are certainly areas of unmet need that are potential causes for abuse among this patient population. HS is associated with numerous comorbidities, and studies often attribute the reported increased prevalence of substance use to the physical pain and psychosocial distress associated with the disease (Garg et al., 2018; Shlyankevich et al., 2014).

This review aims to summarize the current literature on alcohol, opioid, and cannabis use among patients with HS to elucidate whether there is an increased prevalence of substance abuse in this population. We also discuss the significant physical pain and emotional burden often associated with HS to highlight potential cofounders. Finally, we address areas of unmet need that could lead to substance abuse and how dermatologic providers may properly approach them.

Prevalence of substance use disorder

Alcohol

Several studies have reported an increased prevalence of alcohol consumption in patients with HS. In a recent large, cross-sectional analysis of 32,625 patients with HS, Garg et al. (2018) reported that alcohol was the most commonly abused substance among patient with HS, and nearly half of patients with SUD reported alcohol abuse. The analysis used a validated case-identification coding method to identify patients with HS and a formal diagnosis of SUD. The use of medical records to identify patients with HS and SUD may pose a problem because there may be underreporting of SUD. It is feasible that many of these patients may not seek appropriate help within the medical care system and may be self-medicating.

Despite this challenge, several other studies have reported increased alcohol consumption in patients with HS. In a single-center study, the crude prevalence of alcohol dependence was significantly greater in patients with HS compared with matched controls (4.2% vs. 0.52%; $p < .001$; Shlyankevich et al., 2014). However, after adjusting for other comorbidities, patients with HS actually had lower odds of alcohol dependence compared with controls, which the authors attributed to concomitant psychiatric disorders.

In a Danish study of patients with self-reported HS, those with HS drank significantly more spirits/liquor but, interestingly, less wine compared with those without HS (Theut Riis et al., 2019). The authors attributed this finding to the lower socioeconomic status of patients with HS.

Other studies have failed to show a significant association between HS and alcohol use. In a survey that aimed to determine HS-associated factors, researchers found no significant association between the disease and alcohol or drug abuse (Revuz et al., 2008). However, this was a small study based on self-reported data; therefore, participants may be less likely to disclose increased alcohol consumption for fear of stigmatization. Another potential weakness of the data on alcohol consumption is that most studies report alcohol use as a secondary outcome rather than a primary endpoint. Therefore, sorting out the extent and intricacies of consumption (i.e., drinks per week, binge behavior) is difficult. The evidence base on alcohol abuse in patients with HS remains small; therefore, a need exists for larger epidemiologic studies to determine if a true association exists.

Opioids

Opioids were the second most commonly abused substance by patients with HS in Garg et al.'s study (2018) and were reported by nearly one-third of those with SUD. Interestingly, this study was the first to report an increased prevalence of opioid abuse in this population, given that HS is a condition associated with severe and chronic pain (Saunte and Jemec, 2017). The high prevalence of opioid use in patients with HS is complicated because opioids are commonly prescribed to manage the pain associated with HS (Enamandram et al., 2015; Horváth et al., 2015; Ring et al., 2016a).

In a retrospective study, Puza et al. (2018) found that 60% of patients with HS received opioids for pain management; of these patients, approximately one-third received opioids in an outpatient setting for nonsurgical, flare-related pain. Thus, patients with HS may be at an increased risk of abuse simply because they are commonly prescribed substances with a high potential for abuse. On the other hand, one cannot ignore the significant pain caused by the disease when discussing opioid abuse; it has been reported to be the greatest cause of HS morbidity and will be discussed in further detail later (von der Werth and Jemec, 2001).

Cannabinoids

Data are still extremely limited, but HS has also been associated with an increased prevalence of cannabis use. In Garg et al.'s study (2018), cannabis was the third most commonly abused substance, reportedly being used by 30% of patients with HS and SUD. The most recently published study on HS and substance abuse was a multicenter study in France (Lesort et al., 2019). In this study, patients with HS had a significantly greater prevalence of cannabis use (34%) compared with patients with psoriasis (11.6%) and the general population (11%; $p < .001$), with nearly half of users reporting daily consumption (Lesort et al., 2019).

In the same study, patients with HS had odds of cannabis use that were 2.85 times greater than those of patients with psoriasis and a significantly greater likelihood of cannabis addiction. The initial stated motivation for cannabis use in patients with HS was pleasure, not pain relief; however, pain scores during remission were significantly associated with cannabis use. Therefore, the investigators hypothesized that chronic pain associated with HS may be contributing to cannabis addiction (Lesort et al., 2019).

What constitutes cannabis abuse is becoming more nuanced with the broadening legislative changes surrounding marijuana. To date, 10 states and Washington, DC have legalized marijuana for recreational use, and 33 states have legalized medical

marijuana (National Conference of State Legislators, 2019). Internationally, several countries have legalized medicinal and/or recreational marijuana use, including Canada, Uruguay (Queirolo et al., 2018), the Netherlands, and Israel, and countries such as Australia and New Zealand are considering medicinal marijuana legalization (Subbaraman and Kerr, 2016). Therefore, simply reporting on use does not necessarily translate to abuse because marijuana is not an illicit substance everywhere.

Additionally, although smoking is the most common method of cannabis consumption, several new methods are emerging, including vaping, edibles, and dabbing (Meacham et al., 2018). These methods administer various cannabis concentrations and produce different physiological and psychological effects, making the measurement of cannabis consumption and its effects on the body challenging (Meacham et al., 2018).

The role of pain and impaired quality of life on substance use disorder

One cannot ignore the significant pain and impaired quality of life (QoL) experienced by patients with HS in the discussion of substance abuse among this population. As previously mentioned, HS is a disease that causes significant pain, which is reported to be the greatest cause of morbidity by patients (von der Werth and Jemec, 2001). The pain can be so severe that it limits activities of daily living, such as dressing oneself, attending work, and engaging in sports and sexual intercourse (Deckers and Kimball, 2016; Esmann and Jemec, 2011), all of which can be very detrimental to patients' QoL.

In fact, patients with HS are more likely to report higher levels of pain and impaired QoL than those with other dermatologic conditions, such as psoriasis, skin tumors, and eczema (Onderdijk et al., 2013). Greater levels of pain and QoL impairment in patients with HS compared with those with other skin conditions may explain the higher prevalence of cannabis use in patients with HS compared with patients with psoriasis, as reported by Lesort et al. (2019).

The analgesic effects of opioids and alcohol are well known. Opioids exert their analgesic effects by binding to and activating endogenous mu receptors in the brainstem (Enamandram et al., 2015), whereas ethanol may produce analgesia by inhibition of nociceptive transmission centrally and through its anxiolytic properties (Thompson et al., 2017). Marijuana is the *Cannabis sativa* plant and contains >100 cannabinoids, including cannabidiol and tetrahydrocannabinol. Cannabinoids are derivative chemical compounds that act on the body's endogenous cannabinoid receptors with potentially a more precise mechanism of action (Robinson et al., 2018).

The analgesic effects of cannabinoids are not as well known, but they are believed to alleviate pain through various mechanisms, including direct analgesia, neurotransmitter modulation, interactions with endogenous opioids, and anti-inflammatory effects (Russo and Hohmann, 2013). Through these various mechanisms, the analgesic effects of these substances may promote dependence to alleviate the significant pain caused by HS.

Severe HS pain is often reported as an indication or motivation for substance use. Opioids are recommended for chronic and perioperative HS pain (Horváth et al., 2015) and have been reported to provide greater relief of HS-related pain compared with nonopioid analgesics, such as nonsteroidal anti-inflammatory drugs (NSAIDs; Ring et al., 2016a). This may be especially true for patients with more severe disease because they are more likely to be prescribed opioids than patients with milder forms of the disease (Shanmugam et al., 2018). For example, patients with more severe disease were more likely to report pain as a motivation for

cannabis use compared with those with less severe disease, and elevated pain scores during remission, not flares, were associated with increased cannabis use (Lesort et al., 2019). Combined, these data suggest that both the severity and chronicity of HS-associated pain play a large role in the increased prevalence of substance use as reported by the current literature.

The role of psychiatric illness on substance use disorder

HS is well known to be associated with significant emotional distress and psychiatric comorbidity. Patients often report that the purulent, malodorous drainage and visible lesions are a source of embarrassment, annoyance, worry, anger, and feelings of unworthiness (Deckers and Kimball, 2016). The emotional distress caused by HS lesions may partly explain why these patients have a high prevalence of psychiatric disorders, including depression and anxiety (Huilaja et al., 2018). Furthermore, the higher prevalence of psychiatric comorbidity in patients with HS disproportionately affects women (Huilaja et al., 2018). A recent large, cross-sectional analysis found that patients with HS have increased odds of comorbid childhood and adolescent psychiatric illness, as well as alcohol-related, adjustment, developmental, and impulse disorders (Patel et al., 2019). Investigators have often attributed these disorders to the reported increased prevalence of substance use in HS (Shlyankevich et al., 2014).

Whether concomitant psychiatric disorders alone can explain the reported increased prevalence of substance use in patients with HS is unclear. Despite the higher prevalence of SUD among patients with HS with depression and anxiety disorders, Garg et al. (2018) found that there was a greater relative impact on the odds of SUD among patients without these disorders. As the authors mentioned, these findings suggest that HS is a risk factor for substance use independent of concomitant psychiatric disorders.

This notion is supported by another study that found that patients with HS and concomitant mood disorders were not more likely to be prescribed opioids than those without mood disorders (Puza et al., 2018). Therefore, other HS factors, such as pain and impaired QoL, have been speculated to have a stronger impact on substance use than psychiatric disorders such as depression and anxiety (Garg et al., 2018).

Recommendations for clinicians: Preventing hidradenitis suppurativa-associated substance use disorder

Given the high prevalence of physical pain and psychiatric comorbidity associated with HS, a need exists to address these areas and the potential abuse of substances used to treat the disease. By addressing these areas of need, we hope that providers can properly intervene and decrease patient motivation to seek out other substances to treat HS-related pain and its emotional toll.

Addressing hidradenitis suppurativa-associated pain

Pain management is an essential component of the comprehensive dermatologic care of HS. For patients who report moderate-to-severe HS-associated pain, we recommend referral to pain management specialists. If pain management specialists are not available, assessment of pain should begin at the first visit and should be addressed at each subsequent visit to determine whether the pain is appropriately controlled. This assessment should include taking a thorough history and asking about the type and quality of pain to determine appropriate treatment.

Patients often describe HS pain as burning, sharp, gnawing, throbbing, or aching (Smith et al., 2010), all of which can be treated

using different classes of pain medications, including nonopioid pharmacologic agents. For the acute pain of inflammatory nodules, topical lidocaine 5%, NSAIDs, incision and drainage, or intralesional corticosteroids can be used (Horváth et al., 2015; Scheinfeld, 2013). Chronic nociceptive pain can be managed with acetaminophen, NSAIDs, or opioids, and neuropathic pain can be treated with anti-convulsants, tricyclic antidepressants, and serotonin norepinephrine reuptake inhibitors, especially if depression is present (Horváth et al., 2015). Providers should also familiarize themselves with a range of home remedies that have been reported to alleviate HS-related pain, such as cold baths, cold wraps, and the application of ice cubes (Ring et al., 2016b).

The decision to initiate opioid and/or cannabinoid therapy should be carefully considered on a case-by-case basis. The evaluation should begin with a thorough review of the social history of substance use to determine if there is a potential for abuse. When prescribing opioids, providers in the United States should refer to the Prescription Drug Monitoring Program to determine whether patients have received prior opioid prescriptions and should educate patients about the potential for opioid abuse.

Both inhaled and topical cannabinoids are becoming more widely accepted as a more holistic approach to pain management. However, much stigma remains with cannabinoid prescription because there is little standardization, regulation, or clinical data on their medical benefit and safety (Robinson et al., 2018). Additionally, one must consider that cannabis use may open a window of opportunity to experiment with other illicit substances (National Institute on Drug Abuse, 2019). Therefore, it is important for providers to improve their knowledge base to appropriately prescribe these compounds.

Addressing hidradenitis suppurativa-associated psychosocial burden

Comprehensive HS care includes a psychosocial evaluation to assess and manage the emotional burden experienced by many patients. This may be done at an early visit using validated tools such as the Dermatology Life Quality Index (Lewis and Finlay, 2004) and Patient Health Questionnaire-9 (Arroll et al., 2010) to screen for impaired QoL and psychiatric comorbidities, respectively.

There are no current guidelines for the treatment of HS-associated psychiatric disorders; therefore, we recommend a multidisciplinary approach, which may include referrals to psychiatric specialists, behavioral counseling, and appropriate pharmacologic therapy. HS is often associated with a high prevalence of smoking and obesity; thus, psychosocial management should include a discussion of these comorbidities with appropriate lifestyle counseling for smoking cessation and weight loss. Such routine assessment and intervention protocols may ease the emotional distress caused by HS and concurrently help improve pain management.

Conclusion

HS is a painful and often disfiguring dermatologic condition associated with significant comorbidity and the potential for substance abuse. The most commonly reported substances abused by patients with HS include alcohol, opioids, and cannabis. Although Garg et al. (2018) provide good evidence to suggest that there is an increased prevalence of substance use disorder among patients with HS, we may not know the true prevalence because misuse is difficult to measure and possibly underreported. Additionally, many patients experience significant physical pain and psychosocial burden from the disease, which may be confounding factors. Therefore, management of HS should take a comprehensive

approach, including thorough screening and assessment of pain and psychiatric comorbidity, with appropriate referrals and pharmacotherapy when indicated. Although we cannot conclude with certainty that there is an increased prevalence of substance use disorder among patients with HS, we believe that with consistent and integrated care, dermatologic providers can intervene early and prevent substance abuse in this patient population.

Conflict of Interest

None.

Funding

None.

Study Approval

The authors confirm that any aspect of the work covered in this manuscript that has involved human patients has been conducted with the ethical approval of all relevant bodies.

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