

# British Association of Dermatologists National Clinical Audit on the Management of Hidradenitis Suppurativa in the UK

S. B. Hasan,<sup>1</sup>  S. P. Smith,<sup>2</sup>  A. Brain,<sup>3</sup> M. F. Mohd Mustapa,<sup>3</sup>  S. T. Cheung,<sup>4</sup> J. R. Ingram<sup>1</sup>  and D. A. R. deBerker<sup>5</sup>

<sup>1</sup>Division of Infection & Immunity, Cardiff University, University Hospital of Wales, Cardiff, UK; <sup>2</sup>Department of Pathology, University of Cambridge, Cambridge, UK; <sup>3</sup>British Association of Dermatologists, London, UK; <sup>4</sup>Blackheath Hospital, London, UK; and <sup>5</sup>Bristol Dermatology Centre, University Hospitals Bristol, Bristol, UK

doi:10.1111/ced.14598

## Summary

**Background.** The first UK guidelines for the management of hidradenitis suppurativa (HS) were published by the British Association of Dermatologists (BAD) in 2018. The guidelines contained a set of audit criteria.

**Aim.** To evaluate current HS management against the audit standards in the BAD guidelines.

**Methods.** BAD members were invited to complete audit questionnaires between January and May 2020 for five consecutive patients with HS per department.

**Results.** In total, 88 centres participated, providing data for 406 patients. Disease staging using the Hurley system and disease severity using a validated tool during follow-ups was documented in 75% and 56% of cases, respectively, while quality of life and pain were documented in 49% and 50% of cases, respectively. Screening for cardiovascular disease risk factors was as follows: smoking 75%, body mass index 27% and others such as lipids and diabetes 57%. Screening for depression and anxiety was performed in 40% and 25% of cases, respectively. Support for smokers or obese patients was documented in 35% and 23% of cases. In total, 182 patients were on adalimumab, of whom 68% had documentation of baseline disease severity, and 76% were reported as having inadequate response or contraindications to systemic treatments; 44% of patients continued on adalimumab despite having < 25% improvement in lesion count.

**Conclusion.** UK dermatologists performed well against several audit standards, including documenting disease staging at baseline and smoking status. However, improvements are needed, particularly with regard to screening and management of comorbidities that could reduce the long-term complications associated with HS. A re-audit is required to evaluate changes in practice in the future.

## Introduction

Hidradenitis suppurativa (HS) is a painful, chronic, suppurative skin condition with a relapsing and remitting course that mostly affects the intertriginous areas.

Correspondence: Dr Samar B. Hasa, Department of Dermatology, Cardiff University, 3rd Floor, Glamorgan House, University Hospital of Wales, Heath Park Cardiff, Cardiff, CF10 3XQ, UK  
E-mail: hasansb1@cardiff.ac.uk

Accepted for publication 8 February 2021

The global prevalence of HS is around 1%. It affects females more commonly than males in Europe and North America, with a ratio of 3 : 1, and typically begins in the second or third decade of life.<sup>1,2</sup> HS is associated with substantial morbidity due to pain and scarring.<sup>3</sup>

In 2018, the British Association of Dermatologists (BAD) published the first UK guidelines for the management of HS.<sup>4</sup> The initial management in mild-to-

moderate HS includes a topical antiseptic and oral tetracyclines. The second-line treatment is a combination of clindamycin and rifampicin for 10–12 weeks. If there is an inadequate response, the next lines of therapy are dapsone or acitretin [the latter reserved for males and nonfertile (due to infertility, age, contraception use) females]. In case of treatment failure with two or more systemic therapies, or the presence of contraindications, the patient may proceed to biologic therapy with weekly adalimumab injections.

The guidelines have several recommendations for more comprehensive management of people with HS and audit criteria were established. All people with HS must be provided with a patient information leaflet (PIL) available on the BAD website ([www.bad.org.uk/leaflets](http://www.bad.org.uk/leaflets)). Hurley staging and the disease severity at baseline, quality of life (QoL) and pain measurement using validated instruments such as the Dermatology Life Quality Index (DLQI), Pain Numeric Rating Scale (Pain-NRS) or Pain Visual Analogue Scale (Pain-VAS) should be documented at each visit. Additionally, at each clinic visit, smoking status and body mass index (BMI) should be assessed. Counselling and education should be offered to all smokers and those with BMI  $\geq 35$  kg/m<sup>2</sup>. Screening for mental health problems and cardiovascular disease (CVD) risk factors should be undertaken annually to identify at-risk patients as per guidelines.

When commencing adalimumab, baseline lesion count and Hurley staging must be documented. At 12 weeks, an improvement of  $< 25\%$  in the lesion count or an increase in draining sinuses or abscesses should warrant discontinuation of adalimumab. Those undergoing surgery need to be aware of the long recovery time postoperatively, and it is necessary that all patients have a preoperative discussion with their clinicians to manage expectations appropriately.

Our audit aims to assess the current clinical practices in these areas against the audit standards set in the guidelines.

## Methods

We invited all members of the BAD to participate in a national audit between January and May 2020. Each participant was requested to collect the data from five consecutive people with HS per department, covering the work of  $\geq 1$  clinician, under follow-up in their department for a minimum of 12 months. All data were obtained from respondents using an Excel (Microsoft Corp., Redmond, CA, USA) spreadsheet proforma returned to the BAD by email. No patient-identifiable data were requested.

## Statistical analysis

Initial data extraction was conducted using a novel and reproducible program written in the R statistical language (V3.6\_ and the readxl package). The code and a blank example of the questionnaire can be found at <https://github.com/sps41/HSaudit> (<https://doi.org/10.5281/zenodo.3885305>). Code is freely usable under a Massachusetts Institute of Technology license.<sup>5</sup> The data analysis was also performed using Excel (Microsoft).

## Results

### Responses

We received responses from 82 BAD members covering 88 hospitals across the UK (Fig. 1). Data from 406 patients were included in the final data analysis.

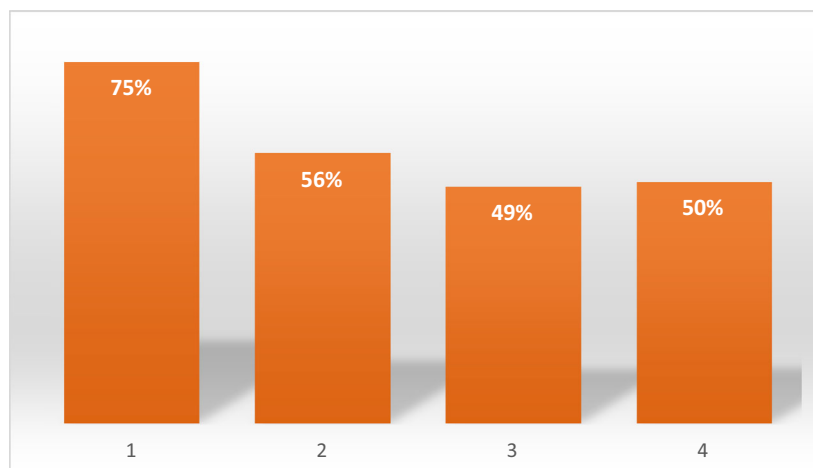
### Documentation

The results showed that 41% of cases had documentation of receiving a PIL. There was documentation of Hurley staging at baseline in 75% of cases, and disease severity using a validated tool in 56%. QoL and pain were documented in 49% and 50% of cases, respectively (Fig. 2).



**Figure 1** Map of the UK showing the locations of the 82 audited centres.

**Figure 2** Percentage of audited patients for whom there was documentation of (1) baseline disease stage using the Hurley system, (2) disease severity using a recognized instrument, (3) quality of life, and (4) pain.



### Risk factors

Smoking status was documented in 75% of cases, and 35% of those identified as smokers were offered a referral to a smoking cessation service. Almost half of patients had their weight recorded, and 27% had their BMI documented. Of those with a BMI  $\geq 35$  kg/m<sup>2</sup>, 23% were referred to a dietician (Fig. 3). Our data showed that screening for depression and anxiety was documented in 40% and 25% of cases, respectively. Screening for risk factors for CVD was recorded in 57% (Fig. 4).

### Adalimumab

Of the 182 patients who were on adalimumab therapy, 77% and 68% had documentation of baseline lesion count and Hurley staging, respectively, while 76% had any contraindications to or failure to respond to conventional therapy noted. For 44%, there was documentation of stopping treatment when there was a reduction of  $\geq 25\%$  in inflammatory nodule and abscess lesion count. The data show that approximately one-third (30%) of patients underwent surgical intervention, of whom the majority had documentation of presurgical discussion (74%).

### Discussion

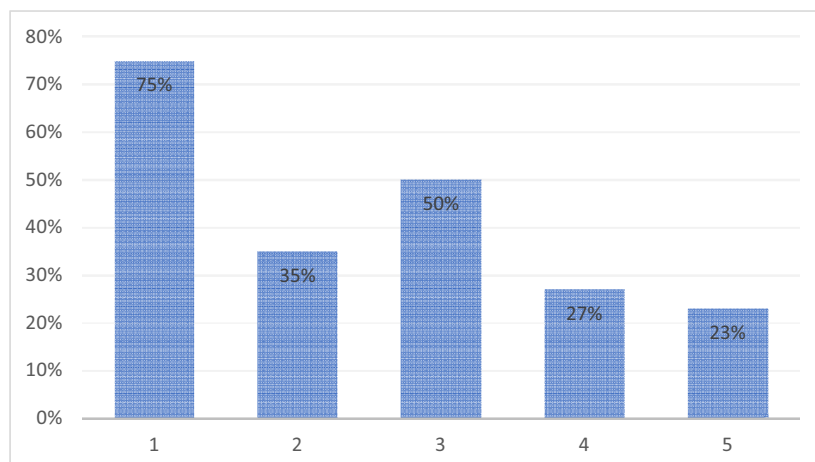
Our audit revealed there are areas where documentation was done well,  $\geq 70\%$  cases, covering baseline disease severity, smoking status and baseline documentation prior to starting adalimumab therapy. Other areas require improvement, especially in referring smokers and those with BMI  $\geq 35$  kg/m<sup>2</sup> to

appropriate services, and in screening for anxiety; these aspects of holistic care were documented in  $< 40\%$  of patients.

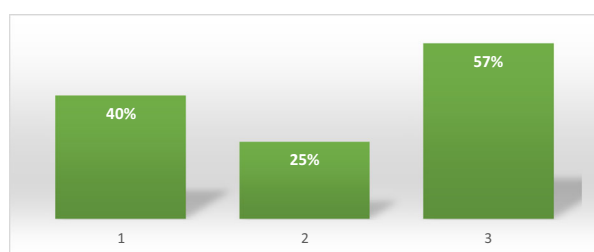
In many cases, people with HS spend years before getting a correct diagnosis and being seen by a specialist.<sup>6</sup> With the plethora of misinformation about the disease, it is important for those with HS to have reliable sources of information to better understand the condition. The results show that there was insufficient documentation of the provision of a PIL (41%). Classifying disease at baseline as mild, moderate or severe based on the Hurley system assists in triaging and management decisions, and it was encouraging that most patients had documentation of the Hurley staging at baseline (75%). The burden of HS on QoL is often substantial, and pain is the most influential symptom affecting QoL.<sup>7</sup> Assessment of disease severity using validated instruments was performed in almost half of cases.

Smokers are twice as likely to develop HS,<sup>8</sup> and they may have more severe disease compared with nonsmokers.<sup>9</sup> Smoking status was documented in most cases but only one-third of those requiring smoking cessation support received a referral. There is as yet no definitive evidence to confirm that quitting smoking attenuates disease severity<sup>9</sup> but nonsmokers appear to have a better response to medical therapy compared with smokers.<sup>10</sup>

People with HS have an increased risk of developing major adverse cardiovascular events [incidence rate ratio (IRR) = 1.53] and increased mortality (IRR = 1.35).<sup>11</sup> There is a known association between HS and metabolic syndrome.<sup>12</sup> These data make a compelling case to screen people with HS for risk factors for CVD. In our cohort, 23% with obesity had a



**Figure 3** Percentage of audited patients for whom documentation was available for (1) smoking status, (2) referral to smoking cessation service if relevant, (3) body weight, (4) BMI, and (5) referral to weight loss service if relevant.



**Figure 4** Percentage of audited patients for whom there was documentation of (1) screening for depression, (2) screening for anxiety and (3) screening for cardiovascular risk factors.

referral to weight management services. Screening for diabetes and hyperlipidaemia was performed in 57%. HS is a painful disease and has a profound impact on mental health with an increased risk of suicide.<sup>13,14</sup> The guidelines recommend annual screening for mental health disease, and in our audit, only 40% and 25% were screened for depression and anxiety, respectively. All these factors are inter-related and emphasize the importance of a holistic approach in managing people with HS.

In our audit, 46% were on adalimumab. The nodule count and Hurley staging were documented in two-thirds of cases. Of note, 44% remained on adalimumab despite having a suboptimal response based on the guideline recommendations. It may be that adjuvant therapy was introduced in the first instance to regain disease control, rather than discontinuing adalimumab, in the context that other biologic therapy options are difficult to access (and may not be funded) for HS in the UK.

In terms of study limitations, the results of the audit may have been influenced by self-auditing, which would introduce bias. Additionally, the audit data may

reflect a lack of documentation, rather than true practice.

Our national audit was performed relatively soon after the publication of the first UK guidelines for managing people with HS, and the results demonstrate substantial variation in adherence to the audit criteria; therefore, this should serve as a baseline performance for future re-audits. There are areas such as documenting Hurley staging in which UK dermatologists are performing well, but there is a need for improvement in several aspects such as screening for CVD risk factors and mental health problems. Implementing the guidelines recommendations may be impeded by the lack of resources and supporting services in some areas and more recently by the move towards virtual consultations during the COVID-19 outbreak. We suggest that clinicians use an HS proforma to ensure that the data required are collected routinely at each patient appointment. Our other recommendations are to: (i) use a standardized data collection form in the clinic and annual proformas to screen for CVD risk factors, depression and anxiety; (ii) engage with local resources for lifestyle modification (i.e. smoking cessation and weight loss); (iii) set up HS multidisciplinary clinics for local integration between dermatology, HS surgery and wound-healing services; and (iv) re-audit in 5 years to evaluate changes in practice.

## Conclusion

The BAD HS guidelines were intended to encourage best practice and reduce inequalities in HS care across the UK. The audit results show that clinicians are already performing relatively well in some areas but improvements are needed, particularly with regard to screening and management of comorbidities that could

reduce the long-term complications associated with HS. As always, a re-audit is needed to determine whether the guidelines and associated audit criteria are able to drive up standards in the management of people with HS.

#### What's already known about this topic?

- The first UK guidelines for HS were published in 2018 and contain a set of audit standards against which to compare current HS management.

#### What does this study add?

- Some audit standards, including baseline HS staging and documentation of smoking status, were met relatively well.
- However, documentation of BMI and referral to weight management services, screening for mental health problems and discontinuation of adalimumab if there was insufficient response were adhered to less well.

## Conflict of interest

JRI, Editor-in-Chief of BJD is consultant to UCB Pharma, Novartis, Viela Bio and Kymera Therapeutics. The other authors declare that they have no conflicts of interest.

## References

- 1 Posso-De Los Rios CJ, Sarfo A, Ghias M *et al.* Proceeding report of the third symposium on Hidradenitis Suppurativa Advances (SHSA) 2018. *Exp Dermatol* 2019; **28**: 769–75.
- 2 Ingram JR, Jenkins-Jones S, Knipe DW *et al.* Population-based Clinical Practice Research Datalink study using algorithm modelling to identify the true burden of hidradenitis suppurativa. *Br J Dermatol* 2018; **178**: 917–24.
- 3 Von Der Werth JM, Jemec GBE. Morbidity in patients with hidradenitis suppurativa. *Br J Dermatol* 2001; **144**: 809–13.
- 4 Ingram Jr, Collier F, Brown D *et al.* British Association of Dermatologists guidelines for the management of hidradenitis suppurativa (acne inversa) 2018. *Br J Dermatol* 2019; **180**: 1009–17.
- 5 R Core Team. R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. Available at: <http://www.R-project.org/> (accessed 10 February 2021)
- 6 Saunte DM, Boer J, Stratigos A *et al.* Diagnostic delay in hidradenitis suppurativa is a global problem. *Br J Dermatol* 2015; **173**: 1546–9.
- 7 Riis PT, Vinding GR, Ring HC, Jemec GBE. Disutility in patients with hidradenitis suppurativa: a crosssectional study using EuroQoL-5D. *Acta Derm Venereol* 2016; **96**: 222–6.
- 8 Garg A, Papagermanos V, Midura M, Strunk A. Incidence of hidradenitis suppurativa among tobacco smokers: a population-based retrospective analysis in the U.S.A. *Br J Dermatol* 2018; **178**: 709–14.
- 9 Sartorius K, Emtestam L, Jemec GBE, Lapins J. Objective scoring of hidradenitis suppurativa reflecting the role of tobacco smoking and obesity. *Br J Dermatol* 2009; **161**: 831–9.
- 10 Denny G, Anadkat MJ. The effect of smoking and age on the response to first-line therapy of hidradenitis suppurativa: an institutional retrospective cohort study. *J Am Acad Dermatol* 2017; **76**: 54–9.
- 11 Egeberg A, Gislason GH, Hansen PR. Risk of major adverse cardiovascular events and all-cause mortality in patients with hidradenitis suppurativa. *J Am Acad Dermatol* 2016; **152**: 429–34.
- 12 Goldburg SR, Strober BE, Payette MJ, Part I. Hidradenitis suppurativa: epidemiology, clinical presentation, and pathogenesis. *J Am Acad Dermatol* 2020; **82**: 1045–8.
- 13 Shlyankevich J, Chen AJ, Kim GE, Kimball AB. Hidradenitis suppurativa is a systemic disease with substantial comorbidity burden: a chart-verified case-control analysis. *J Am Acad Dermatol* 2014; **71**: 1144–50.
- 14 Matusiak L. Profound consequences of hidradenitis suppurativa: a review. *Br J Dermatol* 2020; **183**: e171–7.