Evaluating the hidradenitis odor and drainage scale (HODS): A new validated potential instrument to assess odor and drainage in hidradenitis suppurativa—A cross-sectional study

To the Editor: Hidradenitis Suppurativa (HS) is a debilitating skin condition that forms draining tunnels and abscesses. The hidradenitis odor and drainage scale (HODS) is a novel instrument developed to study drainage and odor in patients with HS, as well as the effects of these symptoms on a patient's well-being.[1] Draining tunnels are an important marker of disease activity in HS and both odor and drainage have significant impacts on a patient's quality of life.[2,3] However, there are no validated tools for specifically measuring drainage and odor in patients with HS. The current study is designed to evaluate the usage of HODS as an instrument to measure odor and drainage in patients with HS.

This was a single center, cross-sectional, observational study performed on adults with HS. Following approval from the Penn State Institutional Review Board (#00012496), demographic information, disease severity, Hidradenitis Suppurativa Quality of Life (HiSQOL), Dermatology Quality of Life Index (DLQI), and HODS data were concurrently collected between 2018 and 2021 to demonstrate convergence of the new outcome measure with previously established measures.[4,5] Patients were asked to rate "usual" odor/drainage and "worst" odor/drainage, during the last week, on a scale of 1 to5, with 5 being the worst. The "usual" section, abbreviated to "UHODS," asks the patient to rate their usual amount of drainage for each anatomic area. The "worst" section, abbreviated to "WHODS," asks the patient to rate their worst drainage. Statistical analysis was performed in SPSS. The relationship between the HODS scores and the other continuous variables were examined using scatter plots and the Kendall Tau correlation method as some data distributions were skewed. The relationship between the HODS scores and categorical variables were analyzed using boxplots. Further, known-groups validity between total DLQI score bands and HODS scores was evaluated using analysis of variance. Scale reliability was confirmed using Cronbach alpha coefficients.

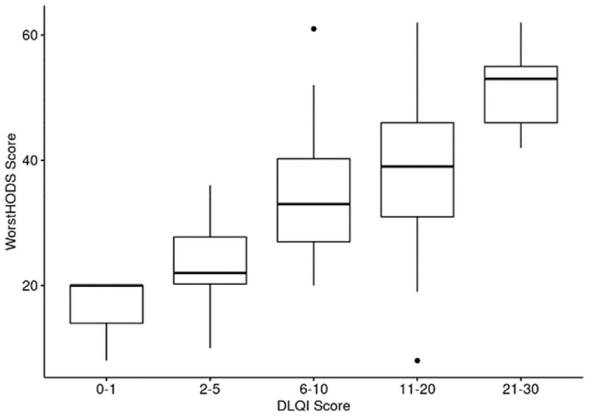

Fig 1. HODS score versus DLQI score band boxplot. HODS, hidradenitis odor and drainage scale; DLQI, Dermatology Quality of Life Index.

Data were collected from a total of 94 patients, and 92 patients with complete data were considered. There was a strong linear correlation between the HODS score and the other patient-reported measures (HODS vs total DLQI scores, HiSQOL, and HiSQOL symptom subscore were $R = 0.74$, $R = 0.76$, and $R = 0.84$, respectively; Fig 1). HODS results displayed known-groups validity with higher scores in higher total DLQI score bands (analysis of variance, $P < .001$). Internal reliability was supported by a Cronbach alpha coefficient of 0.92.

In this study, the correlation between HODS and other important measures of HS severity, including DLQI and HiSQOL, was assessed. The results indicate that HODS is an effective clinical instrument for the measurement of odor and drainage in HS. Specifically, HODS displayed known-groups validity with established DLQI score bands and demonstrated internal consistency based on Cronbach alpha, implying that it was consistent with other scales and itself. Limitations of this study include cross-sectional data and lack of comparison before and after treatment, as well as a single-center design. In this study of >90 patients, the usage of HODS as a measurement instrument for HS was evaluated. HODS had satisfactory agreement with the established patient-reported outcome scales for quality of life. HODS may prove valuable in both practice and research when odor/drainage are of importance.

Afsaneh Alavi, MD,[a] Nimay Anand, BA,[a] Mika Yamanaka-Takaichi, MD, PhD,[a] Vincent Piguet, MD, PhD,[b] Jocelyn Simmers, MPH,[c] Myrela Machado, MD,[b] Austin Todd, MS,[d] and Joslyn Kirby, MD[c]

From the Department of Dermatology, Mayo Clinic, Rochester, Minnesota[a]; Division of Dermatology, Department of Medicine, Women's College Hospital, University of Toronto, Toronto, Ontario, Canada[b]; Department of Dermatology, Penn State Milton S. Hershey Medical Center, Hershey, Philadelphia[c]; and Department of Clinical Trials & Biostatistics, Mayo Clinic, Rochester, Minnesota.[d]

Funding: none.

IRB approval status: Penn State IRB (00012496).

Key words: drainage; DLQI; hidradenitis suppurativa; HiSQOL; hidradenitis; HODS; odor; QoL.

Correspondence and reprint requests to: Afsaneh Alavi, MD, Department of Dermatology, Mayo Clinic, 200 First Street SW, Rochester, MN, 55902

E-mail: alavi.afsaneh@mayo.edu

Conflicts of interest

Dr Alavi serves as a consultant for Abbvie, Bohhinger Ingelheim (BI), InflaRx, Novartis, UCB biopharmaceutical and an Investigator for BI and Processa.

Dr Kirby serves as a speaker for AbbVie, Janssen, and UCB; serves on the Advisory Board for AbbVie, Incyte, Novartis; and serve as a consultant for AbbVie, ChemoCentryx, Incyte, Janssen, Moonlake, Novartis, and UCB

REFERENCES

1. Machado MO, Lu JD, Brar R, et al. Hidradenitis suppurativa odour and drainage scale: a novel method for evaluating odour and drainage in patients with hidradenitis suppurativa. *Br J Dermatol*. 2021;184(4):772-774. https://doi.org/10.1111/bjd.19686
2. Alavi A, Farzanfar D, Lee RK, Almutairi D. The contribution of malodour in quality of life of patients with hidradenitis suppurativa. *J Cutan Med Surg*. 2018;22(2):166-174. https://doi.org/10.1177/1203475417745826
3. Navrazhina K, Frew JW, Gilleaudeau P, Sullivan-Whalen M, Garcet S, Krueger JG. Epithelialized tunnels are a source of inflammation in hidradenitis suppurativa. *J Allergy Clin Immunol*. 2021;147(6):2213-2224. https://doi.org/10.1016/j.jaci.2020.12.651
4. Finlay AY, Khan GK. Dermatology life quality index (DLQI)--a simple practical measure for routine clinical use. *Clin Exp Dermatol*. 1994;19(3):210-216. https://doi.org/10.1111/j.1365-2230.1994.tb01167.x
5. Kirby JS, Thorlacius L, Villumsen B, et al. The Hidradenitis Suppurativa Quality of Life (HiSQOL) score: development and validation of a measure for clinical trials. *Br J Dermatol*. 2020;183(2):340-348. https://doi.org/10.1111/bjd.18692

https://doi.org/10.1016/j.jdin.2022.11.003