Health-Related Quality of Life of Patients with Hidradenitis Suppurativa Measured with the 15D Instrument and Comparison with the General Population and Patients with Psoriasis

Nicolas Kluger^a Harri Sintonen^b Martta Ranta^c Martina Serlachius^c

^aUniversity of Helsinki and Department of Dermatology and Allergology, Helsinki University Central Hospital, and

^bDepartment of Public Health, University of Helsinki, Helsinki, and ^cAbbVie Oy, Espoo, Finland

Keywords

Hidradenitis suppurativa · Health-related quality of life · 15D instrument · Finland

Abstract

Background: Hidradenitis suppurativa (HS) is a chronic inflammatory skin disease significantly impacting health-related quality of life (HRQoL). We measured the HRQoL of Finnish HS patients and compared it with that of the general population and psoriasis patients. **Methods:** Twenty-six diagnosed HS patients completed the 15D HRQoL questionnaire (15D), the Dermatology Life Quality Index (DLQI), and the Beck Depression Inventory-21 (BDI-21). The correlation between the results of these instruments was analyzed and the 15D results were compared with an age-standardized general population and psoriasis patients. **Results:** Compared with an age-standardized general population, HS patients scored statistically significantly worse on several 15D dimensions. A statistically significant difference compared to psoriasis patients was detected on the sexual activity dimension. Even though not statistically significant, the observed mean values of the remaining dimensions suggest that clinically important differences may exist. The 15D score

negatively correlated with the DLQI score ($r = -0.492$; $p = 0.011$) and the BDI-21 score ($r = -0.592$; $p = 0.001$). **Conclusions:** HS is a serious condition, with an impact at least comparable to that of psoriasis. This study shows that the 15D is a feasible tool for examining HRQoL in HS patients.

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Introduction

Hidradenitis suppurativa (HS) is a chronic inflammatory skin disease of the terminal hair follicles, affecting the intertriginous skin area of axillary, genitofemoral, and perianal sites, which may lead to fistulae, draining wounds, and scarring [1]. HS has a more significant impact on health-related quality of life (HRQoL) [2–5] than other dermatologic conditions, including psoriasis, atopic dermatitis, and chronic urticaria [2]. To date, limited data exist on the HRQoL of Finnish HS patients. Using the 15D HRQoL questionnaire (15D) in a Finnish HS cohort ($n = 26$), we assessed HRQoL in a cross-sectional setting and compared these results with those of an age-standardized general population [6] and psoriasis patients [7].

Materials and Methods

Study Population

In 2015, we performed a single-center cross-sectional pilot study on the burden of HS in 26 patients. The study was conducted at the Department of Dermatology of the Helsinki University Central Hospital, Finland. The study enrolled adult patients diagnosed with HS. The inclusion criteria, study methodology, and main study results are reported in more detail elsewhere [8]. The patients' HRQoL was compared to that of a representative sample of an age-standardized general population ($n = 4,176$) from the Health 2011 Health Examination Survey [6] and to that of age-standardized psoriasis patients ($n = 138$) from the Health 2000 Health Examination Survey [7].

Data Collection

Data on demographics, social and economic status, history of HS, lifestyle, comorbidities, clinical presentation, and disease severity were collected from medical charts and during one study visit. Patients were asked to complete a set of questionnaires at home before the study visit, including the 15D, the Dermatology Life Quality Index (DLQI), and the Beck Depression Inventory-21 (BDI-21).

The 15D

The 15D is a generic, multidimensional, standardized, self-administered HRQoL instrument with both profile and single index score properties [9]. It comprises 15 dimensions of health. Each dimension has 5 grades of severity; the patient must choose the level best describing his/her state of health at the moment (best level = 1, worst level = 5) [9]. The single index score (15D score), which represents overall HRQoL on a scale from 0 to 1 (1 = full health, 0 = dead), and the dimension level values (i.e., dimension scores), reflecting the goodness of the levels relative to no problems on the dimension (= 1) and to being dead (= 0), are calculated from the health state descriptive system (questionnaire) using a set of population-based preference or utility weights. A minimum clinically important change/difference in the 15D score has been estimated to be ± 0.015 [10].

Dermatology Life Quality Index

The DLQI is the most frequently used instrument in randomized controlled trials in dermatology [11]. It is a simple, validated questionnaire that consists of 10 questions. Each question has 4 possible answers, for a maximum of 3 points, and a total maximum score of 30. Higher scores indicate more severely affected HRQoL according to the following grade: no effect (0–1 points), small effect (2–5 points), moderate effect (6–10 points), very large effect (11–20 points), and extremely large effect (21–30 points).

Beck Depression Inventory-21

The BDI-21 is one of the most widely used instruments for measuring depression symptoms [12]. The questionnaire is composed of items relating to depressive, cognitive, and physical symptoms. The BDI-21 consists of 21 questions and each question has 4 possible answers with a value of 0 to 3 assigned for each answer. Higher total scores indicate more severe depressive symptoms according to the following grade: normal (0–12 points), mild depression (13–18 points), moderate depression (19–29 points), and severe depression (≥ 30 points) [13].

Table 1. Demographics, clinical characteristics, comorbidities, and HRQoL scores in a cohort of Finnish patients with HS (total $n = 26$)

<i>Demographics</i>	
Age, years	44.2 $\pm$ 15.5
Age at onset, years	26.8 $\pm$ 14.9
Age at diagnosis, years	40.5 $\pm$ 15.0
Duration of HS, years	18.4 $\pm$ 10.2
BMI	31.2 $\pm$ 7.31
<i>Lifestyle</i>	
Smoking	20/26 (76.9%)
Alcohol consumption	19/26 (73.1%)
<i>Disease severity</i>	
Hurley stage	
Stage I	13/26 (50%)
Stage II	11/26 (42.3%)
Stage III	2/26 (7.7%)
Number of affected areas ^a	2.04 $\pm$ 1.58
<i>Comorbidities</i>	
Obesity (BMI >30)	13/26 (50%)
Diabetes type II	4/26 (15.4%)
Cardiovascular diseases	9/26 (34.6%)
Autoimmune or inflammatory diseases ^b	5/26 (19.2%)
Depression/anxiety disorders	4/26 (15.4%)
<i>HRQoL scores</i>	
15D	0.882 $\pm$ 0.083
DLQI	8.31 $\pm$ 7.39
BDI-21	10.69 $\pm$ 10.13

Values are presented as mean $\pm$ SD or n (%). 15D, 15D health-related quality of life questionnaire; BDI-21, Beck Depression Inventory-21; DLQI, Dermatology Life Quality Index; HRQoL, health-related quality of life; HS, hidradenitis suppurativa; SD, standard deviation. ^a Axillae, inguinal folds, buttocks, breast, and scrotum. ^b Hypothyroidism, Crohn disease, autoimmune cholangitis, myasthenia, and cutaneous lupus.

Statistical Analysis

Statistical analysis was conducted using SPSS Statistics, version 22.0 (IBM, Armonk, NY, USA). Patient characteristics are presented as mean and standard deviation (SD) for continuous variables and as frequency and proportion for categorical variables. The statistical significance of the differences between genders in the means of continuous variables was tested using an independent-samples *t* test. Correlations between patients' age, disease duration, number of affected areas, Hurley stage, comorbidities, smoking and alcohol consumption, DLQI, BDI-21, and total 15D score were analyzed using the Spearman rank correlation coefficient. $p < 0.05$ was considered statistically significant.

Fig. 1. a Mean 15D health-related quality of life questionnaire (15D) scores and profiles of patients with hidradenitis suppurativa (HS) ($n = 26$) and an age-standardized population control cohort ($n = 4,176$). **b** Mean 15D scores and profiles of patients with HS ($n = 26$) and an age-standardized population of patients with psoriasis ($n = 138$).

Results

Demographic Data and HS Presentation

The characteristics of the cohort, including demographic data, clinical characteristics, comorbidities, and HRQoL scores are summarized in Table 1.

DLQI and BDI-21

The mean (SD) DLQI score was 3.00 ± 3.77 for men and 11.63 ± 7.22 for women, suggesting statistically significantly lower HRQoL for women ($p = 0.001$). Nine patients (34.6%), all women, reported a very large to extremely large effect on their daily life (DLQI >10). The

mean (SD) total BDI-21 score was statistically significantly worse for women compared to men (15.00 ± 0.078 vs. 0.906 ± 0.090 , respectively; $p = 0.001$). Ten patients (38.5%), of whom 9 were women, reported depression symptoms (BDI-21 >12); mild, moderate, and severe depression was reported in 6, 2, and 2 patients, respectively. The DLQI and BDI-21 results are discussed in detail elsewhere [8].

Comparison of 15D Results in HS Patients, an Age-Standardized General Population, and Psoriasis Patients

There was no statistically significant difference in the mean (SD) 15D score between men and women, although the difference was clinically important (0.906 ± 0.090 vs. 0.866 ± 0.078 , respectively; $p = 0.248$). HS patients had a statistically significantly lower mean (SD) 15D score compared with the age-standardized general population (0.882 ± 0.083 vs. 0.935 ± 0.071 ; $p < 0.001$; Fig. 1a) and the difference was clinically important. In HS patients, 15D scores ranged from 0.668 to 1.000. Only 1 patient (3.8%) reported full health (i.e., a 15D score of 1). HS patients reported worse scores on all single dimensions, except for eating, speech, and mental function. The mean dimension scores of HS patients were statistically significantly worse compared to the general population in sleeping ($p = 0.002$), discomfort and symptoms ($p = 0.001$), distress ($p = 0.001$), vitality ($p < 0.001$), and sexual activity dimensions ($p < 0.001$; Fig. 1a).

HS patients had a lower mean (SD) 15D score compared with the age-standardized psoriasis population (0.882 ± 0.083 vs. 0.900 ± 0.117), but the difference was not statistically significant (independent-samples t test, $p > 0.05$). The global pattern of the dimension scores was similar between both groups (Fig. 1b). However, HS patients on average scored worse on sleeping, excretion, discomfort and symptoms, distress, vitality, and sexual activity dimensions. The only statistically significant difference between patients with psoriasis and HS was on the dimension of sexual activity ($p = 0.03$).

Among HS patients, statistically significant correlations were not observed between the 15D score and age, disease duration, number of affected areas, Hurley stage, comorbidities, smoking, or alcohol consumption. However, the 15D score negatively correlated with the DLQI score ($r = -0.492$; $p = 0.011$) and the BDI-21 score ($r = -0.592$; $p = 0.001$).

Discussion

As reported earlier, HS has a notable impact on HRQoL [2]. The age-standardized general population scored better on 12 of the 15 dimensions compared with the study group. HS patients scored particularly worse on the dimension of discomfort and symptoms. Indeed, HS lesions may be painful and associated with malodorous discharge, impacting everyday life and social relationships. Scores were also significantly lower on sleeping, usual activities, distress, depression, vitality, and sexual activity dimensions. Even though not statistically significant ($p = 0.082$), excretion scored low. This dimension may be affected mainly in HS patients with inflammatory bowel disease or perianal fistulas and in patients with HS lesions on the buttocks and groin areas.

When comparing 15D results between HS and psoriasis patients, both patient groups interestingly displayed a similar pattern of impairment. HS patients had a lower mean 15D score than psoriasis patients, but unlike Wolkenstein et al. [2], we were unable to detect a statistically significant difference in terms of the global impact on patients' HRQoL. Differences in the sample size, population selection, and HRQoL questionnaires are most likely responsible for the discrepancies. In our cohort, HS patients showed a statistically significant impairment in sexual activity compared to psoriasis patients. Kurek et al. [4] previously reported that HS patients display higher sexual dysfunction scores, even when compared to psoriasis patients with genital involvement or underlying depression.

Due to the small sample size we did not have enough statistical power to detect small differences. It is noteworthy to mention that psoriasis patients were not examined and the severity of psoriasis could not be assessed. Acknowledging the limitations of our study, our results are in agreement with previous publications regarding the impact of HS on HRQoL. Importantly, our study shows that the 15D is a feasible and easily applied tool for examining HRQoL in HS patients. Scores from the 15D showed concordance with both DLQI and BDI-21 scores. In the near future, we aim at extending this study on a nationwide scale.

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Statement of Ethics

All procedures performed in this study were in accordance with the Helsinki Declaration of 1975, as revised in 1983. The Ethics Committee of HUCH Internal Medicine approved the study (191/13/03/01/15). Informed consent was obtained from all study subjects.

Disclosure Statement

Dr. Nicolas Kluger has served as a consultant to AbbVie and has received research funding from AbbVie and speaker fees from AbbVie and Galderma. Harri Sintonen is the developer of the 15D and obtains royalties from its electronic versions. Martta Ranta and Martina Serlachius are employees of AbbVie. The sponsor of this study, AbbVie, participated in the study design, study research, collection, analysis and interpretation of data, and writing, reviewing, and approval of this publication. All authors had access to the data and participated in the development, review and approval, and decision to submit this publication.

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