The Refined Hurley Patient Questionnaire

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Hidradenitis suppurativa (HS) is a chronic, debilitating, inflammatory skin disease that mainly affects body folds (e.g. axillae and groin) (1). Primary lesions include deep-seated inflammatory nodules, abscesses, and sinus tracts (1). The diagnosis of HS can be made easily due to its clear, distinct clinical presentation.

Deckers et al. (2) have reported that patients with HS can score their own disease severity according to the original Hurley classification. However, the purpose of the Hurley classification was to assess HS in a single affected body region in order to guide surgical intervention (3). It was not intended to classify HS disease activity and severity in the whole patient and to assist in extensive treatment plans including, for example, anti-inflammatory options (3, 4).

Therefore, a modification of the Hurley classification was proposed by a Dutch HS expert group in 2017: the “refined Hurley classification” (5). In contrast to the original Hurley classification, the 7-stage refined Hurley classification assesses not only the presence of sinus tracts, but also inflammatory symptoms and the extensiveness of the disease (3, 5). Refined Hurley stages I and II are subdivided into A, B and C, corresponding to mild, moderate and severe disease. Stage III is not subdivided and corresponds to severe HS disease. This was recently confirmed by a construct validation study (6). Furthermore, a comprehensive treatment ladder is added to the flow chart (5).

The aim of this study was to develop and investigate the reliability of a patient self-assessment questionnaire corresponding to the items addressed in the refined Hurley classification, in order to derive the refined Hurley stage.

**METHODS**

**Subjects and study design**

Consecutive patients with HS were recruited at the dermatology outpatient clinic of the University Medical Centre Groningen (UMCG), a tertiary referral centre for HS. Subjects were eligible if they were diagnosed with HS by a dermatologist, were older than 18 years, and were capable of completing the questionnaire. Subjects were eligible if they were diagnosed with HS by a dermatologist, were older than 18 years, and were capable of completing the questionnaire. They were then asked to complete the refined Hurley classification stage, according to physician, n (%)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>n</th>
<th>%</th>
<th>Mean ± Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, years, mean ± standard deviation</td>
<td>40.5 ± 12.7</td>
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<td></td>
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<tr>
<td>Smoking status, n (%)</td>
<td>72.0</td>
<td></td>
<td></td>
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<tr>
<td>Body mass index, kg/m², mean ± standard deviation</td>
<td>29.4 ± 6.0</td>
<td></td>
<td></td>
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<tr>
<td>Non-smoker</td>
<td>13 (17.3)</td>
<td></td>
<td></td>
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<tr>
<td>Ex-smoker</td>
<td>19 (25.3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current smoker</td>
<td>43 (57.3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New (first visit) or control patient, n (%)</td>
<td>26 (34.7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New</td>
<td>49 (65.3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>22 (29)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Refined Hurley IA</td>
<td>17 (22.9)</td>
<td></td>
<td></td>
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<tr>
<td>Refined Hurley IB</td>
<td>8 (11)</td>
<td></td>
<td></td>
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<tr>
<td>Refined Hurley IA II</td>
<td>11 (15)</td>
<td></td>
<td></td>
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<tr>
<td>Refined Hurley IIC</td>
<td>16 (21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Refined Hurley III</td>
<td>5 (7)</td>
<td></td>
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</table>
**Inter-rater agreement and reliability**

The derived refined Hurley stages and disease severity (based on the refined Hurley classification) from the patient’s answers to the questionnaire vs. the physician’s dermatological examination report are shown in Tables SII and SIII. The inter-rater agreement between patient’s derived and physician’s reported refined Hurley stages was 78.7% (59/75). The inter-rater reliability resulted in an α of 0.737 (95% confidence interval [CI] 0.622–0.852) (Table SIII). Similar results were found for inter-rater agreement and reliability regarding HS disease severity (82.7%, α=0.733 (95% CI 0.589–0.856) (Table SIII)). Concerning the assessment of sinus tracts, inter-rater agreement was 89.2% and reliability of α=0.785 (95% CI 0.650–0.919).

**DISCUSSION**

In this study, we developed a patient symptom self-assessment questionnaire based on the refined Hurley classification algorithm for HS. We investigated whether the derived refined Hurley stages from the patient questionnaire correspond to the physician’s dermatological examination and given refined Hurley stage. It was found that a substantial inter-rater agreement and reliability, indicating that, in most cases, the same refined Hurley stage could be extracted from the patients’ answers to our questionnaire as assigned by the physician.

Notably, in contrast to the flow chart of the refined Hurley classification, we found in the current study that it is important to first ask patients with HS about the presence of abscesses/inflammatory nodules, prior to the presence of sinus tracts. This might be due to the chronological order in which HS mostly develops: the first signs of HS are usually recurrent inflammatory nodules and/or abscesses, and in a later stage sinus tracts might develop. Furthermore, the reliability of the questionnaire is enhanced by educating the patient about the main HS lesions, by providing a concise description with prototypical pictures of these lesions.

One of the main items in the original as well as in the refined Hurley classification, we found in the current study that it is important to first ask patients with HS about the presence of abscesses/inflammatory nodules, prior to the presence of sinus tracts. This might be due to the chronological order in which HS mostly develops: the first signs of HS are usually recurrent inflammatory nodules and/or abscesses, and in a later stage sinus tracts might develop. Furthermore, in the original Hurley classification lacks valuable information to assess symptoms and severity in an entire individual (4).

Recently, we have shown that the sub-stages of the refined Hurley stages could be extracted from the patients’ answers to our questionnaire as assigned by the physician. Furthermore, compared with the study by Deckers et al. (2) and another study (9) regarding self-assessment of disease severity of other skin diseases (acne, psoriasis, and atopic eczema), our results are the highest. A limitation of the current study is that it was conducted in a single university hospital with HS expertise. This might have biased the results. Patients with HS seen at our department might have a longer duration of disease and are usually extensively informed about their disease. This could indicate that these patients are more familiar with the symptoms of HS than are patients treated in primary and secondary healthcare centres. However, besides inclusion of patients coming for follow-up consultation, new referrals were also included.

In conclusion, the symptom self-assessment questionnaire described here is an accurate instrument for deriving the correct refined Hurley stage within patients with HS and might be useful for daily clinical practice, as well as for future epidemiological and clinical studies in HS. We recommend investigating the usefulness of this questionnaire further in other/multiple treatment centers, including sub-analyses, such as the results of new vs. follow-up patients, presence of inflammatory nodules/abscesses, and involved anatomical region.

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**REFERENCES**