Hidradenitis suppurativa prevalence in Berekum, Ghana: A cross-sectional study and initial validation of a questionnaire in an African setting

To the Editor: Hidradenitis suppurativa is a recalcitrant inflammatory skin disease that, left untreated, causes significant patient morbidity. The diagnosis is based on the presence of 3 obligatory clinical diagnostic criteria: typical lesions, typical topography, and chronicity. These criteria enable screening through a simple questionnaire. Vinding et al1 created and validated such a questionnaire, used in Europe and Australia.2,3

We conducted an exploratory, descriptive, cross-sectional study to estimate hidradenitis suppurativa prevalence in the Holy Family Hospital, Berekum, Berekum municipality, Brong Ahafo region, Ghana, West Africa, a representative of tropical rural Ghana. To our knowledge, this was the first attempt to validate the questionnaire in an African population.

Participants were healthy persons accompanying patients attending the general outpatient department of the Holy Family Hospital. After obtaining oral and written consent, a nurse read a translated version of the questionnaire for the participant. All screen-positive patients and 10% of the screen-negative ones were physically examined.

The questionnaire was translated into Twi (Akan language) and back-translated by 2 groups of 2 nurses and checked by the first author for content. The questionnaire also contained questions on sex, age, body mass index, and smoking.

Five hundred twenty-five questionnaires were handed out, of which 23 were incomplete and subsequently censored. Among the remaining 502 participants, the hidradenitis suppurativa prevalence was 0.8% (4/502; 95% confidence interval 0.2%-2.0%). Fifty-four screen-negative participants were randomly chosen for physical examination. Among those patients, none had hidradenitis suppurativa. There were no differences in sex, age, body mass index, and smoking among individuals with hidradenitis suppurativa-positive and -negative results (Table I). Screen-positive patients did not differ from the screen-negative ones (data not shown).

The test specifics for the screening questionnaire were as follows (Table II): sensitivity 100%, specificity 74%, positive predictive value 17%, and negative predictive value 100%.

The hidradenitis suppurativa prevalence of 0.8% (95% confidence interval 0.2%-2.0%) places our results somewhere between those of the validated symptom-based screening questionnaires that in Denmark have found a prevalence of approximately 2%1 and US insurance databases that indicate a hidradenitis suppurativa prevalence of 0.1% in general and 0.3% for blacks in particular. The prevalence in our study was similar to the slightly less than the 1% prevalence found in both Australia and the United Kingdom,2,3 and it therefore does not support an increased hidradenitis suppurativa prevalence in populations with African ancestry.

Our screening questionnaire identified all hidradenitis suppurativa cases; however, during physical examination it became apparent that many false-positive results were from women who identified nicks caused by their shaving of the axilla as chronic recurrent lesions. This must be taken into account for further studies because the questionnaire would otherwise overestimate the hidradenitis suppurativa prevalence in the population.

Furthermore, all participants had fewer environmental risk factors (ie, a markedly lower smoking behavior and lower body mass index) than reported among hidradenitis suppurativa patients in the Western world. One US study showed a higher incidence of hidradenitis suppurativa among black smokers than black nonsmokers, but also that smoking increased the risk of hidradenitis suppurativa more in the white than the black population.

Further studies, preferably of combined genetic and environmental origin, are needed to explain the results presented here.

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Table I. Descriptive statistics

| Variable          | Control group | HS group | \( P \) value\(^c\) |
|-------------------|---------------|----------|---------------------|
| \( n \)           | 498           | 4        |                     |
| Sex (%)           |               |          |                     |
| Men               | 168 (33.7)    | 1 (25)   | .22                 |
| Women             | 329 (66.1)    | 3 (75)   |                     |
| NA                | 1 (0.2)       |          |                     |
| Age, median (IQR), y | 30 (24—43)  | 45 (37.5—52) | .07                  |
| BMI, mean (SD)    | 25.3 (4.3)    | 26.1 (3.6) | .71                 |
| NA (%)            | 5 (1)         |          |                     |
| Smoker (%)        |               |          |                     |
| Yes               | 3 (0.6)       | 0        | .98                 |
| No                | 494 (99.2)    | 4 (100)  |                     |
| NA                | 1 (0.2)       |          |                     |

BMI, Body mass index; HS, hidradenitis suppurativa; IQR, interquartile range; NA, not available; SD, standard deviation.

\(^c\chi^2\) Test for categoric variables and Mann-Whitney \(U\) test for nonnormally distributed ones.

Table II. Test parameters

| Boil questionnaire | Physically examined | |
|--------------------|---------------------|------|
| Positive           | 4 (true positive)   | 19 (false positive) |
| Negative           | 0 (false negative)  | 54 (true negative)  |

Sensitivity 1 (4 out of 4), specificity 0.74 (54 out of 73), positive predictive value 0.17 (4 out of 23), and negative predictive value 1 (54 out of 54).

REFERENCES

1. Vinding GR, Miller IM, Zarchi K, Ibler KS, Ellervik C, Jemec GB. The prevalence of inverse recurrent supputation: a population-based study of possible hidradenitis suppurativa. Br J Dermatol. 2014;170(4):884-889.
2. Calao M, Wilson JL, Spelman L, et al. Hidradenitis suppurativa (HS) prevalence, demographics and management pathways in Australia: a population-based cross-sectional study. PLoS One. 2018;13(7):e0200683.
3. Ingram JR, Jenkins-Jones S, Knipe DW, Morgan CL, Cannings-John R, Piguet V. Population-based Clinical Practice Research Datalink study using algorithm modelling to identify the true burden of hidradenitis suppurativa. Br J Dermatol. 2018;178(4):917-924.
4. Garg A, Kirby JS, Lavian J, Lin G, Strunk A. Sex- and age-adjusted population analysis of prevalence estimates for hidradenitis suppurativa in the United States. JAMA Dermatol. 2017;153(8):760-764.
5. 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(3):709-714.

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