Nationwide epidemiological survey of hidradenitis suppurativa in Japan

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Conflicts of Interest : In relation to this presentation, I declare that there are no conflicts of interest.

Introduction

Hidradenitis suppurativa (HS) is a chronic relapsing skin disease localized in the apocrine-gland-bearing areas of the body¹). Although HS affects QoL of the patient remarkably, there were no diagnostic and disease severity criteria in Japan. Currently, only a small epidemiological investigation has been carried out²).

Objective

The purpose of this study is to investigate the actual picture of HS in Japan by performing a nationwide epidemiological investigation.

Methods

Questionnaire-based study was performed at the hospitals that provide dermatological training under the certification of the Japanese Dermatological Association. In questionnaire, we investigated the following items about patients diagnosed as being clinically hidradenitis suppurativa from 2012 through 2014.

The study was approved by Ethics Committee of Nihon University Itabashi Hospital, #RK-150310-11.

Backgrounds, age, past history, family history, smoking, disease duration

•Diagnostic criteria→Definite, Probable

•Severity →PGA(mild, moderate, severe, most severe), modified Sartorius score³), Hurley stage

•Treatment→antibiotics, surgical resection, biologics, immunosuppressive agent

•Prognosis→effectiveness of treatment, carcinogenesis

Those data were collected and analyzed statistically.

Fig1: Diagnostic criteria of HS in this study

The diagnostic criteria were modified and prepared by reference to European guidelines of HS¹).

I : Clinical criteria: There is/are symptoms in one or more anatomical regions such as axilla, groin, buttock, anogenital area, and others.

- ① repeated appearance of abscess or drainage
- ② scar or nodule
- ③ draining fistula

→If patients have symptoms in only one anatomical region, two or more out of three items (①~③) are required to meet. If patients have symptoms in two regions, one or more out of three items is/are required to meet for diagnosis.

II : Histopathological criteria

- ① keratotic plug and infiltration of leukocytes in hair follicles
 - ② draining fistula or sinus tract in the dermis
- ①or ② is needed for diagnosis.

I+ II →Definite, I only→Probable

※ Infection and malignancy must be excluded.

Results(Background)

•A total of 300 patient's data was collected from 67 hospitals.

Male 219 (mean age: 44.5 years± 15.50)

Female 81 (mean age: 36.4 years± 13.63)

•**Disease duration** :91.0 months (7.58 years)

•**Family history** :12 cases (one case has a mutation of γ -secretase) 4.0%

•**Past history**

Obesity:48, Diabetes mellitus: 55, Hypertension:36

Hyperlipidemia: 19, Crohn disease: 1, Hirsutism: 17

→ Diabetes mellitus alone was correlated with the disease severity (PGA). ($\chi^2=10.977$; $P=0.01185<0.05$)

•**Smoking history**:

no-smoking history:85 smoking history: 123

→There is no correlation between modified Sartorius score and smoking history. ($\chi^2=5.6894$, $P=0.1277$)

• **Prognosis** One case (1/300) developed SCC during the study period.

Results (Diagnostic criteria/ Severity)

•**Diagnostic criteria**

Definite: 158, Probable: 130

(Histopathological examination was not performed in most of the probable cases)

•**Severity**

PGA: mild 100 (33.3%), moderate: 133 (44.3%), severe: 34 (11.3%), most severe: 29 (9.7%)

Hurley stage I :69 (23%), II : 109 (36.3%) , III : 121 (40.3%)

•**Correlation between modified Sartorius score and PGA**

	case	Sartorius score
most severe	29	196.8 ± 128.9
severe	34	87.8 ± 65.4
moderate	133	25.6 ± 21.1
mild	100	13.8 ± 11.6

PGA was related to the Sartorius score by using variance analysis. ($P < 0.001$)

•**Correlation between modified Sartorius score and Hurley score**

	case	Sartorius score
I	69	7.9 ± 5.73
II	109	21.8 ± 30.47
III	121	89.6 ± 95.46

Hurley stage was related to the Sartorius score by using variance analysis. ($P < 0.001$)

•**Association between modified Sartorius score and location**

It was examined whether there is association between the disease severity and region(s).

	Presence of symptom	No symptom
axilla	166	80
groin	257	43
buttock	138	162

→Although there were many patients with buttock symptoms, patients with skin lesion(s) in the axilla(e) indicate higher Sartorius scores. ($\chi^2=8.6378$; $P=0.03452 < 0.05$)

•**Association between PGA and average temperature**

We examined whether a climate of patient's residence would influence the disease severity. An average temperature of Japan is 15.3°C. The average temperature was classified into two categories, higher or lower, and was evaluated to have correlation with the disease severity.

	Severity (PGA)					total
	mild	moderate	severe	most severe	unknown	
15.3°C<	15	20	5	3	1	44
15.3°C≥	85	113	29	26	3	256
total	100	133	34	29	4	300

There were no significant differences between average temperature and disease severity.

•**Association between modified Sartorius score and family history.**

There was tendency where modified Sartorius score is higher in patients with family history. However, there was no significant difference between the Sartorius score and family history by using Mann-Whitney U test .

Results (treatment)

Effectiveness was categorized in four phases (CR, PR, SD, PD)

→CR, PR were considered as effective. SD and PD were considered as non-effective.

•Topical antibiotics
103 (effective: 48, non: 55)

•Oral antibiotics
208 (effective: 45, non: 163)

•Intravenous antibiotics
65 (effective: 10, non: 55)

•Surgical resection
162 (effective: 2, non: 160)

※Local injection of steroid (1), anti-TNF α antibody(1), immunosuppressive agent(4) → Because of their small numbers, statistical analysis was not performed.

There was no correlation between effectiveness of treatment and PGA by using Chi-squared test.

Discussion

In the present study, the proportion of patients categorized in Hurley I was 23%, II was 36.3%, and III was 40.3%. It was reported that Hurley I was 68%, II was 28%, and III was 4%, in Western countries¹). When compared with Westerns, many cases were severe in Japanese. A possible explanation is that some biases may exist, because the study was performed in relatively large hospitals. The summary is shown in the lower figure.

	Western	Japan
M:F	1:2	2.7:1
Onset of symptoms	10s~20s	30s
favorite site	Axilla, groin, inframammary region	Buttock
Disease severity (Hurley I : II : III)	68:28:4	23:36.3:40.3
Family history	30-40%	<4%
comorbidity	Obesity, Diabetes mellitus, Crohn disease, Hirsutism	Diabetes mellitus

Conclusions

These data suggested that the backgrounds of Japanese HS patients were different from those of Western countries; 1) male predominance, 2) more cases of Hurley II and III, 3) more sever forms in patients with axilla lesion, 4) less family history.

References

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