Clinical Features of Female Cluster Headache in Prospective Cluster Headache Registry

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Background and Purposes

Cluster headache (CH) is well known as a predominantly young male disorder. Therefore, most of the clinical characteristics of CH have been established through observation of men with CH. Epidemiological data of female CH are scarce especially in the Asian population. Here, we sought to assess the prevalence and clinical characteristics of female CH in comparison with male CH in prospective CH registry.

Methods

This study was performed using data obtained from the Korean Cluster Headache Registry (KCHR) study, a multicenter, cross-sectional registry that used prospectively collected data from consecutive patients with CH treated at the neurology outpatient departments of 16 hospitals in Korea between August 2016 and December 2018.

All participants were examined by each investigator to confirm that the diagnosis fulfilled the criteria of the International Classification of Headache Disorders, 3rd Edition (ICHD-3) for CH and asked to complete questionnaires.

Investigators obtained the demographics and recorded the clinical information about each patient's current and previous bouts of CH.

Each patient completed a self-administered Headache Impact Test-6 (HIT-6), the Patient Health Questionnaire-9 (PHQ-9) to assess depression, the Generalized Anxiety Dirorder-7 (GAD-7) to assess anxiety, EuroQol EQ-5D index to measure their health-related quality of life, and the Short Form Perceived Stress Scale-4 (PSS-4) to assess psychological stress.

Results

In total, 250 patients were enrolled in this study; 41(16.4%) were female CH patients (male to female ratio 5.1:1). Age did not differ between women and men (38.0±13.2 vs 37.9±10.0), and mean age of onset was 30.7±15.5 years in female and 29.0±11.1 years in male (Table 1).

The key clinical features of CH in men and women were similar, with no afferent differences in pain severity, duration, and attack frequency (Table 2).

Severity of current headache attack based on numeric rating scale (0-10) did not differ between female and male (8.9±1.3 (5-10) vs 9.0±1.2 (4-10)). Mean attack duration was similar between female and male (86.4±65.3 minutes vs 105.8±115.9 minutes, p=0.307).

Tendency of higher attack frequency per day was suggested in female, but did not reach statistical significance (Female to male, 2.5±2.2 vs 2.0±1.7, p=0.144). Cluster years (duration since first CH attack) and total cluster bouts since first attack also did not differ between sex (Table 2).

Diurnal periodicity was similarly reported in both female and male patients. However, depression scale assessed by Patients Health Questionnaire (PHQ-9, 11.0±8.5 vs 7.0±5.8, p=0.009) and stress (Perceived Stress Scale 4, PSS-4, 7.5±3.4 vs 6.4±3.0, p=0.045) were significantly higher in female CH than male CH (Table 3).

Conclusions

Main findings of present study based on prospective registry in Korean CH population were 1) the prevalence of CH in in women was lower than CH in men as compared to contemporary reports from Western countries 2) clinical features generally did not differ between male and female.

However, psychiatric comorbidities such as depression and stress might be highly associated with women with CH.

Table 1. Comparison of demographic features between women and men

	All	Women	Men	P
	N=250	N=41	N=209	
Age (yrs)	37.9±10.5 (18-79)	38.0±13.2 (18-79)	37.9±10.0 (18-68)	0.941
Age of onset (yrs)	29.3±11.9 (9-78)	30.7±15.5 (11-78)	29.0±11.1 (9-67)	0.49
Cluster years	8.6±7.9 (0-39)	7.3±8.3 (0-28)	8.9±7.9 (0-39)	0.23
Current alcohol	123/235 (52.3%)	7/38 (18.4%)	116/197 (58.9%)	p<0.001
Current smoking	109 (43.6%)	5 (12.2%)	104 (49.8%)	p<0.001
Migraine history	36 (14.4%)	12/41 (29.3%)	24/205 (11.7%)	0.004
BMI	24.0±3.1 (14.0-34.8)	22.5±3.5 (16-33.8)	24.3±3.0 (14.0-34.8)	0.001

Table 2. Clinical characteristics of Cluster headache

	Women	Men	P
	N=41	N=209	
Attacks per day	2.5±2.2	2.0±1.7	0.144
Attack duration (min)	86.4±65.3	105.8±115.9	0.307
Headache severity (NRS)	8.9±1.3 (5-10)	9.0±1.2 (4-10)	0.53
Total bouts number	11.7±18.0 (1-100)	11.5±14.4 (1-100)	0.952
Triptan effect	28/28 (100%)	112/125 (89.6%)	0.115
Diurnal periodicity	22 (53.7%)	116 (55.5%)	0.828
Seasonal periodicity	19 (46.3%)	88 (42.1%)	0.616
Mean bouts duration (weeks)	7.0±8.5	5.9±6.3	0.397
Mean out-of-bouts duration (months)	16.2±19.5	20.6±27.6	0.389

Table 3. Psychiatric comorbidities and headache-related disabilities

	Women	Men	
	N=41	N=209	P
GAD-7	9.8±7.1	7.4±5.5	0.052
PHQ-9	11.0±8.5	7.0±5.8	0.009
PSS-4	7.5±3.4	6.4±3.0	0.045
EQ-5D	0.80±0.26	0.85±0.19	0.19
HIT-6	69.2±7.0	67.9±8.3	0.369
Presence of severe impact	33/37 (89.2)	167/205 (81.5)	0.253

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