

Cluster Headache Characteristic In Women And Men: A Comparative Study At A District Hospital In Western India

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Abstract:

Introduction: Cluster headache (CH) is a stereotypic headache disorder characterized by short lasting attacks of severe unilateral head pain with associated autonomic symptoms. Cluster headache has been considered as a disorder of men, with a male to female ratio of 4-5:1.

Aim: to study the clinical characteristics of cluster headache in women as compared to male.

Method: A cross-sectional study was carried out at District Hospital, Barmer, Rajasthan from January 2018 to September 2019. Consecutive Patients attending Headache clinic at Department of Psychiatry were selected and after taking written informed consent were included in the study. International Headache Society (IHS) criteria for cluster headache was applied onto them.

Results: out of 1450 headache patients 22 women and 88 men were identified. The mean age of onset of cluster headache in female patients was 29.35 ± 12.35 as compared to 30.25 ± 10.18 ($p=0.1781$) years in men. Both men and women had developed their first ever cluster headache by the age of 20, But women had a second peak, noted around the age of 45-50 year. Episodic cluster headache (ECH) was present in 68 % ($n=15$) of women and 73.8 % ($n=65$) of men. Miosis and ptosis were slightly less common in women than in men (miosis 14% v 28.4 %; ptosis 45.4% v 57.9%). Lacrimation (women 81.8%, men 86.3%), and nasal congestion/ rhinorrhea (women 86.3%, men 85.2%), were almost equally prevalent in women and men.

Conclusion:- Cluster headache is primarily a disorder of men, and most of its characteristics have been identified by observing male patients. The predominant cluster headache subtype in both our women and men was episodic (ECH). In our study we found a $\approx 2:1$ ratio of female patients with episodic (ECH) to chronic cluster headache (CCH). In our study, women and men had an equal mean number of attacks a day. Migraine like symptoms seem to be highly prominent in patients with cluster headache, especially in women. Female patients in our study had more nausea and vomiting than our men.

Keywords –cluster headache, migraine, nausea, vomiting.

Introduction:

headache is a common complaint among psychiatric patients. The prevalence of headache among general people and prevalence studies estimate that half to three quarters of adults aged 18 – 65 years (1). Headache can broadly be categorized into tension type headache (TTH), migraine, cluster headache, mixed migraine and tension type headache. Most common type of headache is tension headache (35%) followed by migraine (30%), combined migraine & tension type headache (12%), secondary headache (7%), medication overuse headache (6%), cluster headache (4-5%) (1). Cluster headache is a stereotypic headache disorder characterized by short lasting attacks of severe unilateral head pain with associated autonomic symptoms. Cluster headache has always been identified as a disorder of men, with a male to female ratio of 4-5:1.

Aims and Objectives:

To study the clinical characteristics of cluster headache in women as compared to male.

Methods : A cross-sectional study was carried out at District Hospital, Barmer, Rajasthan from January 2018 to September 2019. Consecutive Patients attending Headache clinic at Department of Psychiatry were selected and after taking written informed consent were included in the study. International Headache Society (IHS) criteria for cluster headache was applied onto them (2). Patients identified having cluster headache were assessed for the clinical characteristics of headache - At least five attacks of severe unilateral, orbital, supra-orbital, and/or temporal pain that last from 15 to 180 minutes untreated. The headache needed to be associated with at least one of the following signs or symptoms: lacrimation, conjunctival injection, rhinorrhea, nasal congestion, forehead and facial sweating, miosis, ptosis, or eyelid edema. (1,2) Out of 1450 patients screened, 110 patients, 88 males and 22 females satisfied the criteria

for cluster headache. Using a uniform questionnaire, we evaluated and compared patient demographics (age of onset of cluster headache, sex, locality, cluster headache type), cluster headache attack characteristics (frequency, duration), and associated symptoms. The IHS criteria, symptoms for cluster headache were collected, as well as so called “migraine like” symptoms,” including nausea, vomiting, photophobia, and phonophobia, which in the past were not thought to be typical of cluster headache and are not part of the IHS criteria.

Exclusion criteria for our study was 1)Any neurological deficit by a complete neurological examination 2)any systemic illness such as hypertension, diabetismellitus, hypothyroidism or hyperthyroidism, epilepsy 3)any other psychiatric illness.

STATISTICAL ANALYSIS:

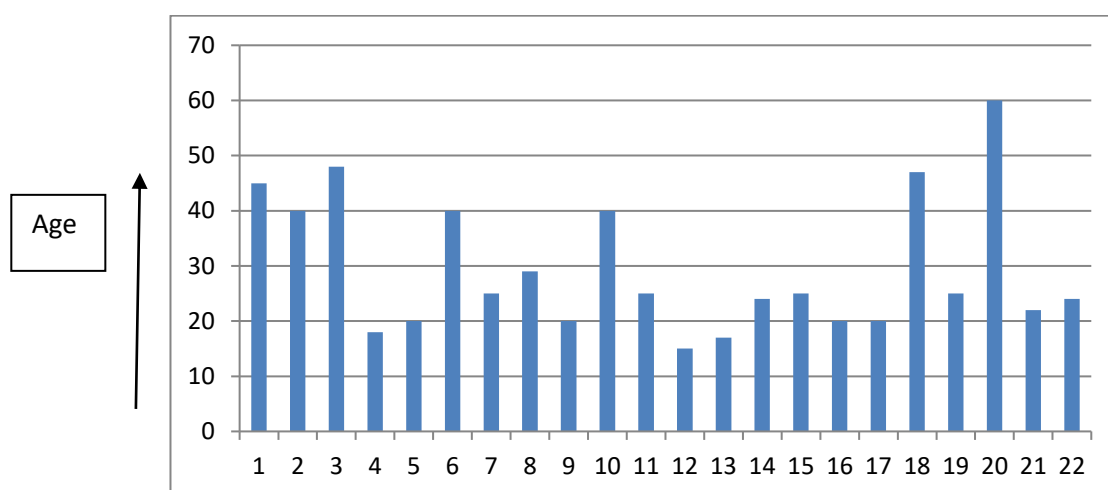


Figure. 1 Age of onset in women

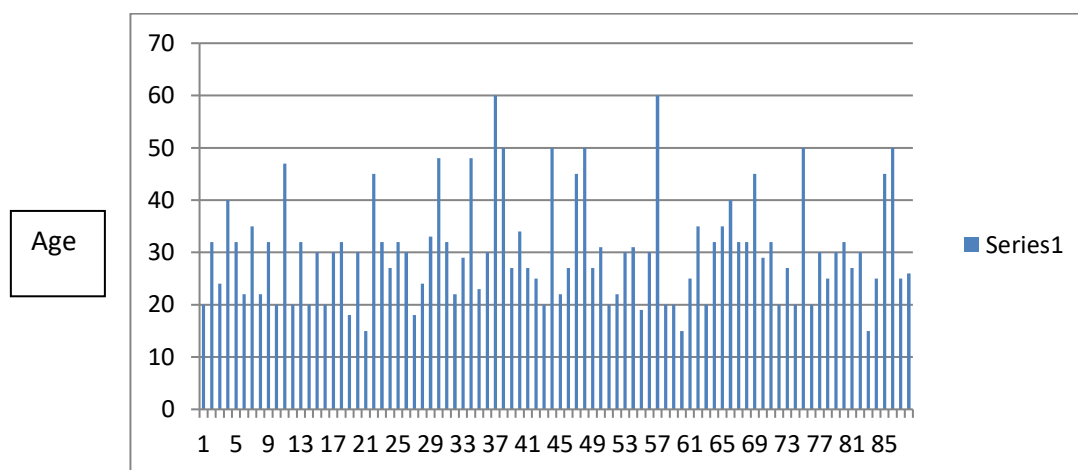


Figure 2. Age of onset in men

Table 1. Cluster headache demographics

	Women	Men	P value
Age of onset (yr)±SD	29± 12.35	30.25± 10.18	P=0.178
Locality			
Rural	7 (32%)	19(21.5%)	P=0.3997
urban	15(68%)	69(78.5%)	
Type			
Episodic (%)	15(68%)	65(73.8%)	P=0.600
Chronic (%)	7 (32%)	23(26.4%)	

Table 2. Cluster attack character

	Women		Men		
	mean	Std. Dev.	mean	Std.dev.	P value
Cluster attack Duration (min.)	68.95	22.02	88.12	34.26	P=0.0049
Frequency (attacks per day)	3.2	1.6	3.1	1.5	P=0.5678
Cluster period (weeks)	10.77	2.24	10.29	3.17	P=0.254
Remission period (months±sd)	21.63	8.30	23.01	10.16	P=0.279

Table 3. Associated symptoms in cluster headache

Symptoms	Women N(%)	Men N(%)	P value
1.Nasal congestion	19(86.3%)	75 (85.2%)	P=1.000
2.lacrimation	18(81.8%)	76(86.3%)	P=0.735
3.Ptosis	10(45.4)	51(57.9%)	P=0.341
4.Miosis	3(14%)	25(28.4%)	P=0.182
5.Vomiting	10(45.4%)	12(13.6%)	P=0.002
6.Nausea	15(68.1%)	40(45.4%)	P=0.093
7.Phonophobia	12(54.5%)	43(48.8%)	P=0.812
8.Photophobia	16(72.7%)	73(82.9%)	P=0.361

Results :22 women and 88 men were identified. The mean age of onset of cluster headache in female patients was 29.35 ± 12.35 as compared to 30.25 ± 10.18 ($p=0.1781$) years in men (table 1). Both men and women had developed their first ever cluster headache by the age of 20,. But women had a second peak, noted around the age of 45- 50. Men had one peak of onset in the 3rd decade. (figure 1 &2). 79.5 % (N=69)of men and 68% (N=15) of women were from urban locality , rest of them were rural. (table 1).

Episodic cluster headache(ECH) (more than 1 month of headache free days a year) was present in 68 %(n=15) of women and 73.8 % (n=65) of men. Chronic cluster headache(CCH) occurred in 32% (n=7) of women and 26.4 % (n=23) of men (table 1).

Both women and men averaged almost three attacks a day (women 3.2, men 3.1)with no significant difference, but the duration of each individual attack was significantly shorter in women (68.95minutes) than in men (88.12 minutes) ($p=0.0049$) (table 2).

Cluster headache period duration was not significantly different in women and men (10.77 weeks v 10.29 weeks). Average remission period was almost equal in women (21.63 months) and men (23.1 months).Women experienced more nausea than men (68.1% v 45.4%)., $p=0.09$ and significantly more vomiting (45.4% v 13.6%, $p=0.002$).

Miosis and ptosis were slightly less common in women than in men (miosis 14% v 28.4 %; ptosis 45.4% v 57.9%) . Lacrimation (women 81.8%, men 86.3%) and nasal congestion/ rhinorrhea (women 86.3%, men 85.2%) were almost equally prevalent in women and men (table 3). Photophobia occurred in 72.7% of women and 82.9% of men, and phonophobia occurred in 54.5% of women and 48.8% of men (table 3).

Discussion :

Cluster headache is primarily a disorder of men, and most of its characteristics have been identified by observing male patients. The reason for the male predominance is may be due to male sex hormones or specific male behavioral traits. During periods of cluster headache, there is a lowering of serum testosterone concentration; this may be a cause or a consequence of the headache, and may be due to hypothalamic involvement (3,4) .Men are more prone to head trauma, which may cause cluster headache and person with cluster headache is more prone to have traumatic head injury(5) .Men have had heightened stressors of daily living (money maker, physical laborer)compared with women, and this may have predisposed them to developing cluster headache. Men also consumed more alcoholic beverages and smoked more cigarettes than women, and these social activities have been linked to genesis of the disorder (6,7). Cluster headache seems to be increasing in women, which may be secondary to women taking on the occupations and vices of men. The disorder in women is not exactly the same as in men. Women may have two peaks of age of onset compared

with only one in men. Most women will have their first ever cluster headache attack by the age of 20, whereas men do not develop cluster headache until after age 20(8). The early development of the disorder in women has been shown in several other studies, including that performed by Manzoni *et al*(9) who found the mean age of onset in women to be 30.4 ± 15.7 years versus 30.1 ± 13.0 years in men, and Ekbom *et al*(10), who reported the mean age of onset to be 28.8 ± 13.6 years in women and 29.5 ± 11.4 years in men. Two peaks of onset of cluster headache in women have been shown in two other studies: Rozenet *et al*(8)(2nd and 5th decade) and Kudrow(11) (3rd and 6th decade). These results suggest that our findings are real and not artifacts. Most of our patients were from urban localities. This may be due to the common tendency of patients to seek treatment of 'minor illnesses' like headache and body ache from locally available practitioner.

The predominant cluster headache sub type in both our women and men was episodic(ECH), which occurred in about 75% of patients. This is the most common subtype found in most epidemiological studies and typically occurs in more than 80% of patients.(11,13). Very few studies have looked at chronic cluster headache(CCH), but the ones that have shown it to be almost non-existent in women, with an 18:1 ratio of male to female patients. Ekbom and Waldenlind,(14) as late as 1982, had not identified a single case of chronic cluster headache in women. Our study suggests that not only does chronic cluster headache(CCH) occur in women but it may do so to the same extent as in men. Manzoni *et al* in 1988(15) found 13 of 82 women with chronic cluster headache and were one of the first groups to disagree with the notion that it is rare in women. Why was chronic cluster headache(CCH) not identified more often in women in the past? It may have been misdiagnosed as chronic migraine(16,17) or it may have been thought to be cluster headache but not diagnosed as such because this primary headache disorder was not supposed to occur in women(18). In our study we found a $\approx 2:1$ ratio of female patients with episodic(ECH) to chronic cluster headache(CCH). In our study, women and men had an equal mean number of attacks a day ($\approx 3/\text{day}$). The individual attack duration was shorter in women than in men (68.95 minutes *v* 88.12 minutes; $p=0.049$); which shows a significant difference in cluster attack duration. Manzoni *et al*(15) found a tendency for shorter attack duration in women, with equal attack frequency in women and men. Kudrow(11) by contrast, found that women had longer attack duration (on average 30 minutes longer) than men. The period duration(11.77 weeks *v* 10.29 weeks, $p=0.254$) and remission times(21.63 months *v* 23.01 months, $p=0.279$) were about equal between the sexes. Most previous large scale studies on cluster headache have shown an equal period duration in women and men(11,15,23). Kudrow(11) found equal remission times for men and women.

Cluster headache is reportedly driven or modulated by the suprachiasmatic nucleus of the hypothalamus (the circadian clock). Positron emission tomography studies during attacks showed an ipsilateral activation at the base of the third ventricle in the hypothalamic grey (suprachiasmatic nucleus) region.(19,20) Human circadian rhythms are basically fixed and static. This may be why most patients have a fixed number of cluster attacks a day and periods a year during their entire life. Both women and men have the same attack characteristics; thus, generation of cluster headache attack seems to be a sex independent process that is most likely driven by the hypothalamus.

Based on the results from large studies, the mean frequency for the typical autonomic symptoms with cluster headache are lacrimation 73%, conjunctival injection 60%, rhinorrhea 22%, nasal congestion 42%, and partial Horner's syndrome 50%(8,11-13,21-23).

In our study, women had less ptosis and miosis than men albeit statistically insignificantly, but an almost equal frequency of lacrimation, nasal congestion, and rhinorrhea. This suggests that women may have less sympathetic dysfunction with cluster headache than men, but equal frequency of parasympathetic activation. Symptoms that are generally associated with migraine (nausea, vomiting, photophobia and phonophobia, and aura) have been poorly studied in patients with cluster headache. Migraine like symptoms seem to be highly prominent in patients with cluster headache, especially in women. Female patients in our study had more nausea and vomiting than our men. Manzoni *et al*(15) also found that nausea was more common in women than men. They could not find any gender related differences in cluster headache symptoms. Almost 68% of our women had nausea and 45% had vomiting(table 3). This is much higher than reported, suggesting that these symptoms are closely tied to female cluster headache alone and not male cluster headache. Photophobia and phonophobia were frequent symptoms in both men and women in our study population. Similar findings were also reported by Vingen *et al*(24). They reported frequency of photophobia in 91% of 50 patients and phonophobia in 89%. Overall, the clinical characteristics of cluster headache in both male and female patients was similar indicating a common pathogenesis. Female patients seem to develop the disorder at an earlier age of onset than men and experience more migraine like symptoms in cluster headache, especially vomiting. More studies of women having cluster headache need to be carried out for better understanding of the clinical characteristics and etiopathogenesis of this disorder.

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