

ALLODYNIA IN MENSTRUALLY RELATED MIGRAINE

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ABSTRACT

- Allodynia is important in migraine and it is recognized as a central sensitization signal during migraine attacks. It is suggested as a risk factor for chronicity of migraine.^{1,2,3}
- Clinical and population based studies have reported that cutaneous allodynia affects about two thirds of migraine patients and appointed female sex, obesity, depression, temporomandibular disorders, and higher severity and frequency of attacks^{1,4,5} as risk factors for its development.
- Menstrually related migraine has been reported to be more frequent than non-menstrual migraine in patients who develop cutaneous allodynia during migraine attacks.⁶
- Symptoms of allodynia in migraine were associated with current anxiety, depression, and several chronic pain conditions⁷ and also presents with younger age of migraine onset, and with cigarette smoking, in addition to confirming several previously reported findings.⁷
- Migraine is a prevalent neurological disorder that affects 4 out of 10 women and 2 out of 10 men, especially before 35 years of age.⁸
- Thus, a sample of women with menstrual migraine was selected and menstrual and no menstrual attacks were compared, in order to clarify whether allodynia is more prevalent and severe in menstrual attacks.

OBJECTIVES

- The aim of this study was to analyze the allodynia score in headache attacks related and not related to menstruation in women diagnosed with menstrually related migraine without aura.⁹
- The 12 Item Allodynia Symptom Checklist (ASC-12) was used as a tool.¹⁰

METHODS

- This was a prospective cohort study.
- Women patients who sought outpatient or private practice for headache complaint were screened and selected by the neurologist (that is a headache specialist neurologist) responsible for the study. After signed the Subject Information and Consent Form, patients that filled menstrual migraine criteria in accordance with ICHD3 (Beta III) were included.
- A total of 32 women were included.
- Participants were monitored during about a month. The women included in the study were instructed in filling the headache diary and in self-administering the ASC-12. This activity was performed in a headache attack, after 1, 2, 4, and 24 hours from the onset of pain attack in the days of menstrual pain crisis (-2 to +3 days from the 1st day of menses), as well as in a crisis out of menstruation, in the same number of hours (1, 2, 4, and 24 hours), from the onset of pain attack (out of -2 to +3).

Statistical Analysis

- This study adopted a sample of convenience. ASC-12 scores were analyzed by repeated-measure ANCOVA. Pearson's Chi-square (χ^2) statistics was used for testing possible associations between migraine attack conditions (MM+ vs MM-) and ASC-12 categorical data (i.e., "None", "Mild", "Moderate", and "Severe").

RESULTS

➤ A total of 600 women with headache complaints were met in the period from March, 2013 to July, 2014 in a neurology clinic and a neurology ambulatory.

➤ From this total, 55 participants were included, twenty-three of the 55 women were excluded from study (by withdrawal).

➤ Thus, the study was completed with 32 participants.

1- DEMOGRAPHICS

➤ The average age was 27.3 (6.7) years; of menarche age was 12.4 (1.0); of BMI was 22.16 (2.8); and of years living with migraine was 11.5 (7.4) years.

The demographic characteristics are shown on the Table 1.

Table 1: Demographic characteristics of the sample

AGE OF PARTICIPANTS		EDUCATION		SATUS	
17-25	14 (43.7%)	Complete medium	7 (21.88%)	Married	11 (34.38%)
27-30	8 (25%)	Incomplete medium	3 (9.38%)	Divorced	1 (3.13%)
31-34	6 (18.75%)	Complete higher	13 (40.63%)	Single	20 (62.5%)
38-44	4 (12.5%)	Incomplete higher	9 (28.13%)	Total	32
BMI		ETHNICITY		CONTRACEPTIVE	
Low weight	3 (9.38%)	White	31 (96.88%)	No	10 (31.25%)
Ideal weight	24 (75%)	Afrodescendant	1 (3.13%)	Yes	22 (68.75%)
Overweight	5 (15.63%)				32
PROFESSION		AGE OF MENARCHE		HEADACHE ONSET AGE (YEARS)	
Student	14 (43.75%)	10	1 (3.13%)	5 to 10	7 (21.88%)
Lawyer	3 (9.38%)	11	5 (15.63%)	11 to 15	10 (31.25%)
Manageress	2 (6.25%)	12	10 (31.25%)	16 to 20	6 (18.75%)
Nurse	2 (6.25%)	13	12 (37.5%)	21 to 26	9 (28.13%)
Secretary	2 (6.25%)	14	4 (12.5%)		32
Other (1 each)	9(28.12%)		32		

2- ALLODYNIA ASSESSMENT

➤ Scores of allodynia in a menstrual pain attack (MM +) and non-menstrual (MM-), after 1, 2, 4, and 24 hours from the onset of pain is shown on the table 2

Table 2: Allodynia in a MM + and MM-, after 1, 2, 4, and 24 hours of onset of pain

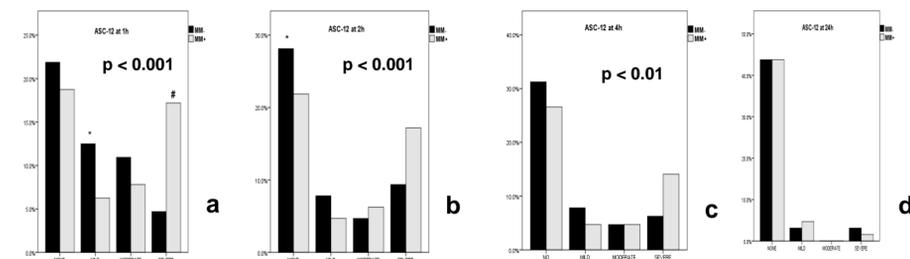
ALLODYNIA	MM+	MM-	MM+	MM-	MM+	MM-	MM+	MM-
	1 h	1h	2 h	2h	4 h	4h	24 h	24h
Absent (0-2)	12 (37.5%)	14 (43.75%)	14 (43.75%)	18 (56.25%)	17 (53.13%)	20 (62.5%)	27 (84.4%)	28 (87.5%)
Mild (3-5)	4 (12.5%)	8 (25%)	3 (9.4%)	5 (15.6%)	3 (9.4%)	5 (15.6%)	4 (12.5%)	2 (6.25%)
Moderate (6-8)	5 (15.6%)	7 (21.9%)	4 (12.5%)	3 (9.4%)	3 (9.4%)	3 (9.4%)	0	0
Severe (9-15)	11 (34.4%)	3 (9.4%)	11 (34.4%)	6 (18.75%)	9 (28.13%)	4 (12.5%)	1 (3.13%)	2 (6.25%)

3-PROPORTION OF ALLODYNIA SCORE

➤ Pearson's χ^2 categorical analyses showed significant associations between ASC-12 categories and conditions of migraine attacks (Figure 1a-d).

➤ There were higher proportion of patients reporting ASC-12 categories "None" or "Mild", 1h and 2h, respectively, after the onset of attack in the MM- condition (Figures 1a-b), while there were higher proportion of patients reporting ASC-12 "Severe" 1h after the onset of attack in the MM+ condition (Figure 1a).

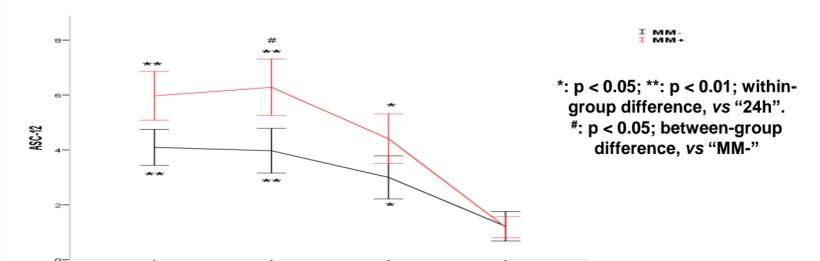
Figure 1a-d – Proportion of patients by ASC-12 categories



4-MULTIPLE PAIRWISE COMPARISONS FOR GROUPS (ANCOVA)

- There were significant within-group differences in ASC-12 scores.
- Multiple pairwise comparisons showed and increased ASC-12 scores at 1h, 2h, and 4h compared to 24h for either MM- or MM+ conditions (Figure 2). For between-group effects, there was a significant effect of the covariate age of menarche (p = 0.002), years living with migraine (p = 0.03), but no effect of BMI, or contraceptive use on ASC-12 scores between MM- or MM+ conditions. Multiple pairwise comparisons showed significant higher ASC-12 scores in MM+ group compared to MM- group at 2h (p = 0.049).

Figure 2 – Allodynia symptoms checklist-12 scores of migraine attacks at MM+ and MM- conditions



CONCLUSIONS

- The results of this study demonstrated that allodynia severe scores are in higher proportion of women in a menstrual pain attack compared to non-menstrual pain crisis in 1, 2, and 4 hours after the onset of migraine attack in women with menstrually related migraine.
- And there are higher proportion of women reporting ASC-12 categories "None" or "Mild", at no menstruation attack.
- There were significant within-group differences in ASC-12 scores from 1h to 24h.
- There were between-groups differences in ASC-12 scores for 2 hours
- There was a significant effect of the covariates age of menarche and years living with migraine, but no effect of BMI or contraceptive use.

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