



Prevalence and Characteristics of Allodynia in Headache Sufferers: Results from the American Prevalence and Prevention Study



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BACKGROUND

Cutaneous allodynia (CA) is defined as pain resulting from an innocuous stimulation of normal skin.

CA is a marker of sensitization of central nociceptive neurons. CA seems to occur in the majority of migraineurs during the headache attack, when assessed by quantitative sensory testing (QST).

CA may be associated with refractoriness to triptan therapy in patients with migraine.

The prevalence of CA in primary headaches other than migraine in the population is poorly described. Because CA has been recently suggested as a risk factor for migraine progression, we hypothesized that the prevalence and severity of CA would be higher in transformed migraine (TM) than in migraine, and in migraine than in other primary headache disorders.

OBJECTIVE

To estimate the prevalence and severity of cutaneous allodynia (CA) in subjects with various types of primary headaches from the general population.

METHODS

We mailed questionnaires to a random sample of 24,000 severe headache sufferers identified in the screening phase of the American Migraine Prevalence and Prevention (AMPP) study. The questionnaire included the validated 12-item Allodynia Symptom Checklist (ASC), as well as measures of headache features, MIDAS-based disability and comorbidities.

We modeled headache status, as well as frequency of headaches and disability as dependent variables in multivariate analyses. Covariates included demographic variables, headache frequency, severity, and duration of illness, comorbidities (depression, chronic pain), use of preventive medication and use of opioids.

RESULTS

Of 16,577 respondents, among those aged 18 or older who had a headache in the past year who endorsed at least one of the 12 allodynia scale items (N=15,868), 11,094 (69.91%) individuals met ICHD-2 criteria for migraine (M), 1,233 (7.77 %) met criteria for probable migraine (PM), 771 (4.86%) for severe episodic tension-type headache (S-ETTH), 643 (4.05%) had transformed migraine (TM) and 155 (0.98%) had other chronic daily headache (O-CDH).

The relative frequency of CA (defined as an ASC-12 score of 2 or higher) was higher in those with TM (68.3%) than in episodic migraine (63.2% p<0.01), and in both of these groups compared to PM (42.6%), O-CDH (36.8%) and S-ETTH (36.7%) (p<0.001) (Figure 1). It is interesting to note that the relative frequency of mild and moderate CA was remarkably stable among the headache groups, while severe CA significantly varied (Figure 1). In TM sufferers, 23.7% had mild, 16.1% moderate and 28.5% severe CA. Among migraineurs, mild CA was present in 24.1%, moderate CA in 17.7%; severe CA in 20.4%. In PM subjects, severe CA happened in just 12.3%. In O-CDH, it occurred in 6.2% and in S-ETTH 5.1% (Figure 1).

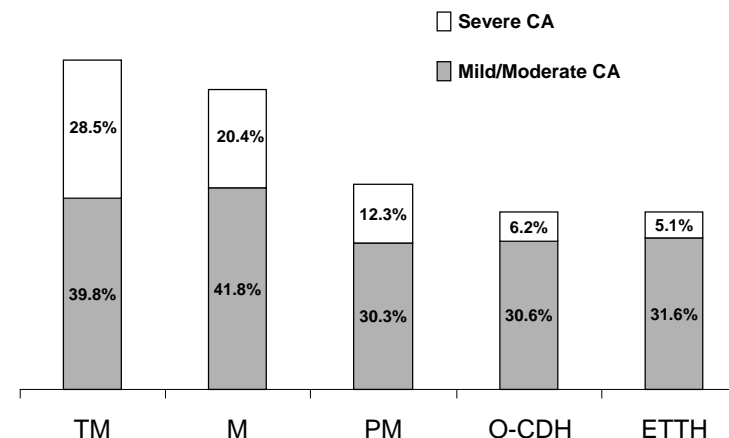


Figure 1: Prevalence and Severity of CA by Headache Subtype.

Figure 2 presents the mean ASC scores per headache diagnosis. Overall, the scores were significantly higher in TM (5.5±5.0) than in migraine (4.6±4.5) and in both TM and migraine than in O-CDH (1.59±2.5), PM (0.8±1.9) and S-ETTH (2.15±2.99) (p<0.001 for all comparisons). The ASC scores were not significantly different among PM, O-CDH, and S-ETTH. For all the primary headaches, the overall ASC scores were higher in women than in men (Figure 2).

In adjusted models for migraine, the prevalence of CA was not significantly different in Caucasians and African Americans and it did not vary with education level. CA was significantly more common in women than men [Prevalence Ratio (PR)=1.4 (95% CI=1.28-1.59)], in those with longer illness duration (10-19 years vs. <10 years; PR=1.15, 95% CI=1.06-1.25) and those with more disability (MIDAS Grade IV vs. I, PR=1.61, 95% CI=1.46-1.75).

Prevalence of CA increased with headache frequency and decreased with age after adjustments for headache frequency (65-74 years vs. 18-24 years, PR=.07, 95%CI= 0.6-0.9). For all headache types, individuals with major depression had higher ASC scores than individuals without depression.

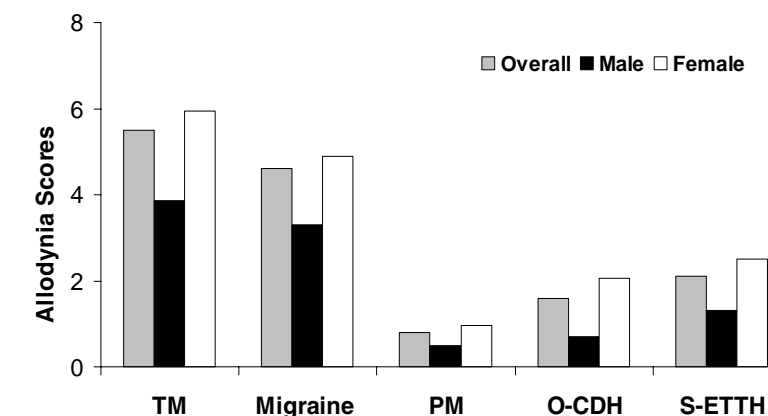


Figure 2: Mean Allodynia Symptom Checklist Score, Overall and by Gender, in Individuals With Primary Headache Disorders.

CONCLUSION

- The prevalence of CA is highest in TM and episodic migraine, intermediate in PM and lower in S-ETTH and O-CDH. Therefore, CA may map onto migraine biology and to the migraine spectrum. The severity of CA also follows the same profile. CA was found to occur more often in women than in men for all primary types of headache.**
- In migraineurs, other independent risk factors for CA are high attack frequency, long disease duration and disability. Depression is independently associated with higher CA scores for all headache types.**