

Odors as triggering and worsening factors in migraine

Odores como fatores desencadeantes e de piora na enxaqueca

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SUMMARY

Objective. Triggering and worsening factors in migraine are important for the diagnosis of this condition. The aim of the present study was to evaluate the role of odors as triggering and worsening factors in migraine. **Methods.** Prospective study by means of questionnaire, assessing odors as triggering and/or worsening of attacks. **Results.** The evaluation of 198 migraineurs showed that 29% of them consider odors to be triggering factors for migraine, while 30% consider them to be a worsening factor for the intensity of their headache. **Conclusion.** Although odors seem to be an important factor related to migraine, the study of their role is rare in the literature.

Keywords: Headache. Migraine disorders. Odors.

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RESUMO

Objetivos. Fatores desencadeantes e fatores de piora da enxaqueca são importantes para o diagnóstico desta condição. O presente estudo visa avaliação do papel dos odores como fatores desencadeantes e de piora de enxaqueca (migrânea). **Método.** Estudo prospectivo através de questionários, avaliando a presença de desencadeamento e/ou piora da enxaqueca por odores. **Resultados.** A avaliação de 198 indivíduos portadores de enxaqueca mostrou que 29% consideram odores como desencadeantes de crises e 30% consideram que sejam um fator de piora na intensidade da cefaléia. **Conclusão.** Embora odores pareçam ser um importante fator relacionado à enxaqueca, o estudo do papel dos odores é raro na literatura.

Unitermos: Cefaléia. Transtornos de enxaqueca. Odores.

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INTRODUCTION

Migraine patients often report to be intolerant to odors. This is a typical characteristic of this clinical condition, not found in other primary headaches¹. Although osmophobia may be present in approximately 40% of migraineurs¹, the international classification of headaches² does not include osmophobia as part of the diagnostic criteria for migraine. Olfaction in migraine presents other characteristics, such as a tendency to hyposmia or anosmia³. Migraneurs also have a tendency to interpret some odors as unpleasant; even though the general population does not feel the same odors as such⁴. Olfactory thresholds seem to be considerably lower in migraineurs, and those who report hypersensitivity to smells between attacks, also seem to be the same individuals who report osmophobia during the attacks⁵.

Despite the clinical experience of all doctors who see migraine patients in a regular basis and agree that osmophobia is a typical finding in this condition, few papers evaluate this finding^{1,3-6}. Indeed, osmophobia, dysosmia and hyperosmia were a few of the features that led investigators to consider migraine to be a neural, rather than a vascular disease two decades ago^{6,7}.

The objective of the present paper was to assess the role of odors as both triggering and worsening factors of migraine attacks. Positive results from this work may have practical use for the daily clinic.

METHOD

The Ethical Committee of Universidade Metropolitana de Santos, SP, approved the present study.

Individuals from the general population with diagnosis of migraine for at least one year and who presented at least one migraine attack per month were invited to participate in this study. All participants had a minimum of 12 years of formal schooling. Diagnosis of migraine was given previously by the participant's physician, and confirmed by completing the ICH-2004² criteria for migraine. Probable migraine cases (fulfilling all but one criteria) were not included.

They answered a questionnaire with two parts: the first one confirmed the clinical features of migraine according to the International Headache Society². The second part of the questionnaire contained a list of factors known to trigger and/or to worsen migraine attacks. The participants were not aware of our interest in identifying any specific fac-

tor and odors were included among the list of factors, without any special mention to them.

The findings were analyzed as percentage of the total sample, presented as descriptive, without any statistical method for the analysis, due to the characteristics of this study.

RESULTS

A total group of 198 individuals (24 males, 174 females) aged between 17 and 66 years (average = 27 years) answered the questionnaire. All participants had at least one triggering and one worsening factor. A summary of all results is presented in table 1.

Odors were considered to be a triggering factor for migraine in 29% of all cases, an even higher percentage than that related to sounds or alcohol. It was reported to be a worsening factor for 59 individuals (30% of the total), and 39 of them (20%) described odors as both a triggering and a worsening factor for their migraine.

Among all odors described to be a trigger or worsening factor, perfume was the most important. For people sensitive to odors, it was described to trigger migraine in 77 individuals (39%) and worsen the intensity of the headache attack in 74 individuals (38%). The smell of cigarettes was in second place, with 55 individuals (28%) describing it to be a triggering factor and 48 individuals (25%) mentioning it as a worsening factor. Cleaning products were described to be an important triggering factor (45 individuals – 23%), while kerosene was a worsening factor for 43 individuals (22%). Other odors were described by less than 20% of the whole group and included alcohol, wax, food, petrol, and pollution among others.

DISCUSSION

Although not an item on the diagnostic criteria for migraine², specific sensitivity to odors seems

Table 1. Triggering and worsening factors for migraine according to 198 individuals presenting migraine for at least one year, at least on attack per month.

Parameter	Triggering factor (%)	Worsening factor (%)
Anxiety	76	53
Strong light	35	63
Odors	29	30
Noise	25	54
Crying	38	42
Alcohol	13	13
Others	27	15

to be an important component in the history of these patients. The present work showed that up to 30% of all migraine patients report odors as either a triggering or a worsening factor for their headache. Indeed, 20% of all migraineurs from this sample reported odors to be both triggering and worsening. This finding was not restricted to unpleasant smells, and perfume rated high as the most important factor in this population. Among the limitations to these findings, it should be mentioned that assessment of odors is subjective, since the definition of each odor is subjective in itself.

The relatively small sample of males may have created bias in this work. While for males, the cleaning products were described as a very frequent triggering and worsening factor, for females the perfumes and cigarettes rated higher. It is also possible that a population of patients from a headache specialized service might give different results, but the aim of the present work was to assess the general population and not patients from a clinic. When the inclusion criteria were presented to volunteers, i.e., at least one migraine attack per month over the last year, the male population presenting themselves for the questionnaire was reduced to a small group of men. In order to maintain the population as such, many more women were included and results for a population of men may be different. This is the subject of a forthcoming study.

CONCLUSION

Although neurologists working daily with migraine patients frequently see osmophobia, so far it is the subject of only a few papers.

Results from investigative studies such as this one may give rise to further criteria in diagnosing migraine. They may also be of help in daily headache practice, giving orientation towards avoidance of certain odors, identified by the patients and noxious, as part of migraine treatment.

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