

Headache is associated with lower alcohol consumption among medical students

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ABSTRACT

The aim of this study was to investigate the association between headache and alcohol consumption among medical students. 480 medical students were submitted to a questionnaire about headaches and drinking alcohol. Headache was assessed by ID-Migraine and functional disability was evaluated with MIDAS. The evaluation of alcohol consumption was assessed with Alcohol Use Disorders Identification Test (AUDIT). There was significantly lower proportion of students with drinking problem among students with headache. This occurred both among students classified as having migraine and among those who had non-migrainous headache. There was not a correlation between functional disability of headache and AUDIT score. Our data suggest that having headache leads to a reduction in alcohol consumption among medical students regardless the degree of headache functional impact.

Key words: alcohol, migraine, headache, medical students.

Cefaleia está associada com baixo consumo de álcool entre estudantes de medicina

RESUMO

O objetivo deste estudo foi investigar a associação entre cefaléia e consumo de álcool entre estudantes de Medicina. Quatrocentos e oitenta estudantes foram submetidos a um questionário. A cefaleia foi avaliada através da versão em português do "ID-Migraine" e o grau de comprometimento funcional da cefaleia foi avaliado pelo MIDAS. O padrão de consumo de bebidas alcoólicas foi avaliado pelo "Alcohol Use Disorders Identification Test (AUDIT)". Houve uma proporção significativamente menor de problemas relacionados ao álcool entre estudantes com cefaleia, tendo isso sendo verificado tanto nos estudantes com migrânea, quanto naqueles com cefaleia não migranosa. Não houve correlação entre o grau de comprometimento funcional da cefaleia com o padrão de consumo de bebidas alcoólicas. Nossos dados sugerem ter havido redução na quantidade de bebidas alcoólicas ingeridas nos estudantes com cefaleia, independentemente do grau de comprometimento funcional da cefaleia.

Palavras-chave: álcool, migrânea, cefaleia, estudantes de medicina.

Migraine is a common and disabling primary headache disorder¹⁻³. It has been reported that alcohol ingestion may trigger headache attacks in patients with migraine and tension type headache⁴⁻⁶. Some studies have shown that subjects with migraine have less alcohol consumption than subjects without migraine⁷. One possible explanation for this difference is that al-

cohol triggers migraine attacks leading patients to avoid it⁸. However, this difference was not found in some other population studies^{9,10}. Therefore, more studies are still needed to clarify the relationship between headache and alcohol consumption. The pattern of alcohol consumption has not been previously evaluated among university students with headache.

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Drinking alcohol beverages has been associated with adverse social and health consequences in several populations, including young people and medical students¹¹⁻¹³. However, little is known about the factors related to the pattern of alcohol consumption in this population. It is unknown if the presence of primary headaches may influence the pattern of alcohol ingestion among young people and among medical students.

In this study we evaluate the alcohol consumption among medical students with and without headache and assess the correlation between the headache functional impact and the pattern of alcohol consumption.

METHOD

This is a cross sectional, community-based study. All medical students from the first to the fourth year of the Escola Superior de Ciências da Santa Casa de Vitória (EMESCAM), Vitória ES, Brazil received a questionnaire about headache and alcohol consumption. The questionnaire was distributed to 480 students and three hundred ninety eight students (82.9%) completed the evaluation. The questionnaires were fulfilled by the students and they were asked to return the questionnaire to the principal investigator. Age, gender were asked.

The alcohol consumption was assessed with the Portuguese validated version of Alcohol Use Disorders Identification Test (AUDIT)¹⁴. The AUDIT scores were categorized into four groups: [a] below 8 - not diagnosable alcohol problem; [b] 8 to 11 - concerning consumption of alcohol; [c] 12-15 - serious indication of a drinking problem; and [d] above 15 - drinking problem^{15,16}. We also compared the proportions of students without headache (controls), with migraine, and with non-migrainous headache reporting no alcohol consumption (AUDIT=0) with the proportions of students in these groups reporting any degree of alcohol consumption (AUDIT>0).

The students were asked about their headaches in the last year. The portuguese version of ID-migraine was used to screen for migraine diagnosis¹⁷. Those who gave positive responses to two or more of the three questions were classified as having migraine. Those who had headache but gave positive responses to only one of the three questions were classified as having non-migrainous headache. The impact of migraine was assessed with migraine disability assessment (MIDAS) inventory^{18,19}.

The Kruskal-Wallis test was used for the comparison of AUDIT between students with without headache, with non-migrainous headache, and migraine. Dunn's Multiple Comparison Test was used for post-hoc analysis between groups. The Chi-square test was used to compare the proportions of students in each of the four categories of AUDIT scores in students without headache, with non migraine headache, and migraine. The correla-

tion between AUDIT score and MIDAS score was evaluated with Spearman test. All the calculations were performed using GraphPad Prism version 4.00 for Windows software (GraphPad Software Inc., San Diego, CA, USA). The level of significance was set at $p < 0.05$.

This study received full approval by the Ethics Committee on Research of the Escola Superior de Ciências da Santa Casa de Vitória (EMESCAM), Vitória, Brazil and informed consent was obtained from each participant.

RESULTS

Of the three hundred and ninety eight students (82.9%) who completed the evaluation two hundred twenty four (56.3%) of them were women. The male female proportion of students returning the questionnaire was the same of the proportion of students who received the questionnaire ($p=0.89$). The mean \pm SD age of the students was 20.7 ± 2.3 years. The distribution of the students in the AUDIT categories was: <8, 309 students (77.6%); 8-11, 52 students (13.1%); 12-15, 24 students (6%); and >15, 13 students (3.3%). Thirty seven (9.3%) students had serious indication of drinking problem or drinking problem according to AUDIT score. Serious indication of drinking problem or drinking problem was found in 20% of the students without headache, 8.6% of the students with non-migrainous headache ($p=0.0005$), and 4% of the students with migraine ($p<0.0001$). These data are presented in the Table. The proportions of students reporting no alcohol consumption were: controls, 21.3%; migraine, 27.2%; and non-migrainous headache, 28.3% ($p=0.5$).

The mean \pm SE AUDIT scores were: controls, 7.26 ± 0.7 ; migraine, 2.86 ± 0.34 ; non-migrainous headache, 4.23 ± 0.34 ($p<0.0001$). In post-hoc analysis both migraine and non-migrainous headache scores were significantly different from controls ($p<0.001$) (Figure). There was not a correlation between the functional disability score (MIDAS) and alcohol consumption score among

Table. Proportions of controls, with migraine, and with non-migrainous headache in the four different AUDIT groups.

	Controls (n,%)	Migraine (n,%)	Non-migrainous Headache (n,%)
AUDIT			
<8	42 (56.0)	108 (86.4)	159 (80.3)
8-11	18 (24.0)	12 (9.6)	22 (11.1)
12-15	8 (10.7)	4 (3.2)	12 (6.0)
>15	7 (9.3)	1 (0.8)	5 (2.6)
p value		<0.0001*	0.0005**

*Migraine versus controls; **Non-migrainous headache versus control; AUDIT: alcohol use disorders identification test.

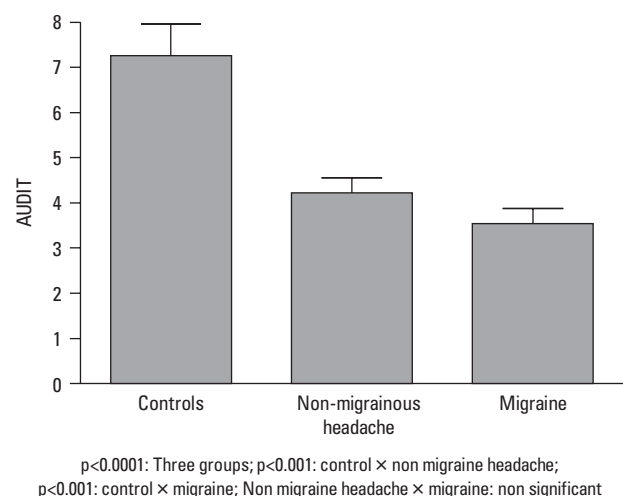


Figure. Mean \pm SD alcohol use disorders identification test (AUDIT) scores in students without headache (controls), with non-migrainous headache, and with migraine.

students with headache in general ($p=0.92$), migraine ($p=0.28$), and non-migrainous headache ($p=0.87$).

DISCUSSION

Students with migraine had less alcohol consumption than students without headache. This is in line with previous studies reporting lower percentage of drinkers among migraine sufferers^{7,8}. One possible explanation is that previous experiences with alcohol triggering migraine attacks would reduce alcohol ingestion in order to prevent attacks⁸. Another hypothesis is that there is a biological explanation that could justify a reduction in alcohol preference and is also involved in the pathogenesis of migraine. Serotonergic system is involved in migraine pathogenesis and its involvement in alcohol preference is supported by some experimental studies²⁰⁻²². It is possible that serotonergic and perhaps other systems may explain the lower percentage of drinkers among migraineurs but future studies are still necessary in this area.

The relationship between alcohol and other primary headaches has been less studied. It is still unclear if patients with tension type headache²³ have decreased alcohol consumption when compared with controls. Some studies have shown that tension type headache trigger factors include drinking alcohol^{24,25}. In our study it was not possible to assess the relationship between tension-type headache and alcohol consumption since the questionnaire used is validated only for migraine. It is possible that most of the students with non-migrainous headache have tension type headache however it is not possible to exclude that other primary headaches are included in this group. Future prospective and controlled studies with patients with tension type headache and other primary headaches are still needed to evaluate the

role of such headache disorders in the pattern of alcohol consumption.

Our data did not show an association between headache functional impairment and alcohol consumption, nor to the migraine or to the non-migrainous headache. If the reduction in alcohol consumption was only due to the alcohol triggered crises it would be expected that students with more severe headache reported less alcohol consumption. Thus our data strengthens the hypothesis that factors other than previous experience of alcohol as a trigger can contribute to reduce alcohol consumption in migraineurs and perhaps other types of primary headaches.

Alcohol abuse is a significant public health problem among young people and it is related with violence and traffic accidents¹¹⁻¹³. While prevention programs are necessary to reduce drinking problems among young people, including medical students, it is also important to understand the alcohol consumption pattern associated factors to better target such prevention programs. Our study was the first to report lower percentages of serious indication of drinking problem and drinking problem among medical students with migraine and non-migrainous headache. The causes of the reduction in alcohol consumption in this population can not be pointed out so far. We also can not say whether the reduction in alcohol consumption in these groups contributed to a reduction in traffic accidents or violent incidents since few students reported such episodes. Future larger and prospective studies should evaluate the extent and the impact of the reduction in alcohol consumption among young people with migraine and other primary headaches.

In the present study alcohol consumption was lower among students with headache, however, the percentage of students referring not to drink any alcoholic beverages was not different between students with and without headache. This suggests that the presence of headache reduced the amount of alcohol ingestion but did not contribute to total abstinence from alcohol consumption, perhaps leading to a more moderate pattern of alcohol consumption. Migraine has been associated with higher cardiovascular risk²⁶. Regular ingestion of small amounts of alcohol has been associated with reduction in cardiovascular problems rates²⁷. Future studies should evaluate whether this more moderate pattern of alcohol intake can influence the cardiovascular risk of patients with migraine.

Our study has some clear limitations. The ID-migraine is a screening tool. Although it has been validated in Portuguese language it has not the same accuracy than a clinical evaluation by a headache expert using the International Headache Criteria²³. The evaluation of the alcohol intake was based on retrospective information and

did not discriminate the type of alcohol beverage; however, AUDIT is a largely validated tool. This study was conducted in a specific community so that the present data can not be generalized. Also, this type of study does not allow the definition of a precise causal relationship.

In conclusion, our study suggests that medical students with headache have a more moderate pattern of alcohol consumption than headache free students, regardless the degree of functional impairment of the headache. Considering that there are recognized problems and benefits associated with drinking alcoholic beverages and that ingestion of alcoholic beverages has a great impact on public health issues, it is important that future studies will clarify more comprehensively and in the general population the relationship between alcohol and the primary headaches.

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