

CORRELATION BETWEEN MIGRAINE SUBTIPES AND DEPRESSION

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Abstract – This study has evaluated depression in patients with episodic migraine (n=98), chronic migraine without medication overuse (n=23), and chronic migraine with medication overuse (n=57). The Beck Depression Inventory (BDI) was used to evaluate depressive symptoms in these three groups. The mean BDI score obtained in all patients was higher than that observed in asymptomatic subjects (episodic migraine=16.09±11.79, chronic migraine with medication overuse=18.91±12.53, chronic migraine without medication overuse=19.83±14.79). This finding corroborates previous studies suggesting a co-morbid association between migraine and depression. Depression did not seem to be crucial in the transformation of migraine as the median BDI scores did not differ significantly between patients with episodic and chronic migraine. The median BDI scores of the patients with chronic migraine with medication overuse and that patients with chronic migraine without medication overuse were similar as well. Therefore, medication overuse behavior may not be related with depression.

KEY WORDS: migraine, chronic migraine, analgesic abuse, depression.

Correlação entre subtipos de migrânea e depressão

Resumo – Este estudo avaliou a depressão em pacientes com migrânea episódica (n=98), migrânea crônica com uso abusivo de analgésicos (n=57) e migrânea crônica sem uso abusivo de medicamentos analgésicos (n=23). O Inventário de Depressão de Beck (IDB) foi usado para avaliar sintomas depressivos nos três grupos. As médias dos escores de IDB encontradas (migrânea episódica=16.09±11.79, migrânea crônica com uso abusivo de analgésicos=18.91±12.53, migrânea crônica sem uso abusivo de analgésicos=19.83±14.79) foram maiores do que as observadas em indivíduos assintomáticos. Tais resultados confirmam estudos prévios indicando uma relação de comorbidade entre migrânea e depressão. Os dados não sugerem que a depressão seja um fator determinante da transformação da migrânea episódica em migrânea crônica, pois nestes dois grupos as medianas dos escores de IDB foram semelhantes. Os escores de IDB foram semelhantes entre os pacientes com migrânea crônica com e sem uso abusivo de analgésicos. Portanto, o comportamento de ingerir abusivamente analgésicos não parece estar relacionado com a depressão.

PALAVRAS-CHAVE: migrânea, migrânea crônica, abuso de analgésicos, depressão.

Migraine is a common and disabling primary headache disorder with worldwide prevalence of 10–12% in the adult population¹. Chronic migraine is the most common of the chronic daily headaches and affects 2.4% of the general population². Most patients with chronic migraine have a previous history of episodic migraine. Several risk factors have been implicated in the transformation of episodic migraine to chronic migraine such as obesity, history of frequent attacks, excessive caffeine consumption, and overuse of symptomatic medication^{3,4}. Medica-

tion overuse headache commonly develops in these patients^{5,6}.

Several studies in clinical and community-based settings have demonstrated a co-morbid association between migraine and several psychiatric conditions, such as depression, generalized anxiety disorder, panic disorder, and bipolar disorder. There seems to be a bi-directional relationship between migraine and depression, with each disorder increasing the risk of the other one⁷⁻¹⁰. However there are few studies evaluating the severity of depressive symp-

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toms in patients with chronic migraine¹⁰. Also, it is still unclear whether the co-morbid association between migraine and depression increases the risk of transformation of episodic migraine to chronic migraine and/or increases the risk of development of medication overuse behavior.

In this study, we have evaluated depressive symptoms in patients with migraine using the Beck Depression Inventory (BDI). The patients were classified into one of the three migraine subtypes: episodic migraine (EM), chronic migraine with medication overuse (MWO) and chronic migraine without medication overuse (MWNO). The levels of depressive symptoms were compared among these groups.

METHOD

One hundred seventy eight adult patients were enrolled in this study. At their first evaluation these patients were submitted to a detailed headache questionnaire and answered the Beck Depression Inventory (BDI).

The diagnosis of headache was established according to the Classification of Headache Disorders-2nd edition criteria¹¹. Medication overuse was established for patients using symptomatic medication both frequently (more than 10 days a month) and regularly (several days each week), as proposed by this Classification. Patients were classified into the three groups: EM, MWO, MWNO.

The BDI cut off scores were defined as previously established: nondepressed, BDI<15; dysphoria, BDI 16 to 20; and depressed, BDI>20. In order to evaluate the severity of depression in the three groups, we have analyzed the proportion of patients in each of these three groups using three different BDI cut offs: dysphoria – BDI<15; depression – BDI>20, and severe depression – BDI>30¹².

For statistical analysis of the continuous data, the Mann-Whitney U-test was used as the scores obtained were not normally distributed. For categorical data (BDI scores), χ^2 test was used. The level of significance was set at $p<0.05$. All statistical analyses were performed using the Statistical Package for Social Sciences (SPSS version 12.0).

This study was approved by the local Ethics Committee and informed agreement was obtained from each patient.

RESULTS

Ninety eight patients were classified as having EM (55%, 6 males, 92 females, mean age=37.3, SD=14.54), fifty seven as having MWO (32%, 3 males, 54 females, mean age=35.35, SD=12.17), and twenty three as having MWNO (13%, 1 male, 22 females, mean age=47, SD=16.56). There were not statistically significant age differences between the groups. The mean BDI score for all those patients was 17.48 (SD=12.47). The individualized mean BDI scores for each group were 16.09 (SD=11.79) for EM; 18.91 (SD=12.53) for MWO; and 19,83 (SD=14.79) for MWNO. There was not a statistically significant difference between these scores ($p=0.34$) (Figure). The results of the analysis of the severi-

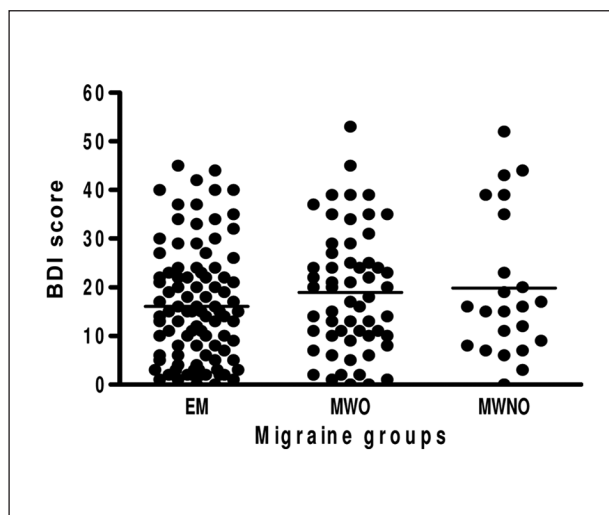


Figure. Median BDI scores in three migraine groups: episodic migraine (EM), chronic migraine with medication overuse (MWO) and chronic migraine without medication overuse (MWNO). The differences were not statistically significant (Kruskal-Wallis test).

Table. Distribution of migraine patients in three groups, episodic migraine (EM), chronic migraine with medication overuse (MWO) and chronic migraine without medication overuse (MWNO), according different BDI scores cut-off.

BDI scores	EM	MWO	MWNO	p
<15	48	25	25	25
≥15	50	32	14	
≤20	66	32	16	0.31
>20	32	25	7	
≤30	85	46	17	0.28
>30	13	11	6	

ty of depression on the distribution of the proportion of patients in each group are shown in Table. None of these three analyses showed statistically significant differences.

DISCUSSION

The mean BDI score found in the 178 migraineurs of the present study was 17.48±12.47. According to a previous study in a Brazilian population this score is above the one expected for non-depressed subjects defined as 15¹². This is also much higher than scores observed in asymptomatic groups. For instance, in a previous study of depression in migraine patients, Galego et al.¹³ found the BDI score of 6.9±6 in the control group. In a community survey in a small town in Espírito Santo state, Brazil, two of us (R.B.D. and S.C.D.) have found a mean BDI score of 8.79±8.52 (unpublished data).

Therefore our findings are in line with previous studies showing a non-casual association (co-morbidity) between migraine and depression¹³⁻¹⁵.

Chronic migraine frequently develops in patients with prior existing EM. Several risk factors have been implicated in this transformation. History of frequent migraine attacks may lead to chronic central sensitization of trigeminal pathways. The overuse of analgesics may also sensitize central-pain pathways. Other risk factors have been implicated, such as sleep disorders, excessive caffeine consumption, and mood disorders^{3,4}. In the present study it was assessed if the BDI scores were different in patients with EM, MWO, and MWNO⁴. There was no statistically significant difference among groups and the depression severity was not related with the risk of chronic migraine and medication overuse. Similarly, Galego et al.¹³ have not found significant differences in BDI scores between patients with EM and patients with transformed migraine; however, this study did not classify patients with transformed migraine into those with or without medication overuse¹³. The data of the present study and previous studies^{4,13} suggest that depression does not seem to be a prerequisite for the transformation of EM into chronic migraine. The role of other co-morbid psychiatric conditions in migraine transformation have also been studied¹⁶ but their precise role still needs to be clarified.

Medication overuse is found in approximately 80% of patients with transformed migraine in headache clinics. In the present study 71.25% of the chronic migraine patients had analgesic overuse¹⁷. Medication overuse headaches can be divided into simple (Type I) and complex (Type II). Simple cases involve relatively short-term drug overuse, relatively modest amounts of overused medications, minimal psychiatric contribution, and no history of relapse after drug withdrawal. Complex cases may involve long-term use of daily opioids or combination analgesics, multiple psychiatric co-morbidities such as personality disorders, addictive disorders and behavior of dependence and/or a history of relapse¹⁷⁻²¹. In the present study BDI scores were not statistically significant different between patients with and without medication overuse. This suggests that depression is not among the psychiatric co-morbidities involved in the medication overuse behavior.

In conclusion, our data confirm previous studies showing that there is a co-morbid association between migraine and depression. Recognizing and treating depres-

sive symptoms in patients with migraine is crucial and can positively impact quality of life of such patients. However, we have not found any evidence that chronic migraine is associated with a higher risk of depression than EM. In addition, our data do not suggest that depression has a causative role in medication overuse behavior.

REFERENCES

1. Barea LM, Forcelini CM. A epidemiologia das cefaléias primárias. In: Speciali JG, Silva WF (Eds). Cefaléias. São Paulo: Lemos Editorial, 2002:51-61.
2. Castillo J, Monoz P, Guitera V, et al. Epidemiology of chronic daily headache in a general populations. *Headache* 1998;39:190-196.
3. Sher AI, Stewart WF, Ricci JA, Lipton RB. Factors associated with the onset and remission of chronic daily headache in a population-based study. *Pain* 2003;106:81-89.
4. Dodick DW. Chronic daily headache. *N Engl J Med* 2006;354:158-165.
5. Mathew NT. Transformed migraine. *Cephalalgia* 1993;13(Suppl 12):S78-S83.
6. Krymchantowsky AV. Overuse of symptomatic medications among chronic (transformed) migraine patients. *Arq Neuropsiquiatr* 2003;61:43-47.
7. Hamelsky SW, Lipton RB. Psychiatric comorbidity of migraine. *Headache* 2006;46:1327-1333.
8. Sacco S, Olivieri L, Bastianello S, Carolei A. Comorbid neuropathologies in migraine. *J Headache Pain* 2006;7:222-230.
9. Torelli P, Lambro G, Manzoni GC. Psychiatric comorbidity and headache: clinical and therapeutical aspects. *Neurol Sci* 2006;27(Suppl 2):S73-S76.
10. Mercante JPP, Peres MFP, Guendler V, et al. Depression in chronic migraine: severity and clinical features. *Arq Neuropsiquiatr* 2005;63:217-220.
11. Headache Classification Subcommittee of the International Headache Society. The International Classification of Headache Disorders. 2nd Edition. *Cephalalgia* 2004;24:1-160.
12. Gorenstein C, Andrade L, Zanolo E, Artes R. Expression of depressive symptoms in a nonclinical Brazilian adolescent sample. *Can J Psychiatry* 2005;50:129-136.
13. Galego JCB, Cipullo JP, Cordeiro JA, Tognola WA. Depression and migraine. *Arq Neuropsiquiatr* 2004;62:774-777.
14. Breslau N, Davis GC, Schultz LR, Peterson EL. Migraine and major depression: a longitudinal study. *Headache* 1994;34:387-393.
15. Breslau N, Lipton RB, Stewart WF, et al. Comorbidity of migraine and depression: investigating potential etiology and prognosis. *Neurology* 2004;60:1308-1312.
16. Luconi R, Bartolini M, Taffi R, et al. Prognostic significance of personality profiles in patients with chronic migraine. *Headache* 2007;47:1118-1124.
17. Bigal M, Sheftell FD, Rapoport AM, et al. Chronic daily headache in tertiary care population: correlation between International Headache Society diagnostic criteria and proposed revisions of criteria for chronic daily headache. *Cephalalgia* 2002;22:432-438.
18. Lake AE 3rd. Screening and behavioral management: medication overuse headache - the complex case. *Headache* 2008;48:26-31.
19. Lake AE 3rd. Medication overuse headache: biobehavioral issues and solutions. *Headache* 2006;46(Suppl 3):S88-S97.
20. Radat F, Creac'h C, Swendsen JD, et al. Psychiatric comorbidity in the evolution from migraine to medication overuse headache. *Cephalalgia* 2005;25:519-522.
21. Fuh JL, Wang SJ, Lu SR, Juang KD. Does medication overuse headache represent a behavior of dependence? *Pain* 2005;119:49-55.