DEPRESSION AND MIGRAINE

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ABSTRACT - The objective of this study was to evaluate both the presence and intensity of depressive symptoms in patients with episodic migraine (EM) and transformed migraine (TM) or chronic migraine, comparing them with a control group. Beck Depression Inventory (BDI) was used for this purpose. The median of BDI score of the control group was significantly lower than the EM and TM groups (p<0.0005). Either the EM or the TM did not show any significant difference in relation to the median of BDI scores (p=0.12). The TM group showed a higher frequency of severe depression when analyzed qualitatively by dependence analysis. Symptoms of severe depression by means of qualitative analysis may strengthen a co-morbidity between depression and transformed migraine. This association might be considered rather a factor of TM perpetuation than a risk factor for the transformation of EM into TM.

KEY WORDS: transformed migraine, chronic migraine, migraine, depression, Beck Depression Inventory.

Several epidemiological and prospective studies have reported an association between migraine and depression1-6. Breslau et al.4, using longitudinal data, examined the association between migraine and major depression in a sample of 1,007 young adults (21-30 years of age). These authors concluded that association might result from bi-directional influences; that is, each disorder increased the risk for first onset of the other. It remains unclear if common etiological factors might share migraine and depression pathophysiology, although some findings strengthen this hypothesis1-6. Episodic migraine (EM) may evolve to a daily-type headache known as transformed migraine (TM) or chronic migraine. The term chronic migraine was recently introduced in the classification review of International Headache Society.10 The reason for the increase of frequency in the migraine attacks, transforming than into daily headache is little known. Excessive use of analgesics and ergotamine compounds; stress situation in the family or at work; traumatic life events; hypertension, birth control pills; abnormal personality profile and co-morbidity with some disorders such as anxiety and depression are factors linked with this transformation11. Galego et al.12, based on clinical and demographic characteristics of episodic and transformed migraine, observed that earlier beginning of attacks might be a risk factor for transformed migraine. Taking into account the co-morbidity between migraine and depression, it is important for clinical practice to evaluate depressive symptoms as well as how their intensity is developed in patients with EM and TM. Few comparative studies have examined the intensity of how the depressive symptoms affect these two groups13.
This study aimed at evaluating both the presence and intensity of depressive symptoms among patients with EM and TM, comparing them with a control group.

**METHOD**

A sample of 80 patients, both genders, ages ranging from 18 to 60 years, were examined at the headache outpatient service of Hospital de Base, Medical School of São José do Rio Preto, SP. In this clinical prospective study, the patients were consecutively admitted and divided into two groups. The first group comprised 40 patients with the EM diagnosis, according to the International Headache Society's criteria. The second group, 40 patients with TM or chronic migraine diagnosis, according to Silberstein et al. criteria. A control group of 40 patients (without migraine or chronic headache) was selected among patients from the gynecological and clinical outpatient services of this hospital. Patients with some chronic diseases were not admitted in the study. A psychologist evaluated the presence of some depressive symptoms by means of Beck Depression Inventory (BDI). The BDI is a 21-item inventory developed to measure the extent of an individual's depressive symptoms. Tests of Variance Analysis, Kruskal-Wallis and Dependence Analysis were used for statistical analysis. The Ethics Research Committee of Medical School of São José do Rio Preto, SP, approved this study.

**RESULTS**

The EM group comprised 33 females (82.5%) and 7 males (17.5%); the TM, 38 females (95%) and 2 males (5%). The control group comprised 37 females (92.5) and 3 males (7.5%). At the first evaluation, evidence of different mean ages was not observed among the three groups (p=0.95) (Variance Analysis, Table 1). Table 2 shows the BDI scores of the EM, TM and control groups. There were significant differences among the medians of BDI scores of the three groups (p<0.05, Kruskal-Wallis test). The median of the control group was significantly lower than the EM and TM groups (p=0.05). According to the BDI scores, the patients' depression of the EM, TM and the control group was classified as: normal, mild, moderate and severe (Fig 1). As shown in Figure 2, the normal pattern (descending curve) is correlated with the control group, while the severe (ascending curve) with transformed migraine. When analyzed qualitatively (Dependence Analysis), the patients with TM showed a higher association of severe depression, while the patients with EM showed higher frequency and association of moderate depression (Fig 3).

**DISCUSSION**

TM is the most common type of chronic daily headache (CDH). Taking into account that patients with EM may evolve into TM, it is important to recognize this transformation process. Analgesic overuse and depression co-morbidity are...
factors, which may be associated with the transformation of EM into TM. The objective of this study was to evaluate both the presence and intensity of depressive symptoms among patients with EM and TM, comparing them with a control group (without migraine). The BDI has been intensively validated, and it was the instrument used for this evaluation. The BDI was not developed for depression diagnosis, but as an instrument for quantifying and qualifying depressive symptoms at the time of the evaluation. Patients with chronic diseases were not admitted in the selection of the three groups, since this might produce a bias in the interpretation of depressive symptoms.

The results showed that the depressive symptoms were more common in TM and EM when compared to the control group. Several studies have reported an association between migraine and depression, although their pathophysiological mechanism as well as their concomitance is still an issue of discussion in the literature. Patients with chronic diseases were not admitted in the selection of the three groups, since this might produce a bias in the interpretation of depressive symptoms.

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Patients with EM and TM did not show significant difference in the BDI scores; however there was a qualitative tendency for more severe depression levels in the TM group. Magnusson and Becker, applying the BDI in 50 patients with EM and 37 with TM, did not find significant difference in the scores of both groups, however they pointed out that 29.7% of the patients with TM presented a higher percentage of a moderately severe depression compared with only 18% of the patients with EM. Based on these results, the authors have suggested that the greater level of depression observed in the TM group might strengthen Mathew et al. hypothesis, that is, the depression might be a factor for the transformation of EM into CDH.

In the present study, both the EM and TM groups have presented depression. However, a more expressive depression, according to qualitative evaluation, occurred in the TM group. In TM, the presence of depressive symptoms qualitatively more severe might suggest a greater co-morbidity with depression. Another possible suggestion is that this association performs as a factor of perpetuation of TM, rather than a factor for transformation. The measure of depressive symptoms in patients with EM or TM by means of the BDI provides the clinician an effective subsidy in relation to the best decision for the therapeutic procedure.

In conclusion, patients with TM have presented depressive symptoms more severe according to qualitative analysis, strengthening some co-morbidity with depression. This qualitative association with severe depression might be considered rather a factor of TM perpetuation than a risk factor for the transformation of EM into TM.

Acknowledgements - We are grateful to Adilia M. Pires Sciarra for the help in the English version.

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