



Influence of sleep and physical exercise in migraine patients

Maria Paula Bertoletti Juliani^{ID}, Amanda Brant Rocha^{ID}, Giovana Ortiz Zendrini^{ID},
Giovana Rodrigues Salomão^{ID}, Giovanna Sguissardi de Lima^{ID}, Ana Laura Tirintan^{ID}, Aline Vitali da Silva^{ID},
Valéria Aparecida Bello^{ID}, Regina Célia Poli Frederico^{ID}

Pontifícia Universidade Católica do Paraná, Londrina, Paraná, Brazil.

Introduction

The prevalence of headache and sleep disorders is quite high in the general population. Both are chronic pathologies considered factors of daily disability which often coexists in migraine patients. A cause-and-effect relationship between migraine attacks and sleepless nights has not been confirmed yet, but it is already recognized that they have in common neuropeptides and functional anatomy in their pathogenesis. Because of this high prevalence, there are several studies on treatment options and prophylactic measures for migraine. The regular practice of physical exercises is identified as an important prevention factor for migraine attacks. However, daily intense physical activities are identified as triggers for these attacks.

Objectives

To investigate the correlation between sleep time and frequency of physical activity with headache days per month, migraine disability, allodynia, hyperacusis, anxiety and depression.

Methods

Cross-sectional study composed of 466 individuals of both sexes diagnosed with migraine. Patient data such as age, sex, race, body mass index (BMI), waist circumference, presence of hypertension and diabetes were analyzed. It was obtained information about the type of migraine (episodic or chronic; with or without aura), age of symptoms onset, duration of illness, use of prophylactic medication and excessive use of analgesics, as well as hours of sleep per night and frequency of practice of physical activity. Patients answered questionnaires to evaluate disability (Migraine Disability Assessment - MIDAS) and the impact of migraine (HIT-6), as well as questionnaires for anxiety (STAI Y1 and STAI Y2), depression (Beck Depression Scale), allodynia (ASC-12) and hyperacusis. Spearman's correlation test was performed and a statistical difference was considered when $p \leq 0.05$.

Results

The participants of the present study were mostly female (86.1%), young adults, with a median age of 33 years, caucasian (78.9%) and a median BMI of 24.8 kg/m². The median age of migraine onset was 17 years and the median time of disease progression was 12 years. They mostly presented the episodic form of the disease (55.5%), with aura present in 38.2% of the migraineurs. Most did not have diabetes mellitus (95.9%) or hypertension (89.2%). Additionally, 35% were using prophylactic medication and 39.40% were overusing analgesics. As for physical exercise, patients showed a median of practices of 2 (0-4) times a week. A negative correlation was found between physical exercise and the number of headache days per month ($p = -0.103$; $p = 0.027$) as well as anxiety ($p = -0.101$; $p = 0.031$), evaluated by the STAI questionnaire Y1. The median number of hours of sleep per night among participants was 7 (6-8) hours. There was a negative correlation between the number of hours of sleep and BMI ($p = -0.129$; $p = 0.006$), waist circumference ($p = -0.121$; $p = 0.021$), anxiety ($p = -0.135$; $p = 0.004$) and depression ($p = -0.110$; $p = 0.028$). There was no correlation between hours of sleep and number of headache days. There was also no correlation between hours of sleep and frequency of physical activity with disability, impact, allodynia and hyperacusis.

Conclusion

This study showed that the greater the number of hours of sleep, the lower the BMI and waist circumference, as well as lower scores for anxiety and depression, however this correlation was weak. Also was weak the physical activity influence in the frequency of pain and anxiety score. Thus, the higher frequency of physical activity lowers the frequency of pain and anxiety score.

Habits and lifestyle, such as sleep and physical activity, may have little effect on anthropometric parameters, mental health and headache frequency in individuals with migraine.

Keywords: Migraine, Sleep, Exercise, Anxiety, Depression.