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Original Article

Assessment of Relation of Migraine & Obesity in Study Population

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***ABSTRACT*:**

Background: Migraine, a common headache disorder and has a prevalence of 25.2 % in south India The present study was conducted to assess association of obesity and migraine in study population. **Materials & Methods:** The present study was conducted on 220 patients of migraine of both genders. Migraine severity was assessed according to MIDAS questionnaire. Total body obesity was calculated from body mass index (BMI), which was calculated as weight in kg divided by the square of height in meters (kg/m^2). **Results:** Out of 220 patients, males were 90 and females were 130. 38 were normal, 12 were underweight, 50 were overweight and 120 were obese. The difference was significant (P< 0.05). The maximum MIDAS score was present in obese patients (19.6) while it was lowest in normal subjects. The difference was significant (P< 0.05). **Conclusion:** Authors found a correlation of migraine and obesity. MIDAS score found to be more in patients with high BMI.

Key words: Migraine, Obesity.

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INTRODUCTION

Migraine, a common headache disorder, affects about 10-20% of population all over the world and has a prevalence of 25.2 % in south India. A typical Migraine headache is recurrent, unilateral, pulsating quality, moderate or severe intensity, aggravated by routine physical activity and associated with nausea and/or photophobia and phonophobia, lasting 4-72 hours. Some patients experience alteration in sensory sensitivity, focal neurological symptoms and autonomic dysfunction.[1]

Obesity is comorbid with a number of chronic pain syndromes, including fibromyalgia, back pain, and neck pain. A longitudinal study showed that the relative odds of chronic daily headaches (CDHs), within individuals with episodic headaches, are five times higher in obese individuals (body mass index [BMI] 30) than in the normally weighted.[2] The exact cause of Migraine is not known. One of the factors which has recently been associated with migraine is obesity. Obesity is a chronic, multifactorial disorder, better defined as a condition in which there is excessive deposition of adipose tissue in the body causing adverse effects on health of the individual.

There is influence of baseline weight status on the prevalence, severity, and disability of episodic migraine. Migraine and obesity may, however, be linked from a biochemical perspective. It is know that obesity is a pro-inflammatory (adipocytes secrete a variety of cytokines, including interleukin and tumor necrosis factor [TNF] which promote inflammation) and pro-thrombotic state and that migraine is associated with neurovascular inflammation.[3] The present study was conducted to assess association of obesity and migraine in study population.

MATERIALS & METHODS

The present study was conducted in the Department of Physiology, Gouri Devi Institute of Medical Sciences & Hospital, Rajbandh, Durgapur, Dist. - Burdwan (W.B.), India. It comprised of 220 patients of migraine of both genders. The diagnosis of migraine was mad from the consultation with neurologist bases on the International

Classification of Headache Disorder. All patients were informed regarding the study and written consent was obtained. Ethical clearance was obtained prior to the study. General information such as name, age, gender etc. was recorded. Migraine severity was assessed according to MIDAS questionnaire. Total body obesity was calculated from body mass index (BMI), which was calculated as weight in kg divided by the square of height in meters (kg/m^2). Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 220		
Gender	**Males**	**Females**
Number	90	130

Table I shows that out of 220 patients, males were 90 and females were 130.

Table II Distribution of patients based on BMI

BMI	Normal	Underweight	Overweight	Obese	P value
Number	38	12	50	120	0.01

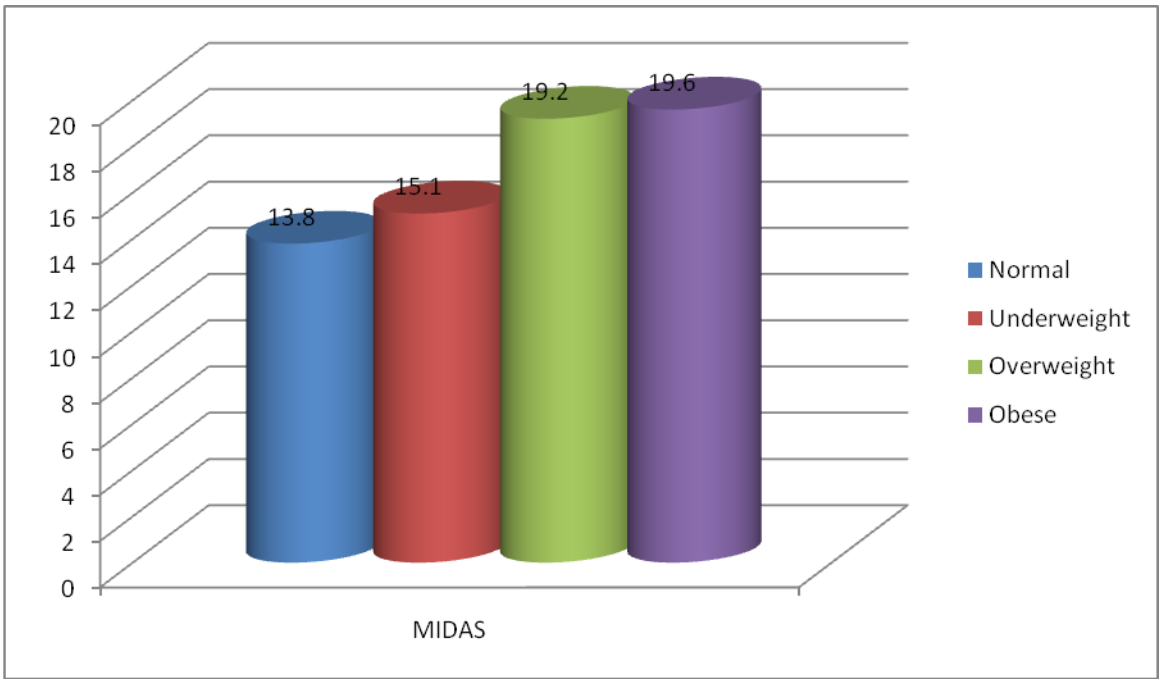
Table II shows that out of 220 patients, 38 were normal, 12 were underweight, 50 were overweight and 120 were obese. The difference was significant (P< 0.05).

Table III MIDAS score & BMI

BMI	Normal	Underweight	Overweight	Obese	P value
MIDAS	13.8	15.1	19.2	19.6	0.02

Table III, graph I shows that maximum MIDAS score was present in obese patients (19.6) while it was lowest in normal subjects. The difference was significant (P< 0.05).

Graph I Association between MIDAS score and BMI



DISCUSSION

Migraine headaches are three times more common in women than in men. Family history of migraine is present in 70-80% of sufferers. Many women experience migraines related to the hormonal changes of menstruation, oral contraceptives, pregnancy, post-partum and menopause. If headaches become more frequent and intense with oral contraceptive use, it is important to inform your clinician. In some instances, a change in the type of oral contraceptive pill will lessen or alleviate the headaches. In other instances, the pill or hormone treatment must be discontinued.[4]

Over the counter or prescription medications are often useful in pain management of migraines. It is possible however, to worsen headaches with frequent medication use. Talk with your clinician about all prescription, over the counter or herbal products you are taking for headache treatment. Your clinician will work with you to try to find the best strategy for headache relief and prevention.[5]

Migraine remains the leading cause of primary headache disorder in India. Several factors have been implicated in the pathophysiology of migraine, obesity being a recent one. The mechanisms that link obesity with migraine attack frequency and severity are uncertain. Plasma calcitonin gene-related peptide (CGRP) levels are elevated in obese individuals, particularly in women; fat intake may also be associated with increased CGRP secretion.16 CGRP is significantly higher in obese subjects relative to controls. After weight loss, CGRP concentrations remain unchanged.[6] The was showed that a high-fat meal caused a significant rise in CGRP levels. The authors suggested that elevated plasma CGRP levels may constitute a primary phenomenon in obese women and that fat intake may be associated with increased CGRP secretion. This may be important in migraine, where it is well known that CGRP is an important postsynaptic mediator of the migraine trigeminovascular inflammation and experimental CGRP inhibitors are effective in the acute treatment of migraine.[7] The present study was conducted to assess association of obesity and migraine in study population.

In present study, out of 220 patients, males were 90 and females were 130. We found that were normal, 12 were underweight, 50 were overweight and 120 were obese. Vanessa et al[8] in their study found that study group comprised of 168 female migraine patients. Frequency of headache per month and MIDAS score significantly varied in different BMI categories. No statistically significant association was found between duration of headache and obesity.

Rajendra Pradeepa et al[9] in their study found that 30,215 participants were divided into five categories, based on BMI: 1, underweight (18.5), normal weight (18.5 to 24.9), overweight (25 to 29.9), obese (30 to 24.9), and morbidly obese (35). Migraine prevalence and modeled headache features were assessed as a function of BMI, adjusting by covariates (age, sex, marital status, income, medical treatment, depression). Results: Subjects were predominantly female (65% female) and in middle life (mean age 38.4). BMI group was not associated with the prevalence of migraine, but was associated with the frequency of headache attacks. In the normal weight group, 4.4% had 10 to 15 headache days per month, increasing to 5.8% of the overweight, 13.6% of the obese, and 20.7% of the morbidly obese. The proportion of subjects with severe headache pain increased with BMI, doubling in the morbidly obese relative to the normally weighted. Similar significant associations were demonstrated with BMI category for disability, photophobia, and phonophobia.

CONCLUSION

Authors found a correlation of migraine and obesity. MIDAS score found to be more in patients with high BMI.

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