IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

PREVALENCE OF MENSTRUAL MIGRAINE AND ITS IMPACT ON MENSTRUAL POPULATION

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ABSTRACT

Background: Migraine is a common problem encountered not only in India but the world affecting 14% of the world's population at all ages. It is a much under-diagnosed and under-managed disease entity. Migraine in women is influenced by hormonal changes throughout the life cycle- menarche, menstruation, oral contraceptive use, pregnancy and menopause. The frequency of menstrual migraine has been reported to be as high as 60%-70% in female migariners. Menstrual migraine is a headache disorder having most attacks associated with menses, proving to be more severe and disabling. The diagnostic criteria, the 3rd edition of the ICHD (ICHD-3) is in use for menstrual migraine with or without aura. For the easy use and accurate diagnosis MMAT proved to be effective in clinical settings while evaluating menstrual migraine. While for severity and impact MIDAS is standard measure used universally for all types of migraine.

Aim: To find the occurrence of menstrual migraine and its impact amongst menstrual population.

Methodology: Participants were explained about the condition menstrual migraine and its severity. Their informed written consent form was taken.186 participants willingly filled the MMAT questionnaire. The females diagnosed with menstrual migraine were then asked to fill MIDAS questionnaire. The total score was then calculated and grades were given accordingly on MIDAS. Both the questionnaires were given in online Google forms format.

Results: Statistical analysis was done suing frequency and percentage analysis and revealed the prevalence of menstrual migraine being 23% amongst the female population of Miraj. Amongst these 24% females had Little or disability (Grade I) on MIDAS scale. While 39% females had Mild disability (Grade II) and 37% females had Moderate disability (Grade III).

Conclusion: Menstrual migraine accounts for 23% females in community of Miraj. The attacks of menstrual migraine in majority females were moderately disabling affecting her for about 6-20 days in various fields like work, household work and leisure time, productivity.

Key words: Menstrual migraine, menstrual migraine assessment tool (MMAT), migraine disability assessment test (MIDAS), ICHD-international classification of headache disorders.

INTRODUCTION

Menstrual Migraine is defined as "attacks of migraine without aura that occur regularly 2 days after and before menstruation and at no other time". Migraine without aura may occur almost exclusively at a particular time of the menstrual cycle-so-called menstrual migraine. Migraine is twice more prevalent in women than men. A recent review of migraine prevalence suggests that 17% of women are more affected compared with 6% of men. The ratio of women is to men is approximately **3:1** [(3)]**.**

Menstrual migraines are a subset of oestrogen-withdrawal headaches [(6)]. The attacks of menstrual migraine occur at the time of the greatest fluctuation in oestrogen levels. Migraines are usually more resistant to treatment, generally not associated with aura, of longer duration, and are associated with more functional disability compared with attacks at other times of the month. Fluctuating hormones of the normal ovarian cycle are a specific trigger [(5)]. Endogenous progesterone levels fell as usual, resulting in a menstrual bleed, but this was not associated with a migraine attack; instead, oestrogen is the one responsible for migraine attacks.

Also, many women taking the combined oral contraceptive pill experience migraine during the pill-free week, when oestrogen falls after 21 days of high levels. Migraine improves during pregnancy when oestrogen levels gradually rise but can recur immediately postpartum, a time when oestrogen levels plummet [(7)]. When hormone concentrations in plasma stabilise after menopause, the prevalence of migraine declines while in some, migraine improves after menopause, when the ovarian cycle ceases and oestrogen levels remain low with little fluctuation [(5)].

Migraine without aura is common migraine, a recurrent headache disorder manifesting in attacks lasting 4–72 hours. Typical characteristics of the headache are unilateral location, pulsating quality, moderate or severe intensity, aggravation by routine physical activity and association with nausea and/or photophobia and phonophobia. [(2)]

Specific aura symptoms are visual, sensory, speech and/or language, motor, brainstem, retinal. According to ICHD criteria menstrual migraine is of 3 types PURE MENSTRUAL MIGRAINE [PMM], MENTRUAL RELATED MIGRAINE [MRM] and NON-MENSTRUAL MIGRAINE. Where PMM is migraine attacks in a menstruating woman fulfilling criteria for MIGRAINE WITHOUT AURA and occur exclusively on day 1 ± 2 (i.e. days -2 to +3) of menstruation in at least 2 out of 3 menstrual cycles and at no other times of the cycle.MRM is migraine attacks in a menstruating woman, fulfilling criteria for MIGRAINE WITHOUT AURA and occur on day 1 ± 2 (i.e. days -2 to +3) of menstruation in at least 2 out of 3 menstrual cycles, and additionally at other times of the cycle. Here menstruation is considered to be endometrial bleeding due to natural cause or the withdrawal of exogenous progestogens, [i.e. oral contraceptives or cyclical hormone replacement therapy].The first day of menstruation is day 1 and the preceding day is day-1; there is no day 0. [(3)]

MECHANISM

During late secretory phase, the estrogen is low

↓

Decreased production of serotonin and increased susceptibility to prostaglandins

↓

Vasoactive neuropeptide release

↓

Neuropeptides

Calcitonin gene-related peptide (CGRP) /

Substance P (SP)

↓

Meningeal irritation and neurogenic inflammation

↓

Migraine pain,

The effects of oestrogen on migraine may be mediated centrally through interactions with oestrogen receptors of the hypothalamus and peripherally through adipose tissue [(5)].

In India, migraine was reported predominantly in female population with onset in the second and third decade. Menstruation appears to be the primary or only trigger for migraine in 7% to 14% of the general population of female migraines.

MM tend to be more resistant to treatment, last longer, typically lack aura and lead to more functional disability. Physicians used ICHD criteria and migraine diary for the diagnosis of menstrual migraine.

Individuals with migraine and their families consume substantially more health care resources than those without migraine headache. Impact of migraine/headache on functioning in defined roles (i.e., housework, work for pay, leisure time) is severe in menstrual migraine than normal migraine. Also commenting on the loss productive time due to disabling nature of menstrual migraine.

In large population, most women have shown that migraine attacks associated with menstruation (i.e., menstrual migraine attacks) have impact on occupational, academic and household responsibilities. Thus, suggesting the need for study on menstrual migraine and its impact on menstrual population.

METHODOLOGY

A cross sectional study was conducted in Miraj on 186 females randomly from the community. Institutional Ethics committee approved the research. A written consent form was obtained from participants, and the subjects were assessed for menstrual migraine using menstrual migraine assessment tool questionnaire (MMAT).

Subjects from 15-45 years of menstruating females who answered yes to question 1 and one more question from MMAT had menstrual migraine. These subjects were then given migraine disability assessment test (MIDAS) as an impact measure to calculate headache days in last 3 months and grades of disability would be obtained accordingly. Subjects having headache associated with head trauma, vascular

disease or nonvascular disorder and substance withdrawal; cervicogenic headache, cranial neuralgia were excluded based on documentation from the study.

OUTCOME MEASURES

Menstrual migraine Assessment tool questionnaire (MMAT) was used to evaluate menstrual migraine and its symptoms. The answer "yes" to 1st question and one or more other question justifies menstrual migraine.

Migraine disability assessment test (MIDAS) is being used to measure headache days and impact of migraine attacks on workplace, house in accordance to lost productive time, missed personal leisure time or family time. This 5-item questionnaire with simple questions revealed the number days affected in that particular area during migraine attacks. The disability grades were given by calculating the total score i.e., total headache days in past 3 months.

STATISTICAL ANALYSIS

Mathematical evaluation for the present study was performed by using frequency and percentage analysis. The data was filled manually into an excel sheet and then tabulated which was then subjected for evaluation for the same.

RESULTS

The result of this study reveals the prevalence of menstrual migraine being **23%** amongst the female population of Miraj. Out of 186 female subjects 24% had headaches during their periods. Among these female migraineurs 13% were having more severe headaches than usual, while 22% females were bothered due to the light more when they were having headaches during their periods (Table 1).

The females having MENSTRUAL MIGRAINE (MM) 24% of which had Little or no disability (Grade I). While 39% females had Mild disability (Grade II) and **37%**females had Moderate disability (Grade III) [Table 2]. According to **MIDAS, 79%** females missed their work during these attacks for an average of 8 days in majority migraineurs. While **66.80%** females lost their productivity at work by half or more for an average of 6.5 days. Other areas like household work and lost productive time in house were affected in about **50.80%** and **48.30%** females, respectively both for about6days. The leisure time and family time was missed by **61.23 %** migraineurs for an average of 4.2 days [Table 3].

DISCUSSION

Migraine accounts for 17% women, more affected compared with 6% of men. The ratio of women is to men is approximately **3:1**, twice more prevalent in women than men. Among various types of migraine, menstrual migraine is "attacks of migraine without aura that occurs exclusively at the time, 2 days after and before menstruation and at no other time". The attacks of menstrual migraine last 4–72 hours with typical characteristics of the headache - unilateral in location, pulsating quality, moderate or severe intensity, aggravation by routine physical activity and/or photophobia and phonophobia (rarely). Due to reduced estrogen level, serotonin production is also reduced and susceptibility to prostaglandins is increased. This

releases the vasoactive neuropeptides like CGRP Calcitonin gene-related peptide and Substance-p, leading to meningeal irritation and neurogenic inflammation. Thus, resulting into migraine pain.

Stewart Tepper Et.al, a study for developing a menstrual migraine screening tool yielded MMAT (Menstrual migraine consisting of 3 questions exhibiting sufficient sensitivity and specificity, also brief and easy to use. While testing this 3-item questionnaire prevalence of menstrual migraine was consistently high from ages 18-39 ranging from 13.5% to 14.16%. Screening for menstrual migraine proved beneficial because this symptomatic disease is under recognized and under-treated.

Present study was conducted in Sangli district community among 15-45 years females to reveal the prevalence of menstrual migraine and its impact on menstrual population. The highest frequency among participated females was between age 22-25 years, while the lowest above 34 years age. For this study, we considered symptoms given in ICHD criteria by using MMAT. In our study, 186 females were asked to fill MMAT questionnaire. Out of these **44** answered **yes** to question 1, **25** had severe headaches during periods and **41** were bothered due to the light during these attacks.

Jelena Pavlovic et.al., as in a previous study to assess the burden of migraine in population, revealed 60% of women with migraine reported an association between migraine and menses and had greater headache impact and migraine-related burden on functioning, considering three menstrual cycles. MIDAS indicated that women with MM experienced headaches that have a substantial impact on the work role.

In our study, females diagnosed with menstrual migraine were guided to fill MIDAS as a headache impact measure and then recorded their headache days in 3 months accordance. The subjects were then categorized in to MIDAS grades (I-IV) depending upon the score (0 to 21+). The data revealed **11** female had little or no disability; **17** had mild disability and **16** had moderate disability.

This concludes that majority females having menstrual migraine with greater severity up-to grade III on MIDAS and are recommended to consult a doctor regarding same.

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