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ROLE OF HORMONES AND MIGRAINE HEADACHE DURING WOMENS LIFE

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ABSTRACT

Migraine is mostly seen in women than men. Women are of longer attack duration of migraines. It is a chronic neurological disease that affects 10 to 12% of the population. On comparing women and men women have more frequent, longer lasting, and more severe headaches than men. Women's reproductive cycle regulated by the hypothalamic-hypophyseal-ovarian axis through the release of estrogen and progesterone. Variations in the levels of these hormones control and regulate the menstrual cycle, pregnancy, puerperium, and menopause. This consists of two phases: the follicular or the proliferative phase and the luteal or ovulatory phase. The two primary types of migraine are migraine without aura and migraine with aura. Menses is the most commonly reported migraine trigger after stress. There are 8–13% of women with migraine reported the new onset of migraine during perimenopause. Treatment of migraine in any phase of life is of acute or preventive. Drugs like Nonsteroidal anti-inflammatory drugs (NSAIDs), anti-epileptics topiramate, valproate, beta-blockers like propranolol, tricyclic antidepressants amitriptyline and nortriptyline are commonly used. Migraine is very common in life of women. Migraine is mainly affected by fluctuation in sex hormone levels in women during menses. The hormone levels in women during their lifetime will fluctuates migraine.

KEYWORDS: Introduction, Migraine and women, Migraine and hormones, Estrogen and central nervous system, Treatment during menopause, Conclusion.

INTRODUCTION

Migraine is mostly seen in women than men. women are for longer attack duration of migraines. It is a chronic neurological disease which affects 10 to 12% of the population.[1] Migraine is a chronic pain disorder, characterized by severe throbbing headaches, photophobia, phonophobia and gastrointestinal disturbances, which causes lower quality of life.[2] Common comorbidities of migraine are Psychiatric disorders, like anxiety and depression,[3] and patients with chronic migraine exhibit affective temperamental dysregulation and suicidal behaviours.[4] Moreover, menarche, menstruation, pregnancy, and menopause as use of oral contraceptives and of hormone replacement treatment (HRT) may influence the occurrence of migraine. Migraine affects both sexes equally.[5] There have been evidence indicating that the existence of gender differences in migraine, including the prevalence rate is about twice as high in females compared with males. Most associated symptoms are more prevalent and severe in women than men. Female migraineurs have a greater number of comorbid diseases, psychiatric comorbidities more likely to see. The potential influence of estrogen fluctuations in females cause migraine disability. Sex differences in structural and functional brain alterations can cause migraine.[6]

Epidemiology

Before puberty Migraine is more commonly seen in boys than in girls. During adolescence the incidence and prevalence of migraine increase more rapidly in girls than in boys. In women, the prevalence of migraine increases throughout childhood and early adult life until approximately at the age of 40 years, after which it declines.[7] The prevalence of migraine is highest in women, in between the ages of 25 and 55 years.[8] HIS classification shows that Headache is differentiated into various types and they are Migraine with and without aura. Migraine without aura (MWOA) is a common type of Migraine. In which specific and related symptoms are characteristic of the clinical syndrome of migraine. About 75% of cases with MWOA has been reported worldwide.[8] Migraine with aura (MWA) is described by central neurological indications and that go with the cerebral pain. Migraine rates are reported and the higher rates are in females (70%) than males (30%) and are highest in reproductive years (aged25to55).[14]

Signs and Symptoms

Signs and symptoms such as photophobia, phonophobia, nausea, vomiting, and cutaneous allodynia are more prevalent in women.[9,10]

On comparing women and men, women have more frequent, longer lasting, and more severe headaches than men. The Pain intensity and attack frequency are similar in both men and women. Migraine is a multifactorial and neurological issue that is described by episodes of Headache. Nausea, affectability to light, and noise are the side effects that generally last for 24 to 72 hours.[11] This condition lasts nearly 15% of the people around the world.[12]

Migraine disorder is common among women of all age groups. 17% of women experience early and when contrasted with men 6% experience the ill effects of headaches.[13]

Migraine and Women

The woman's reproductive cycle is regulated by the hypothalamic-hypophyseal-ovarian axis through the release of hormones like oestrogen and progesterone. Variations in the levels of hormones that control and regulate the menstrual cycle, pregnancy, puerperium, and menopause in every women's life. The normal menstrual cycle which lasts for 28 days. This consists of two phases: the follicular or the proliferative phase and the luteal or ovulatory phase. The first day of menstruation is considered the start of follicular phase. After oestrogen and progesterone levels decrease at the end of the previous cycle the bleeding occurs. During this time, the pituitary follicular stimulating hormone (FSH) level slightly increases also stimulating the development of several ovarian follicles. Each follicle contains an oocyte; only one follicle proceeds through ovulation producing increased levels of oestrogens, which result in a drop of the FSH production, preventing the additional development of follicles, and in the stimulation of the hypophysis to release the luteinizing hormone. Progesterone remains low during the follicular phase and except for a small rise just prior to ovulation. At the time of ovulation, the mature follicle ruptures in response to a surge of Luteinizing hormone, releasing a mature oocyte. The luteal phase starts after ovulation and during this phase the follicle, denominated corpus luteum, secretes progesterone and oestrogen. Which then stimulates the endometrium to prepare a thick layer of blood vessels for possible fertilization. If no pregnancy, the corpus luteum persists for about 14 days and then degenerates with a fall in blood estrogen and progesterone levels and a shedding of the top layers of the endometrium and the new menstrual cycle begin.[15]

Subtypes of migraine

The two primary types of migraine are migraine without aura and migraine with aura. Migraine without aura which accounts for the majority of cases, it's about 80% and migraine with aura which accounts for about 20%. Out Of the two, migraine without aura is the type primarily associated with hormonal fluctuations[16,17] and thus is the primary focus of this review. Peri-menstrual migraine attacks which occur within the 5-day window spanning. After this 2 day prior to the onset of menstruation to the third day of menstrual period. Women who experience only peri-menstrual migraine attacks are categorized as Pure Menstrual Migraine (PMM). This is a relatively rare condition and which affects 7–12% of women with migraine who are of reproductive age. In contrast to Pure Menstrual Migraine (PMM), the majority of women with migraine experience migraine attacks both peri-menstrual and at other times of the month. This condition is defined as Menstrually Related Migraine (MRM), and which affect 50–70% of reproductive age women. Clinically, distinguishing Pure Menstrual Migraine (PMM) from Menstrually Related Migraine (MRM) requires that peri-menstrual headache attacks occurred during at least 2 out of the last three menstruation. Women who do not experience attacks in relation to menstruation are termed as Non-Menstrual Migraine.[18,19]

Migraine and Hormones

Menses is the most commonly reported trigger for migraine in women after stress. The recognition of a 5-day window of migraine attacks that occur around the start of menses is mainly based on women's frequent reports that menstruation triggers their migraine attacks. This is supported by clinical data and experimental research from the 1970s. That implicates the withdrawal of oestrogen in late luteal phase as the precipitant of menstrual migraine attack. Although falling oestrogen levels and migraine attack occurrence has been recognized for more than 40years. Few studies have directly examined the role of specific sex hormone changes over the menstrual cycle in relation to migraine attacks.[20]

Estrogen and The central nervous system

Estrogens are produced by the ovaries in non-pregnant women, and in smaller quantities by adipocytes, liver, adrenal glands and breasts. In men oestrogen hormone is synthesized from its precursors, androstenedione and testosterone, by aromatization. Although estrogen quantities are lower in men than in young women. In addition to reproduction, estrogen

participates in multiple physiological and pathological processes in both sexes, including homeostasis, memory and pain processing

In non-pregnant women three major oestrogens are estradiol (E2), estrone and estriol. Estradiol is the most potent form. Estrogen's effect on the brain occur via three distinct pathways: peripheral estrogen directly diffuses into the CNS, testosterone and androstenedione in the brain conversion by aromatases in the presynaptic terminals of brain or de-novo synthesis of estrogen in the brain from cholesterol. In brain, estrogen shows its effect by binding to estrogen receptors that are usually located in the nucleus with subsequent gene transcription and protein synthesis.[21]

Migraine during the menopausal transition

Most women with migraine develop in their teens or twenties. 8–13% of women with migraine reported the new onset of migraine during perimenopause.[22]

In general, migraine is commonly coming under diagnosed in the population. The factors affecting these differences across menopausal stages are not clearly understood. It has been shown that women in who have migraine frequency is exacerbated by hormones and associated with pre-menstrual syndrome, they appear to have the best prognosis post menopause, often experiencing complete resolution. Stabilization and lowering of endogenous estrogen levels migraine intensity declines after menopause.[23]

Migraine treatment during menopausal transition

Treatment of migraine in any phase of life are of acute or preventive. The majority of standard migraine treatments are indicated in women with the menopause transition stage, the MT stage and comorbid disorders and symptoms may impact the choice of treatment. An integrated approach that includes nonpharmacologic strategies should be advocated with women encouraged to get regular adequate sleep, avoid skipping meals, engage in regular exercise, drink plenty of fluids, and avoid caffeine, tobacco and alcohol. Symptomatic nonpharmacologic treatments like breathing exercises, relaxation, and massage can also be recommended.[24] Nonsteroidal anti-inflammatory drugs (NSAIDs) are mostly used for acute treatment and can be combined with anti-emetics if necessary. Triptans are used as the first line of acute treatment provided the patient does not have significant cardiovascular risk factors. Mini-prevention techniques are recommended for menstrual migraine (treating peri-menstrual migraines with NSAIDS and/or triptans).[25] in those with regular cycles often

become unavailable to women with irregular cycles. Peri-menopausal women do not require special consideration, most migraine preventive agents can be used, including anti-epileptics topiramate, valproate, beta-blockers like propranolol, tricyclic antidepressants amitriptyline and nortriptyline. New drug class of monoclonal CGRP antibodies developed specifically for prevention of migraine. Which provides a promising option for midlife women as it is well tolerated, easy to adhere to and not known to have major adverse or side effects. Hormone Therapy (HT) has been used as a treatment of migraine during perimenopause in order to mitigate fluctuating estrogen levels.[26]

CONCLUSION

Migraine is very common in life of women. Migraine is mainly affected by fluctuation in sex hormone levels in women during menses. The hormone levels in women during their lifetime will fluctuates migraine. The estrogen level which fall twice during the menstrual cycle. After ovulation estrogen levels fall and during mid follicular phase estrogen level rises. During post menopause, pre menopause hormone levels of women got changed and that will trigger for migraine attacks. It can be resolve by pain killers' non-steroidal anti-inflammatory agents and the monoclonal CGRP antibodies are now developed for further treatment. During this time severe throbbing, aching headaches, phonophobia, photophobia, nausea and vomiting are to be produced. Pain on eye and visual disturbance can also see. The hormonal headaches can be controlled by drinking plenty of water, ice bag on head, massage on pain area, do exercise, yoga, meditation. These are mainly occurring due to the hormonal fluctuations in every women's life. Menstruation is a natural process in every women's life and it will fluctuate the hormones in body and there by migraine occurs.

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