



Internationally indexed journal

Indexed in Chemical Abstract Services (USA), Index copernicus, Ulrichs Directory of Periodicals, Google scholar, CABI ,DOAJ , PSOAR, EBSCO , Open J gate , Proquest , SCOPUS , EMBASE ,etc.



Rapid and Easy Publishing

The "International Journal of Pharma and Bio Sciences" (IJPBS) is an international journal in English published quarterly. The aim of IJPBS is to publish peer reviewed research and review articles rapidly without delay in the developing field of pharmaceutical and biological sciences



Pharmaceutical Sciences

- Pharmaceutics
- Novel drug delivery system
- Nanotechnology
- Pharmacology
- Pharmacognosy
- Analytical chemistry
- Pharmacy practice
- Pharmacogenomics



Biological Sciences

- Polymer sciences
- Biomaterial sciences
- Medicinal chemistry
- Natural chemistry
- Biotechnology
- Pharmacoinformatics
- Biopharmaceutics
- Biochemistry
- Biotechnology
- Bioinformatics
- Cell biology
- Microbiology
- Molecular biology
- Neurobiology
- Cytology
- Pathology
- Immunobiology

**Indexed in Elsevier Bibliographic Database
(Scopus and EMBASE)**

SCImago Journal Rank 0.288

Impact factor 2.958*

Chemical Abstracts
Service (www.cas.org)



A division of the American Chemical Society

CODEN IJPBJ2



Elsevier Bibliographic databases (Scopus & Embase)

SNIP value – 0.77

SJR - 0.288

IPP - 0.479

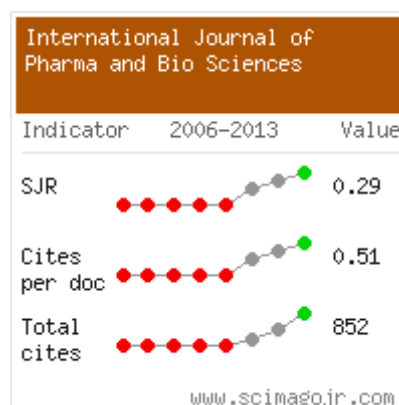
SNIP – Source normalised impact per paper

SJR – SCImago Journal rank

IPP – Impact per publication

Source – www.journalmetrics.com

(Powered by scopus (ELSEVIER))



LUND
UNIVERSITY



JACKSONVILLE STATE UNIVERSITY

Jacksonville State University
Houston Cole Library
USA (Alabama)



UNIVERSITY OF
OXFORD

Oxford, United Kingdom

INDEX COPERNICUS
INTERNATIONAL

*And indexed/catalogued in
many more university*



*Instruction to Authors visit www.ijpbs.net

For any Queries, visit "contact" of www.ijpbs.net



EFFECT OF JACOBSON'S PROGRESSIVE RELAXATION AND AEROBIC EXERCISE ON MENSTRUAL MIGRAINE – A CASE REPORT

DIVYA MIDHA^{*1} AND MEGHA NEB²

*Assistant professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation,
Maharishi Markandeshwar University, Mullana , Ambala.*

ABSTRACT

Menstrual Migraine most likely occurs on or between 2 days before menstruation and the first 3 days of bleeding. Migraine is usually managed by medication but some patients do not tolerate migraine medication due to potential side effects. Non Pharmacological treatment is an alternative option for the patients. Present case is A 26 year old female, who had complaint of headache during her periods. She was not married and her episodes of headache started two years ago. Which were very severe and disabling. Her headache use to start just two days before her menstrual cycle and used to persists throughout her menstrual cycle. Moderate aerobic training was given in the form of cycling for 30 min with warm up session of 10 min, prior to training and a cool down phase of 5 min in between, thrice a week for twelve weeks followed by Jacobson progressive muscle relaxation. Primary outcome measure was MIDAS (Migraine disability assessment test). There was significant reduction in the frequency and severity of episodes of headaches of the patient as evident from patient's headache diary and MIDAS Score. Exercise may be an option for the prophylactic treatment of migraine in patients who do not benefit from or do not want to take daily medication.

KEYWORDS: Migraine, Menstrual Migraine, Jacobson's Progressive Relaxation, Aerobic Exercise



*Corresponding author

DIVYA MIDHA

Assistant professor, Maharishi Markandeshwar Institute of Physiotherapy
and Rehabilitation, Maharishi Markandeshwar University,
Mullana , Ambala.

INTRODUCTION

Migraine is a serious health problem with huge consequences for individuals as well as for the society¹. More than one quarter of the female population experience migraine at some time in their lives and over half of these women report an association between migraine and menstruation. For most women with menstrual attacks, migraine also occurs at other times of the month ('Menstrual Related' Migraine). Fewer than 10% of women report migraine exclusively with menstruation and at no other time of the month ('Pure' Menstrual Migraine)². During the female reproductive years, migraine is up to three times more common in women than in men of similar age³. The primary goal of any acute therapy for menstrual migraine is to abort the current attack, freeing the patient of pain, nausea, vomiting, and other symptoms like Photo- or -Phonophobia, if present. Therapy must aim for prompt resolution. To achieve acute relief, clinicians may choose from either pharmacotherapy that is nonspecific to migraine or migraine-specific pharmacotherapy. Many migraine patients require migraine-specific therapy—Triptans or Ergot derivatives. Although triptans generally are well tolerated, they may produce flushing, lightheadedness, asthenia, chest pain, and neck tightness. Triptans may moderately constrict the lumen of the coronary arteries, and in rare instances have been associated with myocardial infarction. They are contraindicated in patients with coronary artery disease.⁴ Prevention of any disease or disorder is always better than its cure. The prevention of migraine integrates non pharmacologic therapy. Non pharmacologic measures include Education, Avoidance of Trigger foods (e.g. Red Wine or Aged cheese); and maintenance of a regular daily routine of sleep, meals, and activity. Other evidence-based non pharmacologic approaches include magnesium and vitamin supplementation, Relaxation training with Or without Thermal Feedback, Electro myographic Biofeedback, and Cognitive Behavioral Therapy. In the present case Non pharmacological approach has been followed to see the Effect of Jacobson's Progressive Relaxation and Aerobic Exercise on Menstrual Migraine patient.

CLINICAL PRESENTATION

A 26 year old female, teacher by profession, came with a complaint of headache during her periods. She was not married and her severe and disabling episodes of headache started two years ago. There was no relevant history of any allergy, tobacco use, alcohol use, smoking and hypertension. She denied any history of visual problem, weight gain or weight loss, any systemic illness, history of head trauma or vertigo. She never felt any headache despite working at a stretch for 8 hours a day except in her periods. She did not report any triggers or set pattern of her headaches except at the time of her periods., She reported that her younger sister had similar episodes of headache.

INITIAL EXAMINATION AND HISTORY

On physical examination her vitals were normal. She was oriented to person, place and Time. On motor examination, there was no muscular weakness or muscular spasm in neck muscles. Patient did not had any coordination problem, and balance disorder. On sensory examination all of her reflexes were normal. There was no sensory impairment. While giving history, she reported that her headaches occurred only at the time of her menstrual cycle, usually unilateral on the Right Side, that use to start two days prior and persisting throughout the month. Her headaches were very severe, intense and disabling, and associated with photophobia.

FOLLOW-UP VISIT

Follow up visit after two months revealed

- Physical examination and laboratory Normal 2-month headache Calendar shows: Attacks occur on (-2 to +3) days before or after of menstruation in at least two out of three menstrual cycles and additionally at other times of the cycle
- Headache frequency: 2 in First month and 3 in Second month
- Pain Intensity and severity greatest at menses

PHYSIOTHERAPY INTERVENTION AND OUTCOME MEASURE

Physiotherapy intervention was provided by a skilled physiotherapist specialized in the field of neurology in the Out Patient Department of MMIPR for total 12 weeks. Prior to intervention procedure of the treatment was explained to the subject. Written consent was taken from the patient stating his willingness to actively participate in the study and had full rights to withdraw during any stage of intervention. Patient was given Moderate aerobic training in the form of cycling for 30 min with warm up session of 10 min, prior to training and a cool down phase of 5 min in between, under the supervision of a skillfull physiotherapist, thrice a week for 12 weeks followed by Jacobson Progressive Muscle Relaxation. Patient was asked to recall the last 4 weeks of headaches on a calendar including other relevant information such as severity of attacks, work stresses, and her menstrual cycle. She was also asked to complete a MIDAS (The Migraine Disability Assessment Test) Questionnaire, that reflects the impact of headaches over the last 3 months. Pre Intervention Scores from her MIDAS questionnaire revealed a score of 25 which placed in the severely disabled group

JACOBSON'S PROGRESSIVE RELAXATION TECHNIQUE⁵

Following Instructions were given to the patient

1. Take three deep abdominal breaths, exhaling slowly each time. As you exhale, imagine that tension throughout your body begins to flow away.
2. Clench your fists. Hold for 7-10 seconds and then release for 15-20 seconds. The same time intervals were used for all other muscle groups.
3. Tighten your biceps by drawing your forearms up toward your shoulders with both arms. Hold and relax.
4. Tighten your triceps by extending your arms out straight and locking your elbows. Hold and then relax.
5. Tense the muscles in your forehead by raising your eyebrows as far as you can. Hold and then relax. Imagine your forehead muscles becoming smooth and limp as they relax.
6. Tense the muscles around your eyes by clenching your eyelids tightly shut. Hold and then relax. Imagine sensations of deep relaxation spreading all around them.
7. Tighten your jaws by opening your mouth so widely that you stretch the muscles around the hinges of your jaw. Hold and then relax. Let your lips part and allow your jaw to hang loose.
8. Tighten the muscles in the back of your neck by pulling your head way back; as if you were going to touch your head to your back. Hold and then relax.
9. Take a few deep breaths and tune in to the weight of your head sinking into whatever surface it is resting on
10. Tighten your shoulders by raising them up as if you were going to touch your ears. Hold and then relax.
11. Tighten the muscles around your shoulder blades by pushing your shoulder blades back as if you were going to touch them together. Hold the tension in your shoulder blades and then relax.
12. Tighten the muscles of your chest by taking in a deep breath. Hold for up to 10 seconds and then release slowly. Imagine any excess tension in your chest flowing away with the exhalation.
13. Tighten your stomach muscles by sucking your stomach in. Hold and then release. Imagine a wave of relaxation spreading through your abdomen.
14. Tighten your lower back by arching it up. Hold and then relax.
15. Tighten your buttocks by pulling the together. Hold and then relax. Imagine the muscles in your hips going loose and limp.
16. Squeeze the muscles in your thighs all the way down to your knees. Hold and then relax. Feel your thigh muscles smoothing out and relaxing completely.
17. Tighten your calf muscles by pulling your toes toward you. Hold and then relax.
18. Now imagine a wave of relaxation slowly spreading throughout your body, starting
19. at your head and gradually penetrating every muscle group all the way down to your toes.

DISCUSSION

This case illustrates that menstrual migraine is often not a simple headache condition, and it may be associated with other factors that lend to complex management issues. Migraine prediction and specific diagnosis can be made according to The International Classification of Headache Disorders II (ICHD-II), developed by the International Headache Society (IHS). Migraine without aura is an episodic attack of headache lasting 4 to 72 hours typically with in at least 2 of the following: 1) Unilateral location, 2) Pulsating quality, 3) Moderate to severe intensity, 4) Aggravation by routine physical activity and At least 1 of the following: 1) Nausea or vomiting, 2) Photophobia and/or Phonophobia⁸. Migraine with aura includes an aura phase before the headache in addition to all criteria For migraine without aura. Aura symptoms may consist of :1) Reversible positive (flickering lights) or negative (loss of vision) visual symptoms, 2) Reversible sensory symptoms (e.g., Tingling, Feeling of numbness), 3) Reversible speech disturbance (e.g, Slurred Speech), 4) At least 1 of these symptoms occurs over at least 5 minutes and lasts no more than 60 minutes. Typically aura lasts for 15 to 20 minutes followed by the headache⁸. In Patients with menstrual Migraine, headaches are predictably timed to the menstrual cycle, but patients frequently have headaches at other times as well⁶. Menstrual migraine may be more persistent, painful, and resistant to treatment than migraine occurring at other times, but this finding has not been confirmed in population-based research⁷... Relying on the history of the patient to confirm the diagnosis it is clearly evident from her headache diaries that her headache incidence is closely related to her menstrual cycle, based on the ICHD Criteria i.e Attacks, in a menstruating woman, fulfilling criteria for 1.1 "Migraine without aura" and Attacks occur exclusively on day 1 _ 2 (i.e. days -2 to +3) of menstruation in at least two out of three menstrual cycles and at no other times of the cycle.⁸ Headache occurring within 2 to 3 days of the onset of menstrual flow (counting the first day of bleeding as day 1) in two out of three menstrual cycles is reasonable evidence for

confirming the diagnosis of the patient² For Patients with menstrual migraine, the main hormones considered to be responsible have been Progesterone and Estrogen. Levels of both the hormones fall in the late luteal phase of the menstrual cycle, preceding the increase in the frequency and severity of attacks of migraine. A greater body of evidence suggests that migraine is associated in some women with the "withdrawal" of exogenous and endogenous estrogen⁹. Estrogen has a number of effects on the central nervous system. As a potent neuromodulator, it affects Neurons, Glia, and Blood vessels, all of which may in turn influence the migraine process⁹. During the normal menstrual cycle, levels of estrogen fall during the late luteal phase and are at their low point a few days before and after the onset of menses. Estrogen decline is the primary trigger of menstrual migraine. A study of 38 women with menstrual migraine found that the cyclic decline in estrogen levels was inversely proportional to the prevalence of migraines⁹. Other mechanisms, unrelated to estrogen, may also contribute to menstrual migraine, including elevated prostaglandins (possibly due to endometrial prostaglandin production), decreased responsiveness to endogenous opioid activity (Decreased Opioid tonus), and a decline in circulating ionized magnesium levels^{10, 11}. For women, menstrual migraine may differ from non menstrual migraine. Women with PMDD may have a lower tolerance to pain due to other symptoms like fatigue, lethargy, bloating, and irritability, resulting from fluctuating hormone levels. Other Potential different symptoms are, Persistence of headache for longer duration, higher rate of recurrence, more resistance to the treatment than other migraine attacks in Association with other symptoms including photo/ phonophobia, nausea, or vomiting, Dysmenorrhea etc. This is supported by a study conducted by Mac Gregor and colleagues in on 155 women, who tracked their migraine attacks over 698 menstrual cycles. They found that menstrual migraine may be more severe, more frequent, and more often associated with vomiting than women who have migraine outside the menstrual cycle¹². In present case patient's Clinical Presentation is a typical example of pure menstrual migraine that

requires an independent management strategy to treat. Diagnosis of menstrual migraine is critical to provide optimal treatment strategies. Some females need acute treatment in the form of medications but some patients avoid medications due to their potential side effects. The primary goal of any acute therapy for menstrual migraine is to abort the current attack, freeing the patient of pain, and other associated symptoms like nausea, vomiting, and photophobia or photophobia if present. Thus Intervention must aim for prompt resolution. To achieve acute relief, patients may choose from either pharmacotherapy that is nonspecific to migraine or migraine-specific pharmacotherapy. The prevention of migraine integrates non pharmacologic therapy. One of evidence-based non pharmacologic Approaches, relaxation training with or without thermal feedback. Effect of exercise on estrogen levels in women has been found in a study conducted by Charles E. Matthews and his colleagues,. : Findings of his study suggest that physical activity participation has the

potential to modify the adverse effect of increased adiposity on estrogen metabolism¹³. Thus Exercise may be an option for the prophylactic treatment of migraine in patients who do not benefit from or do not want to take daily medication⁴. From a wider health-based perspective, it should be stressed that patients with migraine are less physically active than the general population and that exercise has positive effects in terms of general well-being and the prevention of disease³.

CONCLUSION

Patient was benefitted in terms of reduction in frequency and severity of attacks of episodes of headaches during menstruation with significant reduction in MIDAS Score reaching at grade II. Non-pharmacological approach may therefore be an option for the prophylactic treatment of migraine in patients who do not benefit from or do not want daily medication.

REFERENCES

1. Mattias Linde., Emma Varkey., Asa Cider., Jane Carlsson., Mattias Linde. Exercise as migraine prophylaxis : A randomized study using relaxation and topiramate as controls. *Cephalalgia*, 31(14): 1428–1438,(2011)
2. E.Anne MacGregor. Menstrual migraine. *Curr Opin Neurol* , 21:309–315,(2008)
3. Haskell WL., Lee IM., Pate RR., Powell KE., Blair SN., Franklin BA. Physical activity and public health: updated recommendation for adults from the American College of Sports Medicine and the American Heart Association. *Circulation*,116(9): 1081–1093,(2007)
4. Goadsby PJ., Lipton RB., Ferrari MD. Migraine—Current understanding and treatment. *New Engl J Med*, 346:257-268,(2002)
5. Raghuvver R., Narkeesh., Effect of jacobson's progressive relaxation on autonomic Variables in normal adolescents. *Indian Streams Research Journal*,1(11):1-7,(2011)
6. Loder E. Menstrual. migraine. *Curr Treat Options Neurol*,3:189-200,(2001)
7. Mannix LK., Calhoun AH. Menstrual migraine. *Curr Treat Options Neurol*,6:489-498,(2004)
8. International Headache Society. The international classification of headache disorders, 2nd edn. *Cephalalgia*. 2004;24 (Suppl. 1):1-151
9. E. A. MacGregor., A. Frith., J. Ellis., L. Aspinall., A. Hackshaw. Incidence of migraine relative to menstrual cycle phases of rising and falling estrogen. *Neurology*,67:2154-2158 ,(2006)
10. Mannix L K., Files JA. The use of triptans in the management of menstrual migraines. *CNS Drugs*,19:951-972,(2005)
11. Silberstein SD., Goldberg J. Menstrually related migraine. Breaking the cycle in your clinical practice. *J Reprod Med*, 52:888-895,(2007)
12. Stewart WF., Lipton RB., Chee E., Sawyer J., Silberstein SD. Menstrual cycle and

- headache in a population sample of migraineurs. *Neurol*,55: 1517-1523,(2000)
13. Charles E., Matthews., Jay H., Fowke., Qi Dai., H. Leon Bradlow., Fan Jin., Xiao-Ou Shu., Yu-Tang Gao.,Christopher Longcope., James R., Hebert., Wei Zheng. Physical Activity, Body Size, and Estrogen Metabolism in Women. *Cancer causes and control*,15(5): 473-481,(2004).