

Case Report

Implementation Of Matrix Rhythm Therapy (MaRhyThe ©) In Migraine Headache

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ABSTRACT

Migraine is a primary head ache disorder characterized by recurrent headaches that are moderate to severe in intensity. Typically, these types of headaches affect one half of the head, are pulsating in nature, and last from a few hours to days. Many studies and research are happening worldwide to know the effectiveness of treating migraine without drugs and give relief to the individual. Matrix Rhythm Therapy (MaRhyThe ©) is one of the upcoming therapeutic modalities which gives good results in musculoskeletal disorders, Neurological pains, non-healing Ulcers and in improving the restricted range of motion. A patient aged about 48yrs came to our OPD complaining of Migraine headache for past 28yrs is treated with Matrix Rhythm Therapy (MaRhyThe ©) for 60 minutes for weekly once for 12 weeks and outcome measures are calculated with Visual Analog Scale (VAS) and duration of each episode of migraine. It's found effective in reducing the migraine headache with Matrix Rhythm Therapy (MaRhyThe©)

KEYWORDS: Matrix Rhythm Therapy, Migraine Head ache.

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INTRODUCTION

Migraine is a neurological condition that can cause multiple symptoms. It is frequently characterized by intense, debilitating headaches. Symptoms may include nausea, vomiting, difficulty speaking, numbness, sensitivity to light and sound. Migraines often run-in families and affect all ages. The diagnosis of Migraine headache is determined based on clinical history, reported symptoms, and by ruling out other causes. The most common categories of Migraine headache are those without aura (previously known as common migraine) and those with aura (previously known as classic migraines). Migraines can begin in childhood or may not occur until early

adulthood. Women are more likely than men to have Migraines. Family history is one of the most common risk factors for having migraines.

Migraine symptoms is said in 4 stages:

- 1. Prodrome Stage:** May begin one to two days before the headache itself which includes food cravings, depression, fatigue or low energy, frequent yawning, hyperactivity, irritability, and neck stiffness.
- 2. Migraine with Aura:** May have problems with vision, sensation, movement and speech.
- 3. Attack phase:** Most Acute or severe of the phases when the actual Migraine pain occurs. Attack phase symptoms can last anywhere from hours to days. symptoms may include

increased sensitivity to light and sound, Nausea, dizziness or feeling faint, pain on one side of your head, either on the left side, right side, front or back or in your temples, pulsating and throbbing head and vomiting.

4. Post drome phase: During this phase, there are usually changes in mood and feelings. These can range from feeling euphoric and extremely happy, to feeling very fatigued and apathetic. A mild, dull headaches may persist.

PATHOPHYSIOLOGY:

Migraine clearly involves nociceptive pathways from the Trigemino-vascular system. The anatomy of the Trigemino-vascular system has been well described over the past 50 years. There is a reflex connection from the trigeminal nucleus to the parasympathetic outflow to the cranial vasculature. Trigemino-vascular system consists of small pseudo unipolar sensory neurons that originate from trigeminal ganglion and upper cervical dorsal nerve roots. These neurons innervate cerebral blood vessels, pial vessels, dura mater, and large venous sinuses. The projections from upper cervical nerve roots and trigeminal ganglion converge at trigeminal nucleus Caudalis (TNC), which explains the distribution of migraine headache in anterior and posterior part of head and upper neck. Fibers from TNC travel to ventroposterior medial

nucleus of thalamus and to sensory cortex. Other fibers also project to several subcortical areas such as reticular formation, cerebellum, and midbrain. Nociceptive information is also transmitted to limbic system, which explains emotional response in migraine headache.

Some of the precipitating factors for migraine head ache include:

- Certain food items like aged cheese, food additives like nitrates (as used in hot dogs), and monosodium glutamate (MSG) can be responsible in a few patients. High stress levels and anxiety can also be a precipitating factor for migraine.
- High intake of coffee or withdrawal from coffee can precipitate migraines.
- Weather changes: Storm fronts, strong winds, or changes in altitude can sometimes trigger migraine.
- Sleep disturbances: Lack of adequate sleep or too much sleep can trigger a migraine.
- Menstrual period: Many women can have migraine episodes during their menstrual periods and be symptom-free otherwise.
- Exposure to bright lights, loud noise, or strong odors.

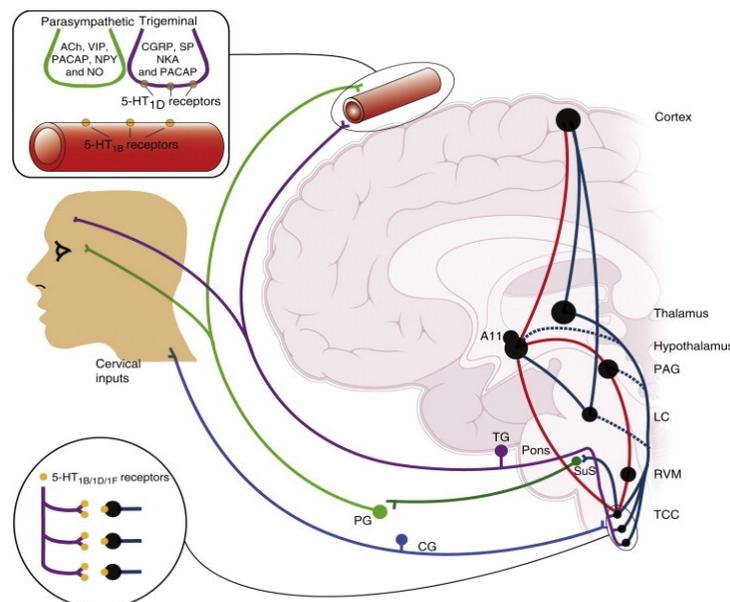


Image 1: Pathophysiology (Source of Image www.sciencedirect.com)

DIAGNOSTIC CRITERIA (Migraine with Aura):

A. At least two attacks fulfilling criteria B and C.

B. One or more of the following fully reversible aura symptoms:

1. Visual
2. Sensory
3. Speech and/or language
4. Motor
5. Brainstem
6. Retinal

C. At least two of the following four characteristics:

1. At least one aura symptom spreads gradually over >5 minutes, and/or two or more symptoms occur in succession
2. Each individual aura symptom lasts 5-60 minutes
3. At least one aura symptom is unilateral
4. The aura is accompanied, or followed within 60 minutes, by head ache.

DIFFERENTIAL DIAGNOSIS

Tension -type Headache: Tension - type headache is usually bilateral, compared to migraine headaches, which are unilateral in about 60% to 70% of the adults. Tension headache feels like pressure or tightness around the head, which waxes and wanes. It is not commonly accompanied by photophobia, nausea, or vomiting.

Cluster Headache: Cluster headache is usually unilateral, and the pain begins around the eye. The pain is severe and reaches crescendo within minutes, unlike a migraine headache, where the pain is gradual in onset. Associated symptoms in cluster headaches include ipsilateral redness and lacrimation of the eye, rhinorrhea, stuffy nose, and sweating, and respond well to oxygen therapy.

Transient Ischemic Attack (TIA): The differential diagnosis for migraine with aura includes TIA. The symptoms are sudden in onset in a TIA, whereas in migraine, the symptoms are relatively gradual in onset. Also, positive aura symptoms like visual scintillations or paresthesia's and associated symptoms of

photophobia, phonophobia, nausea and vomiting are less likely in a TIA.

Matrix Rhythm Therapy (MaRhyThe©): In 1996, the concept of Matrix Rhythm Therapy (MaRhyThe©) was introduced and gained scientific recognition. This concept expresses the fact that every intervention on a cell-whether preventative, curative, regenerative or also destructive works primarily via the cell's environment, i.e., via the extracellular matrix. That is where the therapeutic action has its primary effect, which then leads in turn to effects on the cell. Concept is researched and patented by Dr. Ulrich G. Randall, he says all bodily tissues vibrates or oscillates at a frequency of 8-12 Hz, which maintain the normal physiology of the body, any disturbance in the tissue cells through altered process leads pain or discomfort in the body. In Matrix Rhythm Therapy (MaRhyThe©) the therapist acts from outside on the cells and their environment-i.e., the extracellular matrix- using a specially developed device called the MatrixMobil. Applying the MatrixMobil to the tissues, create an asymmetrical pressure distribution in tissues, which induces a pump/suction effect while at the same time stimulating nerve receptors. Specifically, the therapist uses MatrixMobil to generate a microscopic, rhythmical stretching action (micro- extension) in tissues, which is adapted to the natural micro vibrations of the muscle cells and thus acts efficiently on the cellular level. The normal micro vibrational activity of the tissues and the cells is restored and /or stimulated. In a very short time this leads to a normalization of metabolic processes in the given region of the body.

CASE PRESENTATION

A 48 years old female, who presented with complaints of stabbing and pricking pain over the left side of her face, scalp and forehead and rarely neck was referred for Physiotherapy department as outpatient. She has an alleged history of Migraine headache with aura for about 28 years. She had about 3-4 days of headache per week and it affects her daily routine works. Factors like strong perfumes, crowded places, travelling and prolonged

forward bending activity were found to be aggravating her symptoms. When she takes medication and put herself in rest her headache will reduce after two to three days.

METHODOLOGY

Source of Data: Sai Healthcare Foundation-Advanced Physiotherapy and Multi-Specialty clinic, Mylapore, Chennai-600004, Tamilnadu.

Study Design: A case report

Duration of data collection: 12 weeks

Materials used:

1. Consent form: a signed consent form from the patient to allow them into the study.
2. Data collection instruments - A plastic Ruler, and log book
3. MatrixMobil (MatrixMobil©)
4. Talcum Powder

Outcome Measure:

Pain intensity: By Visual analog Scale- A scale of 10 cm to evaluate intensity of pain where 0 represents no pain and 10 represent unbearable pain.

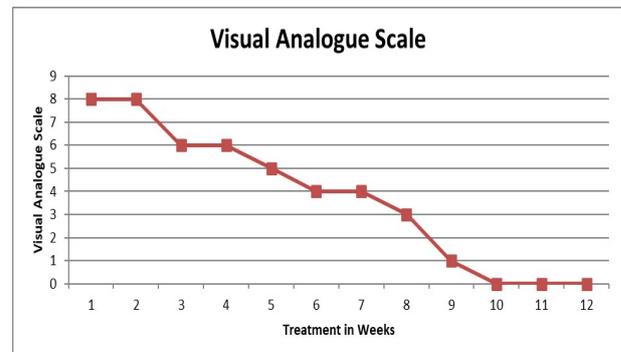
We have educated and requested the patient to record the duration of each episode of migraine headache attacks in the given log book and it is recorded every week. This helps to calculate the duration of each episode occurred during the course of the treatment.

Procedure: The patient is made to lie comfortably in supine/prone position. The portion to be treated is exposed and talcum powder is applied to reduce friction caused by the Matrix Rhythm Therapy (MaRhyThe ©) probe (Resonator). Gentle stroking is made with the MatrixMobil probe along the length of the muscles. Matrix Rhythm Therapy (MaRhyThe©) is given along the para spinal muscles, anterior and lateral aspect of neck (Both sides), face and scalp for 60 minutes of each session. The Therapist applied longitudinal strokes by pushing the resonator of the device into the soft tissues. The application was along the entire muscle length. Pain intensity is noted with VAS scale and duration of each episode are recorded every week.

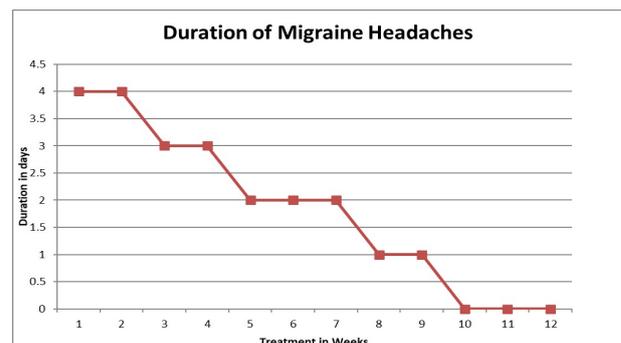
RESULTS

Results were recorded with Visual Analogue Scale

and duration of each episode of migraine. Initially the pain intensity was 8 out of 10 and the duration was about 3 to 4 days per week. After the application of Matrix Rhythm Therapy (MaRhyThe©), there was a significant decrease in the pain intensity and duration of each episode. The Visual Analog Scale was recorded as 5 out of 10 after five sessions and 0 out of 10 by the end of twelve sessions (Graph 1). The duration of each episode was also significantly reduced after fifth session and became reduced completely without any episode of migraine by the end of twelve sessions (Graph 2). She was observed for a period of six months as a follow up and was found that the number of migraine headache was nil without any pain. We followed for a period of one year, she was apparently stable and there was no episode of Migraine for the whole 1-year period. She was made to introduce into the aggravating factors of headache during her observation period and was found the result to be stable without any episodes of migraine headaches. Thus, Matrix Rhythm Therapy (MaRhyThe©) was satisfactorily effective and it can be used in management of Migraine Headaches.



Graph 1: Visual Analogue Scale



Graph 2: Duration of episode of Migraine Headaches

DISCUSSION

Recent advancements are emerging in the field of Rehabilitation and gaining remarkable reviews among patients. The concept of Matrix Rhythm Therapy (MaRhyThe©) is a newer tool in the field of Rehabilitation that has shown to be effective in treating pain and various pathological conditions. This study was conducted to find the effectiveness of Matrix Rhythm Therapy (MaRhyThe©) in Migraine Headaches. There are various studies regarding the efficacy of Matrix Rhythm Therapy (MaRhyThe©) in different conditions. The main objective of this study is to find the efficacy on pain intensity and duration of each episode of migraine headache in a single patient. Migraine is a form of sensory processing disturbance with wide ramifications for central nervous system function.

Activation of the trigeminovascular system is thought to be responsible for the pain of migraine. Many features of migraine, such as nausea, vomiting, and thirst, but also cranial autonomic symptoms such as lacrimation, nasal congestion, and rhinorrhea are indicative of altered autonomic function in the central nervous system (CNS). As such, it has been shown that alterations in sympathetic and parasympathetic tone can be found from the premonitory phase through to postdrome. One proposal is that migraine triggers, such as stress, awakening, or other changes in physiological or emotional homeostasis, activate nociceptive pathways through

increased parasympathetic tone. Other pathways may also play a role in the provocation of migraine by stress. Sympathetic outflow into the meninges involving norepinephrine release has been shown in preclinical models to contribute to pronociceptive signaling through actions on Dural afferents and Dural fibroblasts. These physiological mechanisms, involving networks which project to preganglionic parasympathetic neurons in the superior salivatory nucleus, may result in peripheral nociceptor activation through the release of neuropeptide transmitters contained within parasympathetic efferent that innervate the meninges and meningeal blood vessels. The trigeminovascular pathway conveys nociceptive information from the meninges to the central areas of the brain, and subsequently to the cortex. Nociceptive fibers originating from the trigeminal ganglion innervate the meninges and large cerebral arteries. This nociceptive innervation occurs mainly through the ophthalmic branch of the trigeminal nerve. Afferent projections from the trigeminal ganglion converge with inputs from adjacent skin, peri cranial, and paraspinal muscle, and other C1-C2 innervated tissues before synapsing on second-order neurons in the trigeminal cervical complex (TCC), which encompasses the TNC and the dorsal horn of the upper cervical spinal cord (C1-C2). The convergence of afferent projections with neurons from extracranial structures accounts for referred pain perception in the periorbital, occipital, and cervical-neck regions.

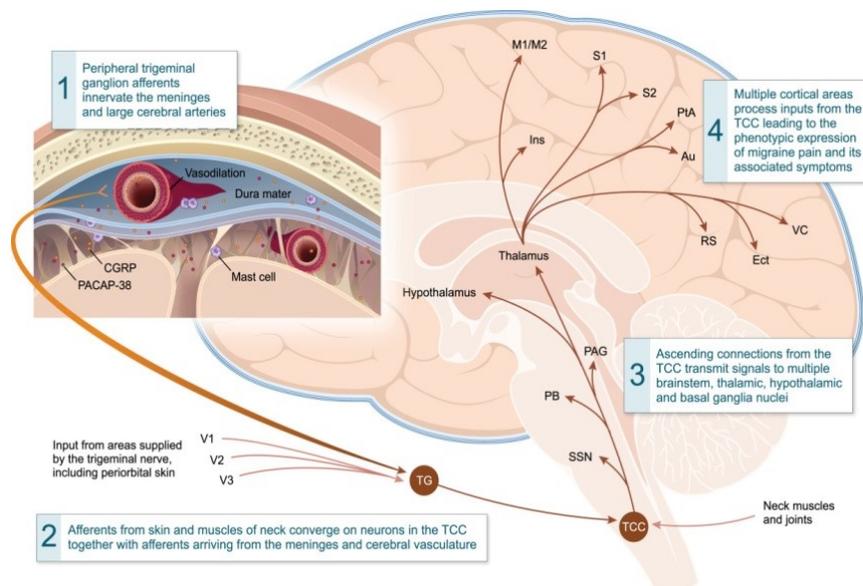


Image 2: Source of image Credits to: A phase by phase review of Migraine pathophysiology. David W. Dodick, 2018 May:58 suppl1:4-16

The importance of the sympathetic trunk for many chronic illnesses is well established, including especially conditions related to stress. For reduction of load on the sympathetic nervous system, Matrix Rhythm Therapy (MaRhyThe©) works along the paravertebral spine along the sympathetic trunk.

CONCLUSION

With Matrix Rhythm Therapy (MaRhyThe©) satisfactory results were obtained in the reduction of pain, Duration of episodes and loss of aura symptoms. Thus, Matrix Rhythm Therapy (MaRhyThe©) is found to be effective in the treatment and management of Migraine Headache. This can be used as one of the therapeutic treatment modalities for Migraine headaches. More case series and further research is needed to generalize the clinical evidence for Matrix Rhythm Therapy (MaRhyThe©) in treating Migraine headaches.

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