

Migraine Headache – New Simple and Smart Way to Relieve Pain (Migraine Head Band)

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ABSTRACT

BACKGROUND

The aim of this analysis with band was to find out the effectiveness of migraine prophylaxis versus current pharmacologic strategies.

METHODS

The aim of this study was to determine the effect of uniform band on improving the sensitivity of descending pain modulatory pathways across migraine cycle. 50 females were selected to participate in this study for a period of 3 months. The frequency, duration of migraine attacks assessed with study and control group.

RESULTS

For Migraine sufferers, the duration of headache was significantly improved by wearing our migraine band within 20 min of usage. Patients feel relaxed and feel stress free in both groups.

CONCLUSION

This study revealed that vibration provided by the band was highly effective to improve the headache and stress.

KEYWORDS

Chronic migraine, Vibration, Microcirculation, Stress, Nerve stimulation

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INTRODUCTION

Migraine is a chronic disorder affecting 10 % of the global population. Age standardized one year prevalence of migraine was 25.2 % in south India and the mean global prevalence is estimated at 14.7 %. It poses a significant individual and socioeconomic burden, wherein incidence peaks during midlife, and the most productive years of an individual. Migraines are a disease more common in women than men, hence women were chosen for the study group. Previous studies data showed that 30 - 50 age groups accounted for nearly 70 % of migraine sufferers. A migraine is characterized by moderate to severe attacks of unilateral pulsating head pain, associated with photophobia, photophobia, and nausea and / or vomiting. Classically, migraine has 3 phases, a premonitory phase, a headache phase, post drome phase.¹ the premonitory phase has symptoms such as mood alterations, fatigue and neck discomfort. About a third of patients experience aura, comprised of transient focal neurological symptoms of visual, sensory, or motor disturbances which may occur simultaneously with premonitory or migraine headache phases. The headache phase is followed by prodromal phase which lasts for 72 h, and is characterized by non - headache symptoms including tiredness, difficulties concentrating and a stiff neck. The pain and inter-racial period between migraine attacks may vary in duration depending on the migraines chronicity. With the increase in frequency of headaches, there is increase in disruption to the daily functioning of women. Also, another study 10 % reported a lower mood, 48 % felt tired most of the day, 88 % felt lower concentration ability while experiencing headache.²

MATERIALS AND METHODS

The current study had been done after taking informed consent from patients seen in our hospital.

Selection Criteria

Inclusion: Females, Age - 20 - 40 years Diagnosed as episodic migraine (headache occurring 1 - 14 days a month) on intermittent drug therapy (OTC / prescribed)

Exclusion: No renal / retinal / liver diseases / Cancer / hypothyroid / hypertension/ diabetes no menstrual problems like dysmenorrhea / oligomenorrhoea

Methods: Patients per above criteria, were given to wear vibration band for 20 min, (this vibration produced by the band stimulate the trigeminal nerve and multiple Abita receptors for a more robust pain inhibition). One of the few principle mechanoreceptors innervated by AB fires, two likely accounts most of the "gate control "pain reducing effects. Fast adapting, light touch missionaries corpuscles detect frequency within 20 - 40 Hz, while fast

reacting and long acting deep pacinian corpuscles begin sensing vibration at 65 Hz with maximal sensitivity at 250 Hz. It is more likely that IA and II afferents of the muscle

spindle themselves centrally mediate pain relief with larger amplitude vibration. As both IA and AB afferent share the anatomical pain to substance, a shares physiological pain inhibition is postulated.

Device: A custom designed head band with elasticity fitted with 130 - 180 Hz vibration is applied to both sides of temporal areas of forehead. This vibration device consists of vibration head, a control module, power supply, microchip and switches. These are well designed and well fitted head bands. The vibration can be generated by using the on and off switches for 10 - 20 min (Tables 1 and 2).

RESULTS

Demographic and clinical factors	
Age	Females (N = 50),
20 - 25	12
25 - 30	28
30 - 35	22
35 - 40	20

Table 1. Demographic and Clinical Factors.

Pain severity vas	At onset N = 50 (%)	After band n = 50 (%)
1 TO 4	N = 7(13)	N = 7 (100)
5 TO 7	N = 25(49)	N = 23 (92 %)
8 TO 10	N = 18(36)	N = 14 (80 %)
Duration of headache	N = 50	
To 5 Hrs	13	
Whole day	17	
24-48 Hrs	13	
Over 48 Hrs	7	
Feeling relaxed outcome	N = 50	
(Out of pain score vas)	N = 50	
mild	5	
Moderate	20	
Very good	25	

Table 2. Pain Severity Vas / Duration of Headache / Feeling Relaxed outcome (Out of Pain Score Vas).

DISCUSSION

The study subjects from 20 - 40 years. Were selected and the pain severity score 1 - 10, visual analogue scale given, duration of headache also assessed from 5 to 48 hrs. In patients with pain severity of 1 - 4, headache was relived in 100 % (N = 7), also in the group of pain score 5 - 7, relief was seen in 92 % (N = 14) within 10 minutes. In the group with pain severity score 8 - 10, relief was seen 80 %

(N =14). Psychosocial factors such as comfort level, acceptance, and improved sleep in short time, patient feels

comfortable in 20 min.

Pathophysiology of Migraine

Vascular theory: Hypothesis attacks occurred *via* activation of perivascular nerves innervating major cerebral vessels, whereas, recent evidence that neural changes in subcortical sites. It has been suggested that migraine is a dysfunction of subcortical sites below the level of diencephalon resulting in "abnormal perception of basal level of primary traffic. Brainstem oscillates between enhanced, threshold and diminished neutral tone states. When the brainstem is in a state of diminished tone, ongoing endogenous analgesic circuits are ineffective at modulating incoming noxious inputs, external pathways can activate trigeminal pathways and evoke pain and vice versa.³ Also there is a suggestion that the hypothalamic function is critical and may be involved in altering the sensitivity of brain stem sites that modulate incoming trigeminal inputs. Imaging revealed stronger functional connections between the hypothalamus and areas of the brain related to pain transmission and autonomic function in patients with migraine compared with healthy controls. Activation of Meningeal Nociceptors by Increased Parasympathetic Activity intracranial vasodilation and local release of inflammatory molecules in meninges So, it appears that migraine is a complex disorder with synergistic relationship between peripheral and central nervous systems, the balance between these drivers may differ between individual migraineurs.⁴

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CONCLUSION

This vibration migraine study examined a sample of 50 patients there was absolute improvement (80 %) migraine headache. Improvement of neuropathy and improvement of vascular changes. Apart from this there is a drastic reduction of mental stress. The migraine band is a non-invasive technique without any neurological side effects.

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