Head Band for Migraine Headache Relief

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SYNOPSIS

Application of an ice pack and local scalp pressure are the most commonly used non-pharmacological methods for temporary relief of migraine headache pain. An elastic band secured around the head with Velcro® and a firm rubber disc inserted under the band was used to apply local pressure over the area of maximum pain in 25 patients with migraine headache. Three headaches were studied in each patient. Two patients dropped out because of local tenderness, which prevented them from using the band. The 23 remaining patients used the band in a total of 69 headaches. Pain relief was monitored for 30 minutes at 10 minutes intervals. Sixty headaches (87%) were relieved. Nine headaches (13%) were not improved. Sixty-seven percent of those who improved (40 headaches) had relief of over 80%, twenty-five percent (15 headaches) had less than 50% improvement. Pain severity steadily increased when the band was released. Temporary relief of pain from mechanical compression of the scalp supports the possibility that at least part of the pain in migraine headache originates from dilated blood vessels in the scalp.

Key Words: migraine, pain, head band, treatment

(Headache 1993; 33:40-42)

INTRODUCTION

Abortive therapy of migraine headache is usually achieved by the use of vasoconstrictor agents, analgesics, sedation and anti-emetic agents. Various non-pharmacological methods have also been tried in the past for controlling the pain of acute migraine attacks. Application of an ice pack is the most commonly used procedure. Complex devices like the Migra-lief apparatus® and Coldwrap® have recently been evaluated for the same purpose. On the other hand some patients report relief from hot baths or application of hot packs to the neck and scalp. Migraine headache patients were routinely questioned regarding non-pharmacological relief measures. A large number of patients reported using finger pressure in the temporal region for temporary relief of pain. This specific question was therefore included as part of the intake interview.

MATERIALS AND METHODS

One hundred consecutive patients with a diagnosis of migraine headache with and without aura were interviewed. Ninety two percent of these patients had attempted some type of local measure in an attempt to control the pain. Within this group, 8% used finger pressure, a tight towel or piece of clothing around their head. Seventy five percent of those using these techniques reported some degree of relief of pain as long as the pressure was maintained. Pressure was applied over the area of maximum pain, with 90% applying pressure over one or both temporal regions, 5% in the sub-occipital regions and the rest over the forehead. Those who used finger pressure often sought the help of other family members to help them with continued application of pressure.

Attempts were made to design an appropriate band to apply continuous but moderate pressure to these scalp regions. Initially a simple elastic band applied around the head and secured with Velcro® was used. A width of 4-5 cms and length of 60-65 cms was most appropriate to obtain uniform application of pressure all around the circumference of the head. However a simple band did not provide enough pressure over areas of maximum pain without applying too much pressure in areas without pain. Some additional method of applying localized pressure was therefore required. A firm rubber disc 1cm in thickness and 3cms in diameter inserted under the elastic band was found to be effective in applying localized pressure over the desired locations more efficiently. One or more of these disks could be used.

Patient Trials. Twenty five patients with a diagnosis of migraine headache with and without aura according to criteria established by the Headache Classification Committee of the International Headache Society were tested with these bands. A pain log of 0-10 was used to assess the severity of pain. The band and the disc were applied when the pain reached over 5 on the pain scale. The amount of pressure applied was determined by the patient to obtain maximum relief without discomfort. One or more discs were applied over the areas of maximum pain. Pain was assessed at 10-minute intervals for a total of 30 minutes after the application of the band. The band was then released and pain severity was again documented every 10 minutes for the next 30 minutes. Each patient used the band during headaches. No analgesic or vasoconstrictor agents were allowed for the duration of the observation period of 60 minutes.

RESULTS

Two patients could not apply adequate pressure because of tenderness of the scalp during the headache and therefore could not continue with...
the study. Twenty three remaining patients used the band in a total of 69 headaches for which data was collected. Headache relief was reported in 60 headaches (87%). There was no improvement in 9 headaches (13%). Out of 60 headaches which improved, 40 headaches (67%) decreased by over 80%, 15 headaches (25%) improved between 50-60% and 5 headaches (8%) showed less than 50% improvement (figure 1). All 23 patients continued to use the band as an adjunct to other therapy during the initial follow up period of six months.

![Head Band for Migraine Headache Relief](image)

Fig 1- Number of headaches with percentage of improvement.

DISCUSSION

Vasoconstrictor agents and analgesics are the most commonly used medications to treat headache pain in migraine. Ice packs and sometimes hot packs have also been used with some success. Recently, Elaborate methods of applying ice pack to the head have been designed with some success. The present approach is an entirely mechanical method which emulates more efficiently the common habit of many patients of applying finger or other type of local pressure for temporary relief of pain. This simple method appears to be effective for temporary pain relief and may be used an adjunct to analgesics and vasoconstrictor agents. No attempts were made to analyze any reduction in the use of medications while the band was being used. There are no potential for side effects. Two out of twenty five patients were unable to use the band because of local tenderness.

The exact origin of pain in the scalp in patients with migraine is controversial. Graham and Wolff proposed that pain originated from dilated scalp vessels. More recent studies have questioned this and suggested that the pain may be arising from other tissues including muscles. Relief of pain, albeit temporary, on application of localized pressure over the major scalp vessels (temporal and occipital) during a migraine headache supports Wolff's idea that at least part of the pain may be originating from these vessels. In a study of 50 patients using compression of superficial temporal arteries, Blau and Dexter concluded that 49 out of 50 had an intracranial contribution to their pain, in

28 both extracranial and intracranial factors played some role and in 21 there was no extracranial component. Drummond and Lance studied 66 patients and found that extracranial vascular dilation contributed to pain in a third of patients, intracranial vascular factors in another third and probable non-vascular factors in another third. But these authors point out that other changes in the perivascular and vascular tissues besides dilatation may be contributing to the development of pain. Temporary symptom relief with compression may therefore be only partially due to vasoconstriction. Mechanical compression could also be producing counter-irritation in the inflamed vascular and perivascular tissues contributing to the relief.

CONCLUSION

A simple elastic band applied around the head and secured with Velcro, along with the use of rubber discs inserted underneath the band for additional local pressure over the areas of maximum pain, appears to be beneficial for temporary and partial control of pain in migraine headache patients. The exact mechanism of this remains unknown.

Acknowledgment. I am grateful to Velcro for assistance in designing the band. This band is protected by copyright.

REFERENCES