ORIGINAL ARTICLE

UNVEILING THE ARTISTRY OF TRITICUM AESTIVUM SPROUTS(TAS): EXPLORING THE POTENTIAL OF TAS EXTRACT REGARDING PREVENTION AND CONTROL OF MIGRAINE

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ABSTRACT

Background: Migraine is a prevalent public health issue that diminishes the daily life potential of many individuals

Objectives: This study set out to determine how well Triticum aestivum sprout (TAS) extract worked to prevent and treat migraines.

Methods: Sixty migraine patients were randomly assigned in a 1:1 ratio to receive either TAS extract or a placebo for four weeks in a practical, randomized, double-blind, placebo-controlled clinical trial. The change in headache intensity was the main outcome that was assessed.

Results: At base line there was no difference between TAS and placebo group regarding pain intensity. All the TAS group patients took the TAS extract for one week. Similarly, placebo group was given placebo for the same period. There was a notable distinction between these two groups regarding pain intensity throughout the one-week trial period.

Conclusion: TAS extract had a significant effect on migraine prevention and control.

Key words: Triticum aestivum, sprouts. migraine, randomized, placebo, double blind

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INTRODUCTION

According to the diagnostic criteria set by the International Headache Society, for a diagnosis of migraine disease, patients must have a history of episodic headaches occurring fewer than 15 days per month for over one year, with at least 2 attacks per month, and at least 5 headache episodes lasting 4 to 72 hours, along with Pulsating quality of headache, one side location, Regular physical activity made the discomfort worse and was categorized as moderate to severe. It was also necessary to have at least one of the following symptoms: photophobia (sensitivity to light), phonophobia (sensitivity to sound), and/or nausea or vomiting.[1]

The global prevalence of migraine is approximately 14.0%, and in terms of burden, migraine contributes to 4.9% of global ill health.[2] Migraine is age-related, occurring predominantly in individuals beyond the age of 40 years. With a ratio of three to two, migraines are more common among women.[3] In a study conducted in Lahore Pakistan the frequency of migraine headache was 46%.[4]

Many risk factors may lead to develop migraine in humans. These factors that trigger the headache process vary from person to person and include stress, anger, anxiety, depression, disturbed sleep, hunger, and receiving shocking news specially on social media.[5]

Triticum aestivum sprouts were never discussed in literature as a treatment of migraine rather gluten present in wheat has been described as a trigger to migraine.[6]

However, in a clinical trial wheat germs(sprouts) significantly reduced postpartum pain in women after vaginal delivery.[7] Wheat germ contains many nutrients. Wheat sprouts are full of antioxidants.[8] Wheat grass juice has been recommended in Musculo-skeletal disorders and migraine.[9] So wheat sprouts were considered to be investigated for prevention and control of migraine. The oldest known food crop, wheat (Triticum aestivum L., TA), is still a significant crop in the world and a great source of physiologically active compounds.[10] Its anti-cancer properties have been revealed in some studies.[11] Triticum aestivum has been found to be a powerful antioxidant anti-inflammatory agent.[12] Because of its remarkable free radical scavenging activity, it may be utilized in stress.[13] No negative effects of wheatgrass have been reported in any clinical trial.[14.] In a randomized, double-blind, placebo-controlled study, wheatgrass juice appeared to be effective and safe as a single or adjunct treatment for active distal ulcerative colitis.[15] Wheat grass juice has been found quite beneficial in the treatment of thalassemia patients.[16.] Packed red cell requirement has also been decreased in thalassemia patients along with use of wheatgrass juice. [17] Wheatgrass juice is also consumed as a dietary supplement to enhance the immune system and increase strength in the human body.[18]

Despite all of its advantages, no research has looked into the mechanisms of action or anti-migraine qualities of sprouts from Triticum aestivum.

Hypothesis: Triticum aestivum sprouts (TAS) Extract was effective for prevention and control of Migraine.

Objectives

To evaluate efficacy of Triticum aestivum sprouts (TAS)Extract for prevention and control of Migraine.

METHODS

Extract of Triticum aestivum sprouts (TAS) was prepared by wetting fresh Triticum aestivum seeds for a period of 3 days. After sprouts growth, the seeds were dried in shade and then ground to powder. The powder was placed in the thimble of Soxhlet and ethanolic extract was collected at 60^{o}C.The ethanol was evaporated under vacuum by rotatory evaporator to get crude ethanolic extract The filtrate was diluted up to 100mg TAS extract / ml. The diluted filtrate was used as experimental therapy (TAS group) in comparison with placebo groups

It was hypothesized that Triticum aestivum sprouts (TAS) Extract was effective for prevention and control of Migraine. To assess the effectiveness of TAS extract for preventing and treating migraines, a double-blind, randomized, placebo-controlled trial was conducted. After the approval of study protocol from Institutional Review Board of Rashid Latif Medical College, Lahore an urban community in Lahore was randomly selected through multistage sampling. Sample size was calculated on the basis of an expected 14% prevalence at global level. With 80% power and confidence interval of 95% and 10% allowable error, applying the formula $(Z)^2 *p(1-p)/e^2$ Sample size of 30 per group was considered adequate.[19] After calculating the sample size, 60 migraine patients aged between 18 and 65 were selected using consecutive sampling. Selection was based strictly on diagnostic criteria outlined by the International Headache Society and aided by a pretested questionnaire. The baseline for the study was established by reviewing the historical record of migraine attacks over nearly three months. Migraine patients who could effectively communicate with clinical investigators and complete the questionnaire and headache report were preferred for inclusion in the trial. Patients who were unwilling to participate, were using medications that could affect migraines (e.g., tricyclic antidepressants, monoamine oxidase inhibitors, high-dose magnesium, corticosteroids, botulinum toxin), or were allergic to wheat were not included. Informed consent was obtained before the trial began. For a period of four weeks, participants were randomized 1:1 to either the TAS group or the placebo group. The principles defined in the Declaration of Helsinki were adhered to during the trial. For a week, participants in the TAS group received three daily doses of 100 mg of TAS extract diluted in 250 ml of water. Similarly, the placebo group received plain water that appeared identical to the TAS extract. Low-dose aspirin, analgesics, and anti-inflammatory drugs were allowed for severe headaches, and all concurrent medications were documented in the patient's records. The Visual Analogue Scale was used to measure the primary outcome, which was a decrease in pain intensity (VAS). A secondary result was the quantity of headache days, which was determined by counting each day on the calendar on which the individual had a migraine attack that met the criteria. Vomiting, nausea, photophobia, and phonophobia were evaluated as additional secondary measures. An aura-free or aura-accompanied migraine that lasted for at least half an hour was considered qualifying if it satisfied two of the following criteria: (a) unilateral location; (b) at least one of the following: nausea and/or vomiting; photophobia; or phonophobia; or moderate to severe pain intensity or aggravation by, or avoidance of, routine physical activity. Furthermore, regardless of the length, characteristics, or accompanying symptoms of the pain, a participant's use of medication specifically designed to treat migraines during an aura or on a particular day was recorded as a migraine day.

Data were collected at baseline followed after half an hour, one hour,12 hours, one day ,one week and then after

one four weeks and analyzed using SPSS version 25 software.

RESULTS

TAS vs Placebo

Symptom	Intensity	TAS Group	Placebo	p-value
Pain				
Baseline	No pain	0	0	0.639
	Mild pain	0	0	
	Moderate pain	2	3	
	Severe pain	28	27	
After 15 minutes	No pain	8	0	<0.001*
	Mild pain	12	0	
	Moderate pain	10	3	
	Severe pain	0	27	
After 30 minutes	No pain	18	0	<0.001*
	Mild pain	12	0	
	Moderate pain	0	3	
	Severe pain	0	27	
After 1 hour	No pain	24	0	<0.001*
	Mild pain	6	1	
	Moderate pain	0	2	
	Severe pain	0	27	
After 24 hours	No pain	28	0	<0.001*
	Mild pain	2	2	
	Moderate pain	0	3	
	Severe pain	0	25	
After 1 week	No pain	30	8	<0.001*
	Mild pain	0	12	
	Moderate pain	0	10	
	Severe pain	0	0	

Likelihood ratio, *p-value significant at 0.05

At baseline pain was independent from groups (p-value 0.639). After 15 minutes, a statistically significant association between pain and groups was observed (p-value <0.001). Patients who took the TAS extract showed significantly higher mean pain intensity difference scores compared to those who took the placebo at all time points from 15 minutes to one week (P<.001). A larger proportion of patients treated with TAS extract experienced a reduction in headache pain intensity to mild or none starting 15 minutes after the dose and continuing to one week.

DISCUSSION

There have been many efforts to prevent migraine attacks and to treat effectively but still no effective remedy has been discovered uptil now in modern medicine. It would be highly informative if we just have a look into existing lines of managing migraine attacks followed by comparing their efficacy, side effects and contra-indications with new herbal invention. We can yet categorize them into two main categories1.Pain-relieving medications.

Pain relievers:

- May cause ulcers and bleeding in the gastrointestinal tract. Not safe for a stroke or heart attack.
- Dihydroergotamine may aggravate migraine-related vomiting. It is also not indicated in coronary artery disease, hypertension, renal or hepatic disease .
- Lasmiditan can cause dizziness and hallucinations
- Ubrogepant (Ubrelvy). Can cause nausea and sensitivity to light and sound, dry mouth, excessive sleepiness. Contraindicated in renal failure, renal disease, hepatic disease, pregnancy, breast feedingand renal impairment.
- CGRP antagonists. Can cause dry mouth, nausea and excessive sleepiness.
- Opioid medications. highly addictive,
- Triptanes are contraindicated in heart patients.

So, regarding medication for treatment no medicine is safe, free of side effects and contraindications.

Preventive medications:

- i.Anti-hypertensives: may cause hypotensiom.
- ii.Antidepressants. A tricyclic antidepressant can cause sleepiness.
- iii.Anti-seizure drugs. can cause dizziness, weight changes, nausea and more and contra-indicated in pregnancy.
- iv. Botox injections. may cause hypersensitivity.
- v.CGRP monoclonal and pain at the site of injection.

All of these drugs are not free of side effects and no one is indicated in all conditions. Many herbal preparations have been in practice in old days and still some ones are being used for treatment or prevention of migraine..

Due to its strong analgesic qualities and few adverse effects, herbal remedies have gained popularity as a potential method for treating and preventing migraines.[20] Research endeavors are still underway with the goal of creating novel formulations.[21] A common clinical practice remedy for headache prevention is a recipe derived from traditional Chinese medicine.[22] According to a study, Coriandrum sativum L. worked well in conjunction to cure migraines.[23] In addition, a clinical investigation showed that the ginger group experienced a significant decrease in the length of migraine attacks and the intensity of headaches when compared to the placebo group.[24] Herbal prepations are of paramount importance if adequately addressed. There is lot of scope of treatment and prevention by using these herbs.[25]

Present study is unique in many aspects. TAS extract was a novel herbal preparation. It was a transparent, tasteless and odorless preparation. May be orally taken alone or with any eatable. Most significant and astonishing aspect

is its quick response giving relief within 5-10 minutes. No any medication can give relief in such a short time. It is free of any sort of side effect and there is absolutely no contraindication to its use. There is no interaction with any medication or food item. Another remarkable feature is that it does not cause any sort of sleepiness or drowsiness rather it makes the patient active.

CONCLUSION

Triticum aestivum sprouts (TAS) extract is the most effective natural remedy for prevention and control of migraine. Remarkable shortest possible time for quick relief in pain intensity in migraine patients also having no side effects and without any contra-indication.

LIMITATIONS

More studies are required to explore other beneficial effects of Triticum aestivum sprouts (TAS) extract

SUGGESTIONS/RECOMMENDATIONS

There is dire need to give due attention towards plant medications as they are much economical, highly effective, without side effects and negligible contra-indications.

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AUTHOR'S CONTRIBUTIONS

MA: Study Design, Data analysis and Interpretation
MA: Final review the study
HA: Search the Literature, Review
NR: Writing the methods section
FA: Writing the discussion section
AK: Writing the results section
MA: Final Approval
DS: Data Analysis