

Lifestyle - A Common Denominator for the Onset and Management of Migraine Headache: Complementing Traditional Approaches with Scientific Evidence

Abstract

Background: Ayurveda and Yoga have gained popularity in the management of various chronic health problems associated with pain including migraine headache. It is evident from both scientific as well as traditional literature that stress, diet, sleep, and exposure to extreme climatic conditions act as triggering factors for the onset of migraine. Hence, it is essential to focus on lifestyle including diet as important factors for prevention and as adjuvant factors in the management of migraine headache. **Aim:** The aim was to propose a new perspective to the understanding of migraine headache keeping in view the role of lifestyle including diet. **Methods:** Classical Ayurveda texts and traditional Yoga scriptures were used to compile information on the role of lifestyle including diet in the onset and management of migraine headache. This was complemented by PubMed-based review of scientific literature. **Outcome:** Ayurveda texts provide an extensive information about the basic understanding, causes, precipitating factors, and management of migraine headache, while Yoga texts refer to the concept of mental stress (*adhi*) leading to physical health problems (*vyadhi*). It is evident from the literature that diet, sleep, exposure to extreme climatic conditions, and mental stress play an important role in the onset and management of migraine headache. **Conclusion:** Lifestyle appears to be the common factor for both onset and management of migraine headache.

Keywords: Ayurveda, diet, lifestyle, migraine headache, yoga

Introduction

A migraine is one of the most common primary headache disorders, characterized by unilateral, pulsatile, or throbbing sensations in the head. It is associated with greater degree of disability and is triggered by psychological and physiological stressors.^[1] A number of intrinsic and extrinsic factors can trigger an episode of migraine. The important triggers are stress, food, fasting, sleep deprivation, and change in weather conditions.^[2] The need for lifestyle modification, including physical exercise, healthy habits, proper diet, and stress adaptability, has become essential factors in the management of most chronic ailments like migraine. Exploring this understanding as per Ayurveda and Yoga texts and correlating it with available scientific literature aims at providing a value addition with supporting evidence in the management of migraine headache.

Ayurveda, an ancient system of Indian medicine, defines health as a state of

well-being resulting from a synergistic balance in *Doshas* (principal systems functions - *Vata*, *Pitta*, and *Kapha*), *Dhatu* (body tissues), *Mala* (excretory products), and *Agni* (digestive fire). A blissful state of *Atma* (spirit), *Indriya* (sense organs), and *Manas* (mind) is also said to be important to achieve the state of positive health.^[3] Migraine headache is referred as *Ardhavabdhaka* under the classification of *Shiroroga* (diseases related to the head region) in Ayurveda treatises.^[4] The pain associated is one-sided, intense, and piercing in nature. The onset of *Ardhavabhedaka* is attributed to various causes, such as fasting, intake of dry food items, alcohol, weeping, suppression of natural urges, daytime sleeping, anxiety, fear, and grief. The line of treatment for migraine involves administration of *samshodhana* (*Panchakarma*-Bio-purificatory techniques) with special mention of *kaya virechana* (therapeutic purgation),^[5] diet and lifestyle regulation. *Pathya ahara* (wholesome

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regulated diet) and *vihara* (wholesome regulated lifestyle) are the primary approaches to maintain homeostasis of all *dosha's* for prevention and management of diseases. Scientific literature also shows that diet, lifestyle, and stress can contribute to increased prevalence of migraine headache and their understanding helps in its management.^[6]

According to Yoga, migraine is considered as an *adhija vyadhi* (mind-body disorder) where the disturbances in the mind influence the flow of *Prana* (the vital force/breath) resulting in physical problems and affecting the weakest system in the body.^[7] Yogic principles of diet are based on *trigunas* (the three inherent qualities of food), which emphasize on intake of healthy and nourishing vegetarian diet. The concept of *achara* and *vichara* denoting healthy activities such as practice of *asana*, right thoughts, and attitude, respectively, play a key role in the prevention and management of diseases.

Scientific literature mentions diet and lifestyle as migraine triggers and also states that education on the same plays a major role in its prevention.^[6] Complementing the traditional understanding with scientific evidence, therefore, would add value in designing a more holistic and integrative line of treatment. Hence, this concept paper aims at compiling information from both traditional and modern literature to present a new perspective to the management of migraine headache.

Methods

Seven major texts of Ayurveda which included *Bruhtrayis* (three major texts), *Laghutrayis* (three minor texts) and Yoga Ratnakara were reviewed, and relevant information was compiled under two headings: (i) factors responsible for the onset of migraine and (ii) factors which play a key role in the management of migraine apart from conventional Ayurveda therapies. The factors were further categorized into two (i) diet and (ii) lifestyle (stress, sleep, habits, and others). The texts reviewed included *Charaka samhita*, *Sushruta samhita*, *Ashtanga Hridaya*, *BhavaPrakasha*, *Madhava nidana*, *Sharangadhara samhita*, and *YogaRatnakara*. The compilation also includes information on headache-related disorders (*shiroroga*), as migraine is grouped under this category in some Ayurveda texts.

Similarly, an attempt was made to classify the appropriate information from ancient Yogic texts under the categories mentioned above. The texts included *Upanishads*, *Bhagavadgita (B.G.)*, *Hatha Yoga Pradipika*, *Patanjali Yoga Sutras (P.Y.S)*, *Shatdarshana* and *Yoga Vasishta*. Although we found no direct mention of migraine headache in the texts, selected concepts related to disease and pain were considered.

Furthermore, a focused search of modern literature was conducted using PubMed as the data base during July 2018. Since the objective was to derive complementary information to the traditional understanding and not to do

a systematic review, we considered PubMed as the only search engine for this purpose. The keywords used for the search were lifestyle, diet, stress, sleep in relation to a migraine headache. The type of articles considered included review articles, cross-sectional studies, randomized controlled trials, cohort studies, and surveys.

Description of common factors responsible for the onset and management of migraine

Further to the compilation, the concepts have been described to arrive at an understanding of diet and lifestyle as common factors which would play an important role in both onset and management of a migraine.

The etiological factors as mentioned in Ayurveda treatises, Yogic scriptures, and modern medical research show lot of similarities.

Studies show that stress is one of the four most acknowledged triggers. The other three are fatigue, not eating on time and lack of sleep.^[8] The triggers are also broadly classified as dietary causes and lifestyle based causes which includes stress.

Factors responsible for the onset of migraine headache

Role of diet in the onset

Concepts based on Ayurveda texts

The etiological factors described here are the concepts propounded by the great Ayurveda scholars known as *Acharya* (an accomplished practitioner and teacher known for his wisdom in Ayurveda). *Acharya Charaka* mentions independent and specific *nidana* (causes) for the onset of *Ardhavabhedaka* (migraine), whereas *Acharya Vagbhata* has explained only *Samanya shiroroga nidana* (general etiology of headache) which triggers any type of *Shiroroga* (diseases of the head) including *Ardhavabhedaka* (migraine). The other Ayurveda texts have also outlined similar details. The important verses in Sanskrit and their translation to English are cited under respective sections.

Acharya Vagbhata in the Ayurveda treatise “*Ashtanga Hridaya*” under *Uttarasthana* (A.H.U) explains the *samanya nidana* (general etiology) as:

- *Dhūmātapatuṣārāmbukrīḍāṭisvapnājāgaraiḥ |*
- *Utsvēdādhipurōvātabāspanigraharōdanaiḥ || A.H.U. 23/1 ||*
- *Atyambumadyapānēna kṛmibhirvēgadhāranaiḥ |*
- *Upaghātamṛjābhyaṅgadvēśādhaḥpratātēkṣaṇaiḥ || A.H.U. 23/2 ||*
- *Asātmyagandhaduṣṭāmabhāṣyādyaiśca śirōgatāḥ |*
- *Janayantyāmayān dōṣāḥ || A.H.U. 23/3 ||*

The smoke, sunlight, dew, playing in water, excessive sleep, keeping awake at night, excessive sweating, stress, wind, suppression of tears, crying, excessive intake of water and alcohol, helminthic infection, suppression of natural urges, avoidance of hygiene, dislike towards *abhyanga* (massage), constant gazing, bad odor, excessive talking may increase

the *ama* formation leading to accumulation of *dosha* in the head region causing various diseases of the head region.^[9]

- *Acharya Charaka* in *Siddhisthana* (C.Si) explains the specific etiology as:
- *Rūksātyadhyasānāt pūrvavātāvaśyāyamaithunaiḥ*
- *Vēgasandhāraṇāyāsavyāyāmaiḥ* || C.Si. 9/74 ||.

The intake of dry items, excessive intake of food, less intake of food, exposure to wind, controlling the natural urges of tears, sexual drive, bowel, and bladder evacuation vitiate the *vata*.^[5]

Most of the causative factors mentioned under *samanya nidana* (general etiology) aggravate *vata*, *pitta*, and *kapha* and vitiate *rakta*. From the available information on *samanya nidana* of *shiroroga* and specific *nidana* of *Ardhavabhedaka*, the etiological factors have been classified as *aharaja nidana* (dietary causes), *viharaja nidana* (lifestyle causes), and *manasika nidana* (mental causes).

Specific dietary causes (*aharaja nidhana*) and the underlying mechanisms:

- *Adhyashana* (consumption of food before the digestion of previous meal): It leads to *ama* formation which enters the circulation and vitiates *rakta*. When it lodges in *ardhashiras* (one side of the head), it produces *Ardhavabhedaka*^[5]
- *Amla ahara* (sour food): Excessive intake of sour food articles which have *laghu* (light), *snigdha* (unctuous), and *ushna* (hot) *guna* (quality) does the *vilayana* (melting down) of *kapha* and *pitta rakta dooshana* (vitiates *pitta* and *rakta*)
- *Anashana* (intake of less food): It may be *abhojana/alpamatra bhojana* (not taking food/taking less food) which leads to *rikta kosta* (empty stomach) and *vata prakopa* (aggravation)^[5]
- *Atisheetambu pana* (intake of excessively cold water): It causes *agnimandya* (weak digestion) leading to the formation of *ama* (byproduct of improper digestion). *Sheeta guna* (cold quality) which vitiates *vata* in turn causes *sankocha* (constriction) of *sira* (arteries) in the body. It causes *kapha prakopa* (aggravation of *kapha*) by its *snigdha* (unctuous), *manda* (slow) and *guru* (heavy) *guna* causing *raktadusti* (vitiating of blood), *srotodusti* (vitiating of body channels) in the *shiras* (head) leading to *ardhavabhedaka*^[5]
- *Ati madya sevana* (excessive intake of alcohol): It leads to *dooshana* of *pitta* and *rakta* (vitiating of *pitta* and blood). It also causes the *vidaha* (inflammation) of *rakta* by its *ushna* (hot), *vyavayi* (diffuse), *vikasi* (spreading nature) *gunas* (qualities), results in *kshobha* (constriction) of *raktavaha sira* (disturbance in blood vessels), which leads to *vatadi prakopa* (aggravation of *vata*) and *shiroroga* (diseases of the head)^[9]
- *Guru Ahara* (heavy food): It leads to *agnimandya* (weak digestion), causes *kapha prakopa* there by acting as a trigger for headache^[9]

- *Rookshashana* (dry food): It causes *vata prakopa* which leads to formation of *kledamsha* (waste) leading to the *srotorodha* (blockage of channels) leading to *Ardhavabhedaka*
- *Sambhojana* (eating food which is completely filling): It causes *tridosha prakopa* and cause *amotpatti* (production of *ama*) leading to *shirashoola* (headache).^[5]

Concepts according to Yoga texts

Taittiriya Upanishad summarizes the importance and role of food in an individual's life. It says: "*Annam Brahmeti vyajanaat*," i.e. food is *Brahman* (Universal consciousness), because it is food from which all beings are born, sustain and finally merge into. Food, therefore, plays an important role in health and disease.^[10]

Hatha Yoga Pradipika explains food along with *yama* (restraints on behavior) and *niyama* (observances). It mentions that food taken should be of moderate quantity, pleasant, and sweet leaving one-fourth of the stomach empty. Food items which are sour, pungent, and hot-like mustard, alcohol, fish, meat, curds etc., reheated food, salty food are those advised to be avoided.^[11]

The *B.G.* explains the importance of diet in the context of disease as follows:

- *Āyuhśattvabalārōgyasukhaprītivivardhanāḥ*
- *Rasyāḥ snigdhaḥ sthirā hr̥dyā āhārāḥ sāttvikapriyāḥ* || B.G. 17/8 ||
- *Kaṭvamlalavaṇātyuṣṇatīkṣṇarūkṣavidāhinaḥ*
- *Āhārā rājasasyēṣṭā duḥkhaśōkāmayapradāḥ* || B.G. 17/9 ||
- *Yātayāmaṃ gatarasaṃ pūti paryuṣitaṃ ca yat*
- *Ucchiṣṭamapi cāmēdhyaṃ bhōjanaṃ tāmasapriyam* || B.G. 17/10 ||.

Food in the mode of goodness increases the duration of life, purify one's existence and gives strength, health, happiness, and satisfaction. Such food are sweet, juicy, nourishing, and palatable and are known as *Satvic* food. Foods that are too bitter, too sour, salty, pungent, dry and hot, are liked by people in the modes of passion. Such foods cause pain, distress, and disease. These are *Rajasic* foods. The food cooked for more than 3 h before being eaten, which is tasteless, stale, putrid and unclean, is food liked by people in the mode of ignorance. It is called *Tamasic* food. Hence, it can be postulated that the *rajasic* and *tamasic* food when consumed inappropriately trigger diseases associated with pain as both of them aggravate *pitta* which is a principle factor in the onset of headache.^[12]

Complimenting concepts based on scientific literature

Scientific evidence shows that the food we consume acts as a potential trigger for migraine and is second to stress responsible for its onset.

Food items, such as dairy, processed food, fermented, pickled and marinated food, and those which contain nitrates (hot dogs, salami, and bacon), tyramine (aged cheese, beans,

citrus fruits, avocado, banana, onion, red wine) caffeine and histamine (seafood),^[13] are found to be the triggers of migraine.

The onset of headache due to the above can be understood by theories of brain-gut axis where a sensitive nervous system develops hyperexcitability as a response to multiple environmental and immunological factors.^[14]

Diet and nutrition can also bring about neurogenic and vascular inflammatory changes. Following ingestion of certain food, studies show that the rate in which neurons synthesize neurotransmitters is influenced.^[15] This can be supported by studies where decreased serotonin levels have shown to trigger migraine and diet can contribute to increase in serotonin levels.^[16]

Role of lifestyle in the onset of migraine headache

Concepts according to Ayurveda (*viharaja karana*)

The following factors are known to trigger the onset of migraine according to Ayurveda texts:

- *Avashyaya/Tushara sevana* (excessive exposure to mist): It increases *vata* and *kapha* because of its *sheeta guna* (cold quality)^[5]
- *Atapa sevana* (excessive exposure to sunlight): This causes *vilayana* of *kapha* and aggravation of *pitta guna* results in *raktadusti*^[9]
- *Atimaitihuna* (excessive sexual indulgence): It causes *shukra kshaya* (oligospermia) which in turn leads to *vata dusti* (vitiation of *vata*) and causes *shiroroga* (disease of the head)^[5]
- *Ayasa* (fatigue/exertion): Fatigue can be both physical and mental in origin. Physical fatigue occurs due to *ativyayama* (excessive exercise), and mental fatigue may be due to *rodana* (crying), *chinta* (worrying), etc., All these causes increase *rooksha guna*, leading to *shoshana* of *dhatu*s in the body. The *vata* gets vitiated in *ardha shiras* (half part of the head) to produce *ardhvabhedaka* (migraine)^[9]
- *Diwa swapna* (day sleep): It causes *kapha prakopa* (vitiation of *kapha*) and increases *medas* leading to *raktadusti* (vitiation of blood) and *avarodha* in the *shiras* (blockage in blood vessels) to produce *vata prakopa* and *shirashoola* (headache)^[9]
- *Pragvata* (exposure to cold breeze from eastern direction): This causes *vata kapha prakopa* by increasing *sheeta guna*. This causes *sankocha* of *siramukha* in *shiras* (obstruction of blood vessels) to produce *shiroroga* (headache)^[9]
- *Ratri jagarana* (keeping awake during night): It does *prakopa* of *vata* by its *rookshaguna*^[9]
- *Vega dharana* (suppression of natural urges): Suppression of urges such as *chardi* (vomiting) and *kshavatu* (sneezing), induces *vata prakopa*^[9]
- *Asatmendriyartha samyoga* (improper stimulation of sense organs) is considered an important factor for trigger of diseases as Ayurveda considers the sense

organs to be the route to the brain. Constant glare, staring, bright light, loud noise, certain types of smell could trigger migraine.^[9]

Role of lifestyle in health and disease according to Yoga

Yoga encompasses factors which are physical, mental, social, and spiritual in nature which can influence health and disease. The principles might appear general and subtle, but plays vital role in the overall understanding of health and disease.

Acharya Patanjali has provided the most comprehensive description of the five stress producing factors called *Kleshas*. They are *Avidya asmita raga dwesha and abhiniveshaha*.

Ignorance, ego, desire, dislike, and fear of change are the five stress producing factors. The fivefold *kleshas* are responsible for the onset of *dukha* (pain) which may be physical or mental. Diseases are considered as *dukha* and can be overcome through *cittavritti nirodha* (regulation of mental modifications). We could overcome the fivefold *klesha* by practicing *kriyayoga* (*tapas* [austerity], *swadhyaya* [self study], *ishwarapranidhana* [surrendering to the divine]) and by *ashtanga yoga* (Eight limbs of Yoga).^[17]

Acharya Patanjali also mentions about *cittavikshepa* (obstacles) as the impediments in the path of achieving the control of mind. *Cittavikshepa* leads to *dukha* (pain). They are *vyadhi* (disease), *styana* (mental laziness), *samshaya* (doubt), *pramada* (lack of enthusiasm), *alasya* (physical lethargy), *avirati* (craving for sense pleasure), *bhrantidarshana* (illusionary vision), *alabdhabhumikatva* (despair due to failure to concentrate) and *anavasthitatva* (unsteadiness in concentration). There are seven methods mentioned by Patanjali as a remedy and for the sake of simple study, we could understand that keeping a positive attitude, practicing breathing techniques, and meditation on various objects help one to get rid of the *vikshepa*.^[17]

The Lifestyle modifications are better understood by knowing more on *yamas* (restraints) and *niyamas* (observances) as explained in P.Y.S.

- *Ahimsā-satya-asteya brahmacarya-aparigrahāḥ yamāḥ* || P.Y.S. 2/30 ||
- *Śauca saṁtoṣa tapaḥ svādhyāy-eśvarapraṇidhānāni niyamāḥ* || P.Y.S. 2/32 ||

The *yama* (ethical living) guidelines have been mentioned as *ahimsa*: nonviolence, non-harming, *satya*: truthfulness, honesty, *asteya*: Nonstealing, to the extent that one should not even desire something that is not his own, *brahmacharya*: Walking in awareness of the highest reality, remembering the divine and practicing the path of celibacy, *aparigraha*: Non possessiveness, nongreedy, nonindulgence.

The *niyamas* (ethical observances) are *shaucha*: Cleanliness and purity of body and mind. It results in purification of the subtle mental essence, brings pleasantness, mastery over the senses, and capability for self-realization, *santosha*: Contentment or comfortable acceptance of what one currently has. It brings joy and happiness from within, *tapah*: Through training of the senses, there comes a destruction of mental impurities and an ensuing mastery over the body and the mental organs of senses and actions, *svadhyaya*: Self-study, reflection on sacred words, and study of the scriptures. Through this one attains communion with the underlying natural reality, *Ishvarapranidhana*: Surrender and dedication to the Supreme Being or Causal Source, devotion, and surrender of fruits of practice. It helps in achieving the state of perfect concentration (*samadhi*). *Yama* and *Niyama* when not practiced as applicable to common man can, therefore, lead to diseases.^[17]

Scientific literature on lifestyle as a trigger in the onset

An episode of migraine is triggered by external factors such as fatigue, fasting, sleep disruption, exercise, and weather conditions.^[18]

Fatigue has been evaluated and has been significantly seen 12 h before a migraine episode.^[19]

Studies demonstrate that peripheral and central sensitization of the trigeminovascular projection to the dural vasculature can exacerbate neuronal responses to innocuous mechanical and noxious intracranial dural inputs. This is considered a reason for trigger of migraine following physical activities such as exercise.^[20]

Sleep has been extensively studied as a cause of migraine. Lack of sleep, excess of sleep lead to migraine^[21] and migraineurs report poor sleep quality and daytime tiredness when compared to non-migraineurs.^[22] Reduced serotonin,^[23] increased catecholamine's^[24] and hypothalamic orexinergic system^[25] play a role in the onset of migraine. Orexin-containing neurons in the hypothalamus fire in wakeful states, and disruption of orexinergic signaling results in excessive sleepiness. Orexinergic cells affect not only monoaminergic activity across the sleep cycle but also pain modulation. The melatonin levels which get synthesized by the pineal gland during darkness may not trigger migraine but may predispose the onset of headache leading to awakening from sleep.^[26]

Since hypothalamus is said to be involved in physiological functions as a regulator for homeostasis and therefore plays a key role in sleep cycle, thirst, feeding, arousal, and urination. Hypothalamic activation has been demonstrated in migraine during and before an episode of migraine in imaging studies.^[27] We, therefore, understand how lifestyle plays a role as a trigger of migraine.

Role of stress as a triggering factor

Ayurveda explains the concept of *pragyaparadha* (intellectual blasphemy). This unrighteousness is the main cause of somatic diseases and can induce all the pathological conditions.^[28] Stress can be therefore considered as *pragyaparadha*. It is a factor due to which a person cannot perform optimum levels of intellectual functions and cannot discriminate between right and wrong. This increases *Vata* and hence aids manifestation of *shoola* (pain).

According to the Yoga text - *Yoga Vasista*, the concept of “*Adhija vyadhi*” explains about the diseases originating from stress and “*Anadhija vyadhi*” explains the diseases which are not due to stress. The duality of likes - dislikes, love – hatred, etc. which govern human emotions start creating imbalance at the level of *manomaya kosha* and when intensify cause “*Adhi*’s.”^[7] These conflicts bring about the speed in mind and is termed “stress.” The repetition brings in the response of anxiety, depression, anger and affects the various systems. This is a state of mind described in P.Y.S as “*kshipta*” featured by agitation and restlessness and predominant with *rajas*. The *B.G.* illustrates the process of how stress can lead to manifold problems. Repeated thinking and dwelling on the same thoughts have been identified as source of all problems. This leads to attachment, desire, anger, delusion, memory loss, lack of discrimination, and finally destroys oneself.^[12]

According to Scientific literature, stress can be due to physical, mental or psychological factors. A study on 3259 civil servants has shown that high strain jobs with low social support is associated with migraine.^[29] It is found that prolonged stress activates immune system and may facilitate pain. The pro-inflammatory mediators such as tumor necrosis factor alpha, interleukin (IL)-1beta, IL-6 and nitrous oxide are activated due to stress leading to migraine.^[30]

Factors which play an important role as an adjuvant in the management of migraine

The comprehensive Ayurvedic approach in the management of migraine

The first line of treatment for migraine is *nidana-parivarjana* (abstinence from etiological factors). The objective is to reduce the frequency of attacks and to improve the quality of life. By adapting *dinacharya* (daily regimen) and *rutucharya* (seasonal regimen), the frequency of headache episodes has reduced. Pitta individuals have strong *agni* (digestive power), and the dietary causes such as overeating of spicy food aggravate Pitta, leading to the formation of *ama* and further can trigger headache. Therefore, they are advised to avoid Pitta aggravating food. Lifestyle-based causes (*Viharaja nidana*), such as, weather-related causes, exposure to sunlight, wind, improper bowel, inadequate sleep and excessive exercise

should be avoided as they increase *pitta* and therefore increase the tendency of *shoola* (pain).^[4]

The description given in *Sharangadhara Samhita Parishistam* (S.P) provides a comprehensive recommendation of diet (*Pathya-Apathya*) in the management of headache.

- *Śāli yavaṁ mām̐sa rasam vārtākuñca paṭolakam |*
- *Drākṣādāḍimakharijūraphalani ca payastathā ||*
- *Niśāpānam nadīsnānam gandhadravya niśevanam |*
- *Śīrorogeṣu sarveṣu hitamuktam yathāyatham ||*
- *Dravyāṇi ca atitīkṣṇāni durjarāṇi ca yāni vā |*
- *Tānyaniṣṭapradānyatra tīkṣṇāśca nikhilāḥ kriyāḥ ||* (S.P 66).

Intake of red rice, barley, meat soup, snake gourd, grapes, pomegranates, dates, drinking milk at night is indicated in the management of all types of headache including migraine. Excessive exercise and strong smell are always contraindicated in the management of headache.^[31]

Stress explained as *manasika nidana*, requires *satvavajaya chikitsa* for its management. A detailed counseling restores adaptability and is essential to alleviate the condition.

Another unique concept in the management is *Sadvritta* (personal conduct). It brings in good health and control over senses and desires, therefore, influencing the control and treatment of any disease including headache.

Although diet, lifestyle, and code of conduct have been mentioned in the management of *Ardhavabhedaka* (migraine), Ayurveda provides a line of treatment which involves *snehana* (internal and external oleation), *shodhana* (purificatory techniques), *shamana* (pacificatory therapy), *vamana* (therapeutic vomiting), *virechana* (therapeutic purgation), *basti* (enema) and *nasya* (nasal errhines) as *antahparimarjana chikitsa* (internal cleansing therapies). *Lepa* (medicated paste application), *upanaha* (poultice), *swedana* (fomentation), and *shirobasti* (oil retention on the head) are mentioned as *bahirparimarjana chikitsa* (external cleansing therapies) and *siravyadha* and *agnikarma* are the *shastra pranidhana* (surgical therapies) for the management of migraine headache.^[4]

Therapeutic yoga - a customized approach in the management of migraine

- *Yuktāhāra-vihārasya yukta-ceṣṭasya karmasu |*
- *Yukta-svapnāvabodhasya yogo bhavati duḥkha-hā ||*
B.G. 6/17 ||.

The Gita, explains that the one who follows the right diet, lifestyle, does proper actions, whose hours of sleeping and waking up are regulated can mitigate pain (disease) through Yoga.

Yoga emphasizes on healthy and nourishing food for the management of illness. Modern-day psychosomatic

diseases are fostered by the inappropriate diet and wrong eating habits. If the mind is controlled through Yoga, the craving for wrong food and the discrimination between right and wrong would be clear in individuals to bring in better health to the society.^[12]

Yama and *Niyama* enhance the internal healing capacity due to the cultivation of right habits and moral-ethical living. Harming animals is an act of violence. Therefore, Yogic concepts suggest avoiding Non-vegetarian food and to follow the path of ahimsa to avoid the increase in rajas leading to diseases. In this way aspects of *yama* and *niyama* can be adapted in disease management.^[17]

The beneficial effects of *yoga* in the management of disorders have been explained in *Hatha yoga pradipika*. By the practice of asana, an individual attains steadiness of the body and mind, diseaselessness and lightness of the body. The text describes that the practice of asana such as *matsyendrasana* (fish pose) and *pashchimottanasana* (seated forward bend pose) improves digestive fire (*jataragni*) and therefore alleviates diseases.^[11]

Pranayama practices are known to help in balancing the flow of subtle energy across the *nadi*. The three practices, right nostril breathing, left nostril breathing and alternate nostril breathing which use uni-nostril voluntarily regulated breathing aim to stimulate, relax, and balance the flow of *prana* across the two main *nadis* - *Ida* and *Pingala*.^[11]

Yoga also prescribes reduced sensory stimulation and sensory withdrawal through the process called *pratyahara* as an important technique.^[17] Considering the precipitating factors for migraine headache, intense focusing as involved in *dharana* shall be avoided. Perhaps, meditation which takes an individual to an effortless state of expansion featured by alertful rest should be the practice of choice.

Hatha yoga pradipika in addition talks about the internal cleansing practices called “*Kriya*.”

Hence, an integrated approach involving asana (physical postures), *pranayama* (regulated breathing), *kriya* (cleansing techniques), meditation, and relaxation techniques are used in the management of migraine headache.^[11]

Scientific literature on Conventional medical concepts of management

While the conventional medical approach prescribes oral analgesics as a symptomatic treatment in the management of migraine, equal importance has been given for regulating lifestyle and diet.

Modern nutritionists encourage mindful eating behaviors along with restriction of carbohydrate, gluten, alcohol, and caffeine. This is said to fit well with lifestyle management including stress reduction, adequate sleep, regular exercise, and weight management.^[13]

In a study during Ramadan, the most common triggers for headache were stress, physical activity, change in weather and fasting. While 50% achieved relief by nonsteroidal anti-inflammatory drugs, 45% achieved through sleep.^[32] Another study has shown that stress management has advantages compared to pharmacological treatments and the therapeutic effects are maintained for at least 7 years.^[33]

Conclusion

Lifestyle including stress and diet as major factors plays an important role for the onset and management of migraine headache. Traditional approaches would provide a better understanding of the preventive and management strategies, and the combination of Ayurveda and Yoga therapy shall provide long-term solutions to the management of migraine which is one of the most disabling headache disorders of the present day.

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References

- Menken M, Munsat TL, Toole JF. The global burden of disease study: Implications for neurology. *Arch Neurol* 2000;57:418-20.
- Alessandro SZ, Birthe LR. Symptomatology of migraine without aura. In: Olesen J, Hensen P, Welch KM, editors. *The Headache*. 2nd ed. Philadelphia, PA: Lippincott Williams and Wilkins; 2000. P. 337-43.
- Shastri AD, editor. *Sushruta Samhita of Maharshi Sushruta with Hindi commentary, Sutrasthana*. Chap 15/48. 9th ed. Varanasi, India: Chaukhambha Sanskrit Samsthan; 1995. p. 64.
- Shastri AD, editor. *Sushruta Samhita of Maharshi Sushruta with Hindi commentary, Uttara Tantra*. Chap 25/15. 11th ed. Varanasi, India: Chaukhambha Sanskrit Samsthan; 1997. p. 128.
- Shastri K, Chaturvedi G, editors. *Charaka Samhita of Agnivesha with Vidyotini Hindi Commentary, Siddhi Sthana*. Chap 9/75-78. 22nd ed. Varanasi, India: Chaukhambha Bharati Academy; 2001. p. 1067.
- Fukui PT, Gonçalves TR, Strabelli CG, Lucchino NM, Matos FC, Santos JP, *et al.* Trigger factors in migraine patients. *Arq Neuropsiquiatr* 2008;66:494-9.
- Venkatesananda S. *The Concise Yoga Vasistha*. Chap 2. 1st ed. New York, USA: State University of New York; 1985. p. 709-23.
- Spierings EL, Donoghue S, Mian A, Wöber C. Sufficiency and necessity in migraine: How do we figure out if triggers are absolute or partial and, if partial, additive or potentiating? *Curr Pain Headache Rep* 2014;18:455.
- Yadunandan U, editor. *Ashtanga Hridayam of Vagbhata with Vidyotini Hindi commentary, Uttarasthana*. Chap 13/1-2. 12th ed. Varanasi, India: Chaukhambha Sanskrit Samsthan; 1997. p. 533.
- Gambhirananda S. *Taittiriya Upanishad. With the Commentary of Sankaracharya*. Pithoragarh, India: Advaita Ashrama; 1986.
- Muktibodhananda S. *Hatha Yoga Pradipika*. Chap 1/58-60. 2nd ed. Munger, India: Yoga Publications Trust; 1993. p. 135-8.
- Chinmayananda S. *The Holy Gita*. 9th ed. Mumbai, India: Central Chinmaya Mission Trust; 1992.
- Slavin M, Ailani J. A clinical approach to addressing diet with migraine patients. *Curr Neurol Neurosci Rep* 2017;17:17.
- Cady RK, Farmer K, Dexter JK, Hall J. The bowel and migraine: Update on celiac disease and irritable bowel syndrome. *Curr Pain Headache Rep* 2012;16:278-86.
- Wurtman RJ. Dietary treatments that affect brain neurotransmitters. Effects on calorie and nutrient intake. *Ann N Y Acad Sci* 1987;499:179-90.
- Young SN. How to increase serotonin in the human brain without drugs. *J Psychiatry Neurosci* 2007;32:394-9.
- Chowdhary S, Gopinath JK. Clinical hypnosis and patanjali yoga sutras. *Indian J Psychiatry* 2013;55:S157-64.
- Kelman L. The triggers or precipitants of the acute migraine attack. *Cephalalgia* 2007;27:394-402.
- Houtveen JH, Sorbi MJ. Prodromal functioning of migraine patients relative to their interictal state – An ecological momentary assessment study. *PLoS One* 2013;8:e72827.
- Goadsby PJ, Holland PR, Martins-Oliveira M, Hoffmann J, Schankin C, Akerman S, *et al.* Pathophysiology of migraine: A Disorder of sensory processing. *Physiol Rev* 2017;97:553-622.
- Andress-Rothrock D, King W, Rothrock J. An analysis of migraine triggers in a clinic-based population. *Headache* 2010;50:1366-70.
- Zhu Z, Fan X, Li X, Tan G, Chen L, Zhou J, *et al.* Prevalence and predictive factors for poor sleep quality among migraineurs in a tertiary hospital headache clinic. *Acta Neurol Belg* 2013;113:229-35.
- Panconesi A. Serotonin and migraine: A reconsideration of the central theory. *J Headache Pain* 2008;9:267-76.
- Leiby SN, Welch KM, Giovanni A, Grunfeld S, Brown E. Event-related slow potentials and associated catecholamine function in Migraine. *Cephalalgia* 1990;10:317-29.
- Holland PR. Headache and sleep: Shared pathophysiological mechanisms. *Cephalalgia* 2014;34:725-44.
- Bruera O, Sances G, Leston J, Levin G, Cristina S, Medina C, *et al.* Plasma melatonin pattern in chronic and episodic headaches: Evaluation during sleep and waking. *Funct Neurol* 2008;23:77-81.
- Géraud G, Donnet A. Migraine and hypothalamus. *Rev Neurol (Paris)* 2013;169:372-9.
- Shastri K, Chaturvedi G, editors. *Charaka Samhita of Agnivesha with Vidyotini Hindi Commentary, Vimana Sthana*. Chap 3/20. 22nd ed. Varanasi, India: Chaukhambha Bharati Academy; 2001. p. 1067.
- Santos IS, Griep RH, Alves MG, Goulart AC, Lotufo PA, Barreto SM, *et al.* Job stress is associated with migraine in current workers: The Brazilian longitudinal study of adult health (ELSA-Brasil). *Eur J Pain* 2014;18:1290-7.
- Sauro KM, Becker WJ. The stress and migraine interaction. *Headache* 2009;49:1378-86.
- Shastri P, editor. *Sharangadhara Samhita, Parishistam* 66. Varanasi, India: Oriental Publishers and Distributors; 1985.
- Al-Shimmery EK. Precipitating and relieving factors of migraine headache in 200 Iraqi Kurdish patients. *Oman Med J* 2010;25:212-7.
- Blanchard EB. Psychological treatment of benign headache disorders. *J Consult Clin Psychol* 1992;60:537-51.