



Traditional Persian Medicine Suggestions to Prevent Fasting Headache

Fatemeh Fadaei, Hossein Rezaeizadeh*

Department of Traditional Medicine, School of Persian Medicine, Tehran University of Medical Sciences, Tehran, Iran

Received: 3 Sep 2020

Revised: 20 Nov 2020

Accepted: 28 Nov 2020

Abstract

Headache is one of the most common medical problems experienced by the majority of general population. In the latest version of the International Classification of Headache Disorders (ICHD-III) beta in 2013, fasting headache, has been classified as a secondary headache, and a subheading of "Headache attributed to fasting". Suggested controversial hypothesis of this medical condition include associations with hypoglycemia, sleep quality and caffeine withdrawal, although these relationships have not been confirmed yet. The principal purpose of the present study is to review the etiology and proposed preventive and treating strategies regarding fasting headache in Persian Medicine (PM) literature. This complaint is regarded as a headache associated with dryness in PM. Therefore, words related to "dryness" from PM references. Relevant keywords were also searched in modern medical literature and PubMed, Scopus, Google scholar, Web of science and Sid databases. Obtained results were subsequently compared following classification. Fasting plays a causative role in increasing heat in the heart, liver, and stomach (and other organs), and also decreasing body moisture. Therefore, the effective management as proposed by PM is reducing the heat and increasing body moisture. More research is needed to provide academic evidence in this regard.

Keywords: Headache; Persian medicine; Fasting headache; Islamic fasting; Religious fasting

Citation: Fadaei F, Rezaeizadeh H. **Traditional Persian Medicine Suggestions to Prevent Fasting Headache.** Trad Integr Med 2020; 5(4):205-211.

*Corresponding Author: Hossein Rezaeizadeh

Department of Traditional Medicine, School of Persian Medicine, Tehran University of Medical Sciences, Tehran, Iran

E-mail: hosseinrezaeizade@gmail.com

Tel: +98 912 7038842

Introduction

Headache is one of the most common health complaints, and causes more disability than any other neurologic problem globally [1]. In the third edition of the International Classification of Headache Disorders (ICHD-III) beta in 2013, accepted by the International Headache Society (IHS), this disorder was categorized into primary headache, secondary headache attributed to underlying disorders, headache due to painful lesions on the head and neck. According to this classification, fasting headache is a secondary headache attributed to disorder of homeostasis [2,3]. A prevalence study reported a 4% rate of fasting headache in general population [4,5]. Initial studies conducted in London at Psychological Medicine University College Hospital demonstrated fasting or delayed food intake as a probable sensitizing factor to start a headache attack in [6].

The holistic viewpoint of PM regarding the human body, is based on humoral theory, and treatment framework is focused on reestablishing humor balance [7]. There is evidence of headache treatment in Persian Medicine (PM) since 6th century BC [8,9]. The father of early modern medicine [10], Ibn Sina, also known by Avicenna (980–1032), described a typical and comprehensive headache classification and its patterns more than ten centuries ago. This classification was a main source of planning the therapeutic strategy [7].

The principle purpose of present study is to review of the literature on fasting headache mentioned in PM manuscripts and to propose possible therapeutic and supportive strategies.

Methods

This article is a descriptive study. Initially, words related to “dryness” in signs and symptoms, classification, description, etiologies and treatments of headache were collected from PM textbooks including. *Al-Hawi* by Rhazes (10th and 11th centuries), Canon of Medicine by Avicenna (10th and 11th centuries), Nazem Jahan’s encyclopedia of “*Exir-e Azam*” (19th century) [7,11,12] and other specific treatments of fasting headache in these manuscripts. Subsequently, PubMed, Scopus, Google scholar, Web of science and Sid databases were searched using the keywords: headache, Persian Medicine, fasting, fasting headache, “Islamic fasting” or “religious fasting”. Finally, these data were classified in terms of concept and compared separately in two branches of PM and modern literature from 1935-Jun to 2020-Jun.

Results

The “Modern Medicine” view

Fasting headache is presently coded in Part-II (Secondary headache) of the third edition of ICHD-III beta version as a disorder of homeostasis, under the title “Headache attributed to fasting”. Current typical diagnostic criteria include diffuse, non-pulsating headache, usually mild to moderate, in an individual who has fasted for at least eight hours. It is alleviated by eating, but not related to hypoglycemia, sleep quality and caffeine withdrawal [3]. The hypotheses regarding fasting headache is still under controversy.

Precipitating factors of fasting headache

Fasting and headache

The first studies on fasting as a precipitating factor of headache were conducted in 1975 [6]. Retrospective studies show an increase in emergency department admissions due to headaches during Ramadan [13]. A series of clinical observations reported that delayed food intake is a precipitating factor of headache in patients that referred to headache clinics [14]. In addition, most studies confirmed fasting as a key risk factor for headache [5]. Hunger has a causative role in the onset of headache [15].

Hypoglycemia and headache

Hypoglycemia or low blood glucose (sugar) levels during fasting periods is the first hypothesis of fasting headache [16]. Researchers have observed that changes in food consumption habits might trigger headache attacks especially after exercise in children [17]. Insulin-induced hypoglycemia contributes to fasting headache in diabetic patients [18]. Vasodilation is a likely cause of hypoglycemia as a well-known mechanism [19]. Although some studies demonstrate an essential role for hypoglycemia in fasting headache, this theory is still controversial [20]. Another study noted headaches may happen in the absence of hypoglycemia [6], as liver glycogen stores keep blood sugar levels in a normal range in fasting of longer than 24-hour in healthy individuals [21].

Caffeine withdrawal and headache

Caffeine withdrawal seems to be another hypothesis of fasting headache in habitual consumers. It may present with migraine-like

symptoms including: headache, nausea, vomiting, fatigue, dizziness, muscle pain and depression [22].

Caffeine prevents transmission of pain by blocking peripheral adenosine receptors and activation of the noradrenergic pathway, modifying pain components via central nerve stimulation [23]. In the third edition of the ICHD-III, "Caffeine-withdrawal headache" is classified under "Headache attributed to a substance or its withdrawal". Headache can also be result from cessation of caffeine intake after long time consumption [2]. The best way to prevent headache is gradually reducing caffeine intake in the days prior to fasting [24]. The caffeine content of strong black tea is higher in habitual tea drinking in Arab countries than in Western countries, and this could have a fundamental role on fasting headaches [25].

Dehydration and headache

Dehydration is mentioned as another factor that precipitates fasting headache. However, no association was detected between headache and fluid loss during fasting in studies [23].

The "Traditional Persian Medicine" view

PM, Ayurveda and Chinese medicine are all founded on humoral theory [9], based on which the body fluids are composed of four humors. Each of the humors correspond to one of the four temperaments - namely Sanguine (blood), Choleric (yellow bile), Phlegmatic (phlegm), and Melancholic (black bile) [7,26-28]. Sanguine is hot and wet, phlegm is cold and wet, yellow bile is hot and dry, and black bile is cold and dry. These are known as compound temper-

aments, while cold, hot, wet, and dry constitute simple temperaments [7,29]. Persian scholars believed that personal health depends on regulation of temperament. Disease results from an imbalance between humors (dystemperament) in the body, and may be caused by internal and external factors including six elements of age, gender, living climate, mental states and mood [30,31]. Diagnosis was made based on knowledge and experience [7].

Aspects of Fasting headache According to Avicenna

Avicenna (Ibn Sina) has explained different types of headaches in the etiology, semiology, pathophysiology, and various modes of therapy. Referred to as “*soda’a*”, headache disorders, are classified into 28 types with distinct treatment protocols in Canon of Medicine (Qanoon book) [7]. “*soda’a*”, by definition, is a pain and suffering experienced in head organs. Headaches are divided into principal forms, caused by either dystemperament, dissociation of soft tissue elements, or both; and participatory forms, which can be attributed to underlying disorders. Dystemperament is the most common type of principle headache, and classified into two main types of simple and compound dystemperament [7,32].

Fasting headache probably belongs to “*soda’a*” attributed to predominance of dry temperament ranked as a subgroup of “*dry-soda’a*”, “*yellow biliary soda’a*”, and “*Melancholic soda’a*” [7,33,34].

In the book *Mo’alejat-e-Aghili*, Persian scholar Mohammad Hossein Aghili (18th century) also

states that long-term hunger plays a causative role in the onset of headache [33]. Razi's *Al-Hawi* considers excess of Sanguine in the gastric fundus as a predisposing factor of headache before breakfast [11,25].

According to the lunar calendar, Ramadan is the 9th month of year and is the holy month of fasting for adult Muslims [25]. The period of fasting lasts 11-18 hours from dawn (the starting time for fasting) to sunset (the end time for fasting) for 28-30 days depending on geographical location and season [35]. During this time Muslims should abstain from drinking, eating, smoking and sexual activities from before sunrise (*Sahur*) until sunset (*Iftar*) [36]. Some researchers have mentioned an increase in admission to the emergency department for uncomplicated headache and hypertension in Ramadan [37]. Minor health problems including headache, heartburn, constipation, dehydration and poor sleep quality have been reported in some fasting individuals [38]. However, some studies have shown no statistically significant difference between incidence of fasting headache in Ramadan and non-Ramadan months [39,40]. Considering the fact that fasting in Ramadan is useful for healthy individuals [41], people with any health problem are advised to consult medical professionals before starting to fast [42]. Aghili explains in his book “*Kholasat-ol Hekmah*” (18th century) that fasting cleanses the body of toxins [33]. Muslims refrain from eating or drinking during Ramadan days, which may be increase the risk of dehydration as a fundamental factor in causing dry temperament [23].

Treatment

Some PM recommendations to prevent fasting headache include:

Individuals with a history of fasting headaches must be educated about changing their lifestyle during Ramadan, to reduce dryness.

The principles of health maintenance in PM are based on air and climate, food and drinks, movement and repose, sleep and wakefulness, retention and excretion, and emotional states [7, 30]. Disease management strategies are based on tailoring diet and lifestyle modifications, drug therapy and manual procedures [7,11,12]. Some recommendations include [12]:

Cleansing the stomach from excessive humors:
via inducing vomiting

Avoid drinking strong tea, coffee, and cocoa

Restricting salty foods

Avoidance of intensive exercise and aerobics during fasting days

Avoid saunas and hot baths

Avoid taking antibiotics at Sahur time [43]

Sufficient rest and sleep

The best foodstuff to decrease thirst [44]:

Non-alcoholic beer

Lettuce soup, almond milk, and almond porridge (called *Harrireh* in Persian language)

Pomegranate juice, apple juice, lemon and honey beverage

Portulaca seeds soaked in yoghurt

Vegetables such as spinach, lettuce, cucumber and *Portulaca oleracea*

Fruits such as cucumbers, watermelons, melons, pears, fresh apricots

Conclusion

The association between headache and fasting has become a topic of interest in the recent years. This article endeavored to compare classified data in two branches of PM and modern literature. Fasting headache is classified by the HIS and Persian medicine. However, an overwhelming majority of studies on intermittent fasting have investigated merely calorie-restriction, but not concurrent thirst, dehydration, alternations in sleep pattern, psychosomatic changes, and possible emotional state.

Muslims refrain from eating and drinking during Ramadan days, which may increase the risk of dehydration as a fundamental role in inducing a hot-dry temperament in the body and actually increases *yellow bile*. Health depends on a balance in body fluids and a moderate temperament. Therapeutic strategies maintain health and retrieve lost health. Fasting contributes to creating excess heat in the heart, liver, and stomach (and other organs), and also decreasing body moisture. Sleep increases moisture and alleviates thirst while fasting. Considering the effect of prevention strategies in delaying appearance of symptoms and dryness in the body, advices should be carried out before the start of fasting.

The etiology of headache during fasting is still controversial and no proven relationship has been found between fasting headache and coffee and/or tea intake, alcohol consumption, smoking, and the sleep/wake period. Therefore, there is a great need for extensive research regarding the effects of fasting on headaches.

Conflict of Interest

None.

Acknowledgements

None.

References

- [1] Jameson JL. Harrison's principles of internal medicine. 20th ed: McGraw-Hill Education. 2018.
- [2] <https://ichd-3.org/10-headache-attributed-to-disorder-of-homeostasis/>.
- [3] Olesen J. Headache classification committee of the international headache society (IHS) the international classification of headache disorders, abstracts. *Cephalalgia* 2018;38:1-211.
- [4] Shehata SF, Al-Malki AQ, Alqahtani AJ, Tamraa A, Almutlaq AH, Alshamrani AS. Prevalence of primary headache among King Khalid University students in 2019. *Middle East J Fam Med* 2020;7:57.
- [5] Dalkara T, Kılıç K. How does fasting trigger migraine? A hypothesis. *Curr Pain Headache Rep* 2013;17:368.
- [6] Dalton K. Food intake prior to a migraine attack: study of 2313, spontaneous Headache attack. *Headache. The Journal of Head and Face Pain* 1975;15:188-193.
- [7] Ibn Sina Ah. *Al-Qanun fi al-Tibb*. Alamy Le-Al-Matbootat Institute. Beirut 2005.
- [8] Elgood C. *A Medical History of Persia and the Eastern Caliphate: from the earliest times until the year AD 1932*. Cambridge University Press. 2010.
- [9] Gorji A, Khaleghi Ghadiri M. History of headache in medieval Persian medicine. *Lancet Neurol* 2002;1:510-515.
- [10] Khan MA, Raza F, Khan IA. Ibn sina and the roots of the seven doctrines of preservation of health. *Acta Med Hist Adriat* 2015;13:87-102.
- [11] Razi. *Al-Hawi Fi l-Tibb: (Continens of Rhazes: an Encyclopaedia of Medicine)*. Osmania Oriental Publications Bureau. 1955.
- [12] Azam Khan M. *Exir Azam (Persian) Vol 1*. Institute of Medical History, Islamic Medicine and Complementary Medicine. Tehran 2008.
- [13] Topacoglu H, Karcioglu O, Yuruktumen A, Kiran S, Cimrin A, Ozucelik D. Impact of Ramadan on demographics and frequencies of disease-related visits in the emergency department. *Int J Clin Pract* 2005;59:900-905.
- [14] Martin VT, Behbehani MM. Toward a rational understanding of migraine trigger factors. *Med Clin North Am* 2001;85:911-941.
- [15] Evrin T, Akbaş İ, Koçak AO, Utlu SG, Katipoğlu B, Szarpak L. Analysis of Patients Who Present to Emergency Departments During Ramadan. *Disaster Emerg Med J* 2019;4:33-41.
- [16] Jacome DE. Hypoglycemia rebound migraine. *Headache: The Journal of Head and Face Pain* 2001;41:895-898.
- [17] Gray P, Burtneess H. Hypoglycemic headache. *Endocrinology*. 1935;19:549-560.
- [18] Blau J, Pyke D. Effect of diabetes on migraine. *Lancet*. 1970;296:241-243.
- [19] Olesen J, Burstein R, Ashina M, Tfelt-Hansen P. Origin of pain in migraine: evidence for peripheral sensitisation. *Lancet Neurol* 2009;8:679-690.
- [20] Pearce J. Insulin induced hypoglycaemia in migraine. *J Neurol Neurosurg Ps* 1971;34:154-156.
- [21] Torelli P, Manzoni GC. Fasting headache. *Curr Pain Head Rep* 2010;14:284-291.
- [22] Shapiro R. Caffeine and headaches. *Neurol Sci* 2007 ; 28 : S179 - S183.
- [23] Mosek A, Korczyn AD. Fasting headache, weight loss, and dehydration. *The Journal of Head and Face Pain* 1999;39:225-227.
- [24] Weber JG EM, Danielson DR. Ingestion of caffeine and postoperative headache. *Mayo Clinic Proceedings*. Elsevier. 1993
- [25] Awada A, al Jumah M. The first-of-Ramadan headache. *Headache* 1999;39:490-493.
- [26] Noghani MT, Rezaeizadeh H, Fazljoo SMB, Keshavarz M. Gastrointestinal headache; a narrative review. *Emergency* 2016;4:171.
- [27] Ansari AH, Zulkifl M, Ali M. An analytical study of concordance between Mizaj and diseases in adult patients of NIUM Hospital, Bangalore. *Anc Sci Life* 2010;30:7.
- [28] Mohammadi Farsani GHR, Naseri M, Movahed M, Dorosti MA. The association between basal metabolic rate and temperament in Iranian traditional medicine point of view. *Journal of Islamic and Iranian Traditional Medicine* 2017;8:29-34.
- [29] Baradaran Akbarzadeh N, Tafazoli M, Mazloom SR, Mojahedy M. The relationship of cold and hot temperaments with sexual function among women of reproductive age. *Journal of Midwifery and Reproductive Health*. 2019;7:1815-1823.
- [30] Rezadoost H, Karimi M, Jafari M. Proteomics of hot-wet and cold-dry temperaments proposed in Iranian traditional medicine: a Network-based Study. *Sci Rep* 2016;6:1-8.
- [31] Zeinalian M, Eshaghi M, Hadian M, Naji H, Marandi SMM, Asgary S. Eight essential foods in Iranian traditional medicine and their role in health promotion and well-being. *Int J Prev Med* 2017;8:31-34.
- [32] Salmannejad H, Mojahedi M, Mozaffarpur S, Saghebi R. The review of indices of Mizaj-e-Damagh (temperament of brain) identification in Persian medicine. *Journal of Babol University of Medical Sciences* 2016;18:71-79.
- [33] Aghili Shirazi MH. *Moalejat-e Aghili (Persian)*. Institute of Meical History, Islamic Medicine and Complementary Medicine. Tehran 2008.
- [34] Tadjbakhsh H. *Al-Aghraz al-Tibbia Val Mabahess al-Alaiia*. Tehran University Press. Tehran 2006.

- [35] Pakkir Maideen NM, Jumale A, Alatrash JI, Abdul Sukkur AA. Health Benefits of Islamic Intermittent Fasting. *Journal of Nutrition, Fasting and Health* 2017;5:162-171.
- [36] Massoud R, Sharifan A, Massoud A. Religious Fasting; the Purgation of Soul and Body. *Journal of Nutrition, Fasting and Health* 2020;8:17-22.
- [37] Al Assaad RG, Bachir R, El Sayed MJ. Impact of Ramadan on emergency department visits and on medical emergencies. *Eur J Emerg Med* 2018;25:440-444.
- [38] Pakkir Maideen NM, Jumale Ab, Balasubramaniam R. Adverse health effects associated with Islamic fasting-A literature review. *Journal of Fasting and Health*. 2017;5:113-118.
- [39] Bener A, Azhar A, Bessiso M. Do fasting and life style eating habits in Ramadan affect headache? *Nutr Food Sci* 2007;37:427-433.
- [40] Heilbronn LK, Smith SR, Martin CK, Anton SD, Ravussin E. Alternate-day fasting in nonobese subjects: effects on body weight, body composition, and energy metabolism. *Am J Clin Nutr* 2005;81:69-73.
- [41] Sadeghpour S, Keshteli AH, Daneshpajouhnejad P, Jahangiri P, Adibi P. Ramadan fasting and digestive disorders: SEPAHAN systematic review No. 7. *J Res Med Sci* 2012;17:150-158.
- [42] Sakr AH. Fasting in Islam. *J Am Diet Assoc* 1975;67:17-21.
- [43] Grindrod K, Alsabbagh W. Managing medications during Ramadan fasting. *Can Pharm J* 2017;150:146-149.
- [44] Nejatbakhsh F. Principles of nutrition in diseases based on principles of Iranian Traditional Medicine. Choogan. Tehran 2013; pp 73-91.