

## Yoga as an Add-on Therapy in the Management of Migraine

Sir,  
Migraine is a chronic neurological condition which is associated with pain, disability, and impaired quality of life.<sup>[1]</sup> A recent study reported that the 1 year prevalence of migraine is about 14.12% in India.<sup>[2]</sup> Both pharmacological and nonpharmacological strategies have been recommended for the management of migraine.<sup>[3]</sup> The guidelines for the management of migraine in India suggest nonpharmacological treatment for those who have: (i) poor tolerance/medical contraindications/or insufficient response to pharmacologic treatment and (ii) been diagnosed with high stress levels.<sup>[3]</sup> For such patients, tailored behavioral and physical therapies, which can reduce their stress levels in addition to the management of migraine, have been proposed.<sup>[3]</sup> Yoga is an ancient lifestyle intervention which includes changes in behavior, physical exercises in the form of specific postures (*asanas*), breathing techniques (*pranayamas*), and relaxation techniques.<sup>[4]</sup> Yoga in stress management is widely reported. Due to this, there is an increasing interest in the use of yoga as a nonpharmacological approach in the management of migraine.<sup>[5]</sup> With this background, there have been attempts to assess the effectiveness, suitability, and safety of yoga either alone or as an add-on treatment in the management of migraine.

There have been four studies on the therapeutic benefits of yoga for migraine. A 2007 study reported 72 patients of both sexes (16 males) with migraine without aura who were randomized to the two groups.<sup>[6]</sup> One group received yoga therapy for 5 days/week (60 min/day) for 12 weeks, whereas the other group received educational sessions on migraine (1 session/month). Both groups were allowed to take similar acute medication prescribed by neurologists, if required, but not to use any other symptomatic medication. After 12 weeks, compared to the control group, the yoga group showed a significant reduction in (i) headache intensity, (ii) headache frequency, (iii) pain rating index, (iv) affective pain rating index, (v) total pain rating index (vi) anxiety depression score, and (vii) use of symptomatic medication.

Endothelial dysfunction has been seen in patients with migraine.<sup>[7]</sup> This increases the risk of several vascular diseases in patients with migraine.<sup>[8]</sup> The practice of yoga has been reported to improve endothelial functions in patients with migraines.<sup>[9]</sup> In a study, 42 female patients with migraine were randomized to either a yoga group or a control group.<sup>[9]</sup> The yoga group received 75 min of yoga session (3 days/week) in addition to the standard medical care for 12 weeks, whereas the control group was given standard medical care for the same duration. All the patients were assessed for serum intercellular adhesion molecules and vascular cell

adhesion molecules (VCAM) at the beginning and end of 12 weeks. Following 12 weeks, the yoga group showed a significant decrease in VCAM levels compared to the control group suggesting that yoga may be useful to reduce the risk of developing vascular diseases by altering endothelial dysfunction.

The effects of yoga in decreasing the frequency and intensity of headache in patients with migraine were supported by a subsequent study on sixty patients with migraine who were randomized to the two groups.<sup>[10]</sup> One group received yoga (5 days/week) with conventional care for 6 weeks, whereas the other group was given conventional care for the same duration. After 6 weeks, both groups showed a significant reduction in the frequency and intensity of migraine as well as headache impact on life scores; however, the magnitude of change was significantly higher in the yoga group.

Among other factors, intense physical exercises act as a trigger for migraine headache.<sup>[11]</sup> Intense physical exercise increases blood nitric oxide (NO) levels in patients with migraine,<sup>[11]</sup> who already have significantly higher blood NO levels compared to normal healthy persons.<sup>[12]</sup> Increase in NO levels after exercise leads to excess blood NO levels in patients with migraine which had been attributed to exercise-induced migraine.<sup>[11]</sup> A randomized controlled trial assessed the effect of yoga on blood NO levels in female patients with migraine.<sup>[13]</sup> Thirty-two patients were randomized to either a yoga ( $n = 18$ ) or control group ( $n = 14$ ). The control group received medication, whereas the yoga group received yoga training for 3 days/week (75 min/day) for 12 weeks in addition to the same medication. After 3 months, a significant reduction in headache frequency and severity was observed, but no significant difference in plasma NO levels were seen between yoga and control groups. The study concluded that yoga may be a safe add-on treatment for the management of migraine.

The studies above provide an insight that the practice of yoga may be useful as an add-on therapy in the management of migraine.

### Financial support and sponsorship

Nil.

### Conflicts of interest

There are no conflicts of interest.

**Sachin Kumar Sharma, Alok Singh, Shirley Telles, Acharya Balkrishna**

Department of Yoga Research, Patanjali Research Foundation, Haridwar, Uttarakhand, India

**Address for correspondence:** Mr. Sachin Kumar Sharma, Scientist-C, Patanjali Research Foundation, Patanjali Yogpeeth, Haridwar - 249 402, Uttarakhand, India.  
E-mail: sharmasachin.sharma25@gmail.com

## REFERENCES

- D'Amico D, Tepper SJ. Prophylaxis of migraine: General principles and patient acceptance. *Neuropsychiatr Dis Treat* 2008;4:1155-67.
- Ray BK, Paul N, Hazra A, Das S, Ghosal MK, Misra AK, *et al.* Prevalence, burden, and risk factors of migraine: A community-based study from Eastern India. *Neurol India* 2017;65:1280-8.
- Ravishankar K. Management of migraine. *Medicine Update* 2005. Available from: <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.690.8400&rep=rep1&type=pdf>. [Last accessed on 2019 Aug 20].
- Taimini IK. *The Science of Yoga*. Madras: The Theosophical Publishing House; 1986.
- Chatterjee S. Young Turn to Yoga to Beat Asthma, Epilepsy, Migraine and Diabetes. *The Times of India*; 2017. Available from: <https://timesofindia.indiatimes.com/city/bengaluru/young-turn-to-yoga-to-beat-asthma-epilepsy-migraine-and-diabetes/articleshow/59245254.cms>. [Last accessed on 2019 Aug 20].
- John PJ, Sharma N, Sharma CM, Kankane A. Effectiveness of yoga therapy in the treatment of migraine without aura: A randomized controlled trial. *Headache* 2007;47:654-61.
- Sabri MR, Dehghan B, Yaghini O, Nasiri J, Mansourian M, Khalifehsoltani S. Endothelial dysfunction state in migraine headache and neutrally mediated syncope in children and young adults. *J Res Med Sci* 2015;20:771-6.
- Sacco S, Ripa P, Grassi D, Pistoia F, Ornello R, Carolei A, *et al.* Peripheral vascular dysfunction in migraine: A review. *J Headache Pain* 2013;14:80.
- Naji-Esfahani H, Zamani M, Marandi SM, Shaygannejad V, Javanmard SH. Preventive effects of a three-month yoga intervention on endothelial function in patients with migraine. *Int J Prev Med* 2014;5:424-9.
- Kisan R, Sujana M, Adoor M, Rao R, Nalini A, Kutty BM, *et al.* Effect of yoga on migraine: A comprehensive study using clinical profile and cardiac autonomic functions. *Int J Yoga* 2014;7:126-32.
- Narin SO, Pinar L, Erbas D, Oztürk V, Idiman F. The effects of exercise and exercise-related changes in blood nitric oxide level on migraine headache. *Clin Rehabil* 2003;17:624-30.
- Ozbey U, Erisir M, Seyran A, Benzer F. Changes in plasma nitric oxide levels during migraine initial and attack periods in migraine patients. *Acad J* 2013;7:822-6.
- Boroujeni MZ, Marandi SM, Esfarjani F, Sattar M, Shaygannejad V, Javanmard SH. Yoga intervention on blood NO in female migraineurs. *Adv Biomed Res* 2015;4:259.

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

### Access this article online

#### Quick Response Code:



#### Website:

[www.ijcm.org.in](http://www.ijcm.org.in)

#### DOI:

10.4103/ijcm.IJCM\_407\_19

**How to cite this article:** Sharma SK, Singh A, Telles S, Balkrishna A. Yoga as an add-on therapy in the management of migraine. *Indian J Community Med* 2020;45:244-5.

**Received:** 28-09-19, **Accepted:** 05-03-20, **Published:** 02-06-20.

© 2020 Indian Journal of Community Medicine | Published by Wolters Kluwer - Medknow