

Case Report

Effect of Integrated Yoga and Naturopathy Intervention in Patient with Post Viral Arthralgia: A Case Report

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ABSTRACT

A 43-year-old male approached out-patient department of the government Yoga and Naturopathy Medical College and hospital with complaints of multiple joint pain, swelling in both ankle joints, and difficulty in falling asleep for the past 2 months which has had a deleterious impact on his quality of life (QOL). He has undergone yoga and naturopathy interventions such as yoga therapy, acupuncture, electrotherapy, mud therapy, reflexology, hydrotherapy, and diet therapy for 1 month. Pre-post assessment showed a reduction in visual analogue scale (VAS), perceived stress scale (PSS), Pittsburgh sleep quality index (PSQI), and improvement in the physical and mental co-efficient of health survey 12 (SF12). The outcome shows that integrated yoga and naturopathy intervention are effective in reducing pain, and stress with improvement in physical functions, quality of sleep, and QOL. The patient experienced no adverse effects, and the treatments were well-tolerated. Even though the results are promising, more research with a bigger sample size and inflammatory markers is needed.

Key words: Yoga, Naturopathy and Post viral arthralgia.

Chikungunya is an arthropod-borne viral infection caused by Group IV RNA arbo virus and transmitted by the *Aedes aegypti* mosquito. The clinical manifestation of the disease would be fever and joint pain [1]. Following CHIKV infection, the emergence of musculoskeletal symptoms is a crucial public health issue that carries a risk of long-term morbidity and chronic problems [2]. The highest number of instances were found in South India (49.36%), followed by west (16.28%), and north (0.56%) [3]. Yoga and naturopathy (Y&N) is a unique form of primary healthcare medicine that highlights illness prevention, acknowledges the body's inherent ability to heal, and promotes personal accountability for achieving optimal health [4].

Y&N interventions have been shown to improve the quality of life of the individual [5] and pain management in conditions such as osteoarthritis, rheumatoid arthritis, and fibromyalgia [6]. No studies report the effect of integrated yoga and naturopathy on post-viral arthralgia. Thus, the current study aims to evaluate the efficacy of the integrated yoga and naturopathy intervention on post-viral arthralgia.

Patient Information: A 43-year-old married male visited out-patient department of Government Yoga and Naturopathy Medical College and Hospital with complaints of multiple joint pain, swelling in both the ankle joints, and difficulty in

falling asleep for the past 2 months on 6th February 2024. He described that all these symptoms of multiple joint pain were after a febrile episode on 15th December 2023. He consulted a nearby general physician who diagnosed the condition as chikungunya and prescribed Aceclofenac, Paracetamol, and ranitidine tablets. Both fever and body pain subside after taking medication. After 5 days on 20th December 2023, he developed swelling in both legs and difficulty walking. He then underwent Siddha medication prescribed by a BSMS doctor for 10 days which has not contributed much to the relief

Timeline: The detail of the study is been given on figure 1.

Diagnostic Assessment: On general physical examination, the patient was conscious and oriented. His gait was antalgic associated with swelling and decreased range of motion in both the ankle joints. Pain was noted over the right and left wrist as well as shoulder joints without swelling and tenderness. No enlargement was found in the neck and hands. Pallor, cyanosis, clubbing, lymphadenopathy, and icterus were absent.

Therapeutic Intervention: The total duration of treatment is 4 weeks. Acupuncture therapy and mud therapy were provided daily for 4 weeks. Reflexology and electrotherapy were provided on alternate days for 4 weeks. For the first two

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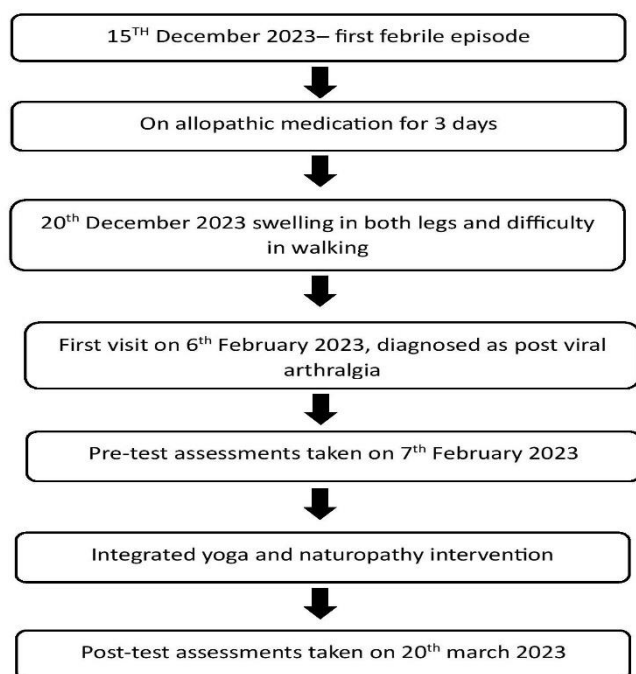
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weeks, the patient received yoga practices such as (sukamavyama) loosening exercises, and pranayama (regulated breathing). In third- and fourth-week yoga practices such as asanas (specific posture) and Surya namaskar (sun salutation) were provided. Details of the interventions are listed in Table 1.

Figure: 1



Outcome Assessment:

VISUAL ANALOGUE SCALE FOR PAIN (VAS): It was used to rate the patient's total joint pain severity (0–10), with 0 denoting no pain and 10 denoting the worst possible discomfort. The patient was instructed to place a mark on the scale to represent the degree of her suffering [7].

SHORT FORM HEALTH SURVEY 12 (SF12): The SF-12v2 is a twelve-item health-related quality-of-life questionnaire that evaluates eight health areas, including mental and physical health. General Health (GH), Physical Functioning (PF), Role Physical (RP), and Body Pain (BP) are domains related to physical health. Vitality (VT), Social Functioning (SF), Role Emotional (RE), and Mental Health (MH) are scales that are related to mental health. The tool has been proven effective in treating a variety of chronic illnesses [8].

THE PITTSBURGH SLEEP QUALITY INDEX (PSQI): There are seven components in the nine-item sleep questionnaire. It was employed to assess the patient's quality of life during the month prior. A total score of 0–4 denotes healthy sleep, 5–10 denotes bad sleep, and a score of >10 denotes a sleep disorder [9].

PERCEIVED STRESS SCALE (PSS): The Perceived Stress Scale a self-assessed indicator of psychological stress during the previous 30 days is the 10-item PSS (PSS-10). The scale

comprises four positive items (items 4, 5, 7, and 8) that measure an individual's ability to manage current stressors (also known as positive stress, perceived efficacy, or perceived control) and six negative items (items 1, 2, 3, 6, 9 and 10) that measure the degree of lack of control and negative reactions (also known as negative stress, perceived helplessness or perceived stress). Every response is given a 5-point Likert scale, with 0 representing never to 4 representing very often. The four positive items are reverse-coded, meaning that higher scores correspond to more stress. The PSS-10's overall score spans from 0 to 40 [10].

Follow up and Outcomes: The result shows a reduction in the visual analogue scale (VAS) for pain, perceived stress scale (PSS), Pittsburgh sleep quality index (PSQI), and improvement in short-form health survey 12 (SF12). These are listed in Table 2.

DISCUSSION

There was a better reduction in the VAS, and PSS PSQI showed better improvement in pain, sleep, and perception of stress. Improvement in the physical and mental coefficient of SF12 indicates improvement in physical and mental health. These outcomes would support the combined treatments of naturopathy and yoga. When examining the pathology of chikungunya-induced post-viral arthralgia, it is observed that several cytokines, including TNF- α , IFN- α , IL-6, MCP-1, IL-8, and MMP2, are elevated. Yoga can help lower levels of interleukin-6 (IL-6), interleukin-1 beta (IL-1 β), tumor necrosis factor-alpha (TNF- α), and C-reactive protein (CRP), according to a review by Estevao C on yoga and inflammation. [11]. By releasing endogenous opioids (encephalin, dynorphin, β -endorphin, and endomorphin), lowering serotonin, and decreasing tumor necrosis factor-alpha (TNF- α) and vascular endothelial growth factor in peripheral blood and joint synovia, acupuncture may help reduce pain and inflammation [12].

The healing of damaged joints may have been facilitated by the reduction of inflammatory cell infiltration, as TNF is known to destroy articular cartilage, promote bone resorption, and impede bone formation by activating enzymes that break down proteins [13]. Mud therapy might reduce pain, swelling, and stiffness while improving motor functions and daily activities [14]. Reflexology helps in reduction of the cortisol which would be attributed to an increase in quality of life and a decrease in pain [15]. The anti-inflammatory compounds present in balloon vine such as Luteolin-7-o-glucuronide, Apigenin-7-o-glucuronide, and Chrysoeriol help in decreasing the production of proinflammatory cytokines such as TNF- α , interleukin-1 [16]. The hot foot bath helps in increasing sleep quality [17]. TENS helps in activating the descending inhibitory system in the central nervous system to reduce pain [18]. Thus, integrated yoga and naturopathy interventions are effective in the management of post-viral arthralgia.

Table: 1

S.NO	THERAPY		NO. OF. SESSION	DURATION
1.	Yoga therapy	Suksamavyama (loosening exercise) for all joints with breathing	30	10 minute/day
		Hand stretch breathing, hands in and out breathing, bhrumari pranayama (Humming Bee Breath).	30	10 minutes/day
		Gomukasana (cow-face pose), tadasana (palm tree pose), bhujangasana (cobra pose), Isometric neck exercise.	15	10 minutes/day
		Surya namaskar – 2 rounds	7	15 minutes/day
2.	Acupuncture	ST 36, LI 4, DU 14, SP 6, GB 34, P 6, K 3, K10.	30	20 minutes/day
3.	Mud therapy	Mud application to both arms and legs	30	20 minutes/day
4.	Electrotherapy	TENS (Transcutaneous electrical nerve stimulation)	On alternate days 15	7 minutes/day
5.	Reflexology	To both palms and soles	On alternate days 15	15 minutes/day
6.	Hydrotherapy	Hot foot bath (at home during night)	30	20 minutes/day
7.	Diet therapy	Ballon vine (<i>Cardiospermum halicacabum</i>) decoction advised to take at home [1 teaspoon of powder is added to 200ml of water boiled up to 100 ml strained and taken in empty stomach daily].	30	100 ml/day

Table: 2

VARIABLE	PRE-DATA	POST DATA
Visual analogue scale (VAS)	9	3
Perceived stress scale (PSS)	27	20
Pittsburgh sleep quality index (PSQI)	16	3
Health survey short form 12 (SF12)	Physical component- 21.6	49.7
	Mental component- 24.7	52.9

CONCLUSION

Thus, integrated yoga and naturopathy interventions are effective in the management of post-viral arthralgia. The treatments were well tolerated by the patient.

Strength of the Study: This is the first-ever case report on the management of post-viral arthralgia through yoga and naturopathy intervention. The patient does not report any side effects.

Limitations of the Study: Major inflammatory marker changes were not evaluated, and because this is a single case,

the validity and reliability of the results may differ. Therefore, in light of this encouraging singular report, more carefully thought out clinical observational studies using advanced markers are recommended. Studies with larger sample sizes are needed to validate our findings.

Patient Perspective: Patient has continued to resume his job after 2 months without any physical discomfort, which economically helps him and contributing to improvement in quality of life.

Informed Consent: An informed written consent was obtained from the patient for reporting this case.

Credit Authorship Contribution Statement

M. Alkousar Taz: Writing – review & editing, Writing – original draft, Data curation.

L. Nivethitha: Writing – review & editing, Writing – original draft, Methodology, Data curation, Conceptualization.

N. Manavalan: Writing – review & editing, Writing – original draft, Visualization, Data curation.

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