THE YOGIC INSIGHT

ISSN No.: 2582-9076
Vol.: 3
Pp: 121-133

YOGA BASED MIND BODY INTERVENTION (MBI) THERAPY IN RHEUMATOID ARTHRITIS: A REVIEW

***RUPESH KUMAR**
****SALONI MALIK**
*****SWATI KUMARI**

ABSTRACT

BACKGROUND: The goal of this narrative review is to learn about the importance of yoga for controlling Rheumatoid Arthritis (RA) and to discover relevant evidence to support yoga as a therapy.

METHODS: A systematic search on Pubmed, Embase, and Google scholar was done on 06/12/2020 at the library of AIIMS, Rishikesh. The search was done by two authors independently, and each article was checked for eligibility by reading the abstract. Study was selected as per the inclusion criteria.

RESULTS: Yoga was found to be a positive and effective alternative therapy for RA patients in several trials.

CONCLUSION: However, all of the research had flaws such as sample size, duration, and statistical analysis. As a result, data suggests that yoga is a safe and viable practise for RA patients, and that it can help them reduce pain and inflammation.

KEYWORDS: Yoga, Rheumatoid arthritis, Inflammatory markers, Mind-body intervention, RA, Yoga treatment Keywords: Yoga, Rheumatoid arthritis, Inflammatory markers, Mind-body intervention, RA, Yoga therapy

****

Assistant Professor, Department of Yogic art and Science, Visva Bharti University, West Bengal
****Ph. D. Scholar***, Department of Pulmonary Medicine, AIIMS, Rishikesh
*****Ph. D. Scholar***, ICSVS, Panjab University, Chandigarh

INTRODUCTION

Rheumatoid arthritis (RA) is an inflammatory diseasethat results in the response of the body's immune attack to its cells, joints, and tissues. It is one of the most common types of arthritis causing pain, swelling, tenderness, and stiffness of the joints. Psychiatric co-morbidities like depression and anxiety are most commonly seen in RA patients and it greatly reduces the quality of life.[1,3] The prevalenceof RA amongthe Indian population (0.28%-0.7%) is lower than in European and American countries(0.5%-1%). [2] Imbalance in pro and anti-inflammatory cytokines, autoantibodies production (RA factor, anti-citrullinated peptide), and genetics play their role in the pathophysiology of RA but the main underlying cause of immune activation is unknown yet.[3] About 45% of RA patients have co-morbidities like hypertension, hypothyroidism, diabetes mellitus which increase with age and BMI.[4] Smoking, obesity, adult age, female sex, and human leukocyte antigen (HLA) class II genotypes increase the risk of developing RA.[5]

Currently, pharmacological therapy comprising of disease-modifying antirheumatic drugs (DMARDs) therapyfor management of RA available. DMARDs therapy can help to control disease activity, reduce joint erosions and improve quality of life of patients in RA.Although these drugs are effective in controlling RA, but have many associated adverse effects which decrease the patient compliance.Therefore many patients with RA often resort to Complementary and Alternative Medicine (CAM) for relief from symptoms. Therefore this narrative review aims to elucidate the role of yoga in rheumatoid arthritis and summarise the current clinical evidence for yoga in RA.

ROLE OF YOGA IN RHEUMATOID ARTHRITIS

Yoga is a well known mind-body based therapythat comprises asana (Physical Postures), pranayama (breathing exercises), and dhyana (meditation) mainly. It isa spiritual path with positive health benefits as its by-products. Yoga provides a holistic health approach to the diseases whose roots are lying in both physical as well as psychological plane. Figure 1 explains the possible benefits of yoga in rheumatoid arthritis. Yoga is effective in many chronic inflammatory health conditions like cancer, heart disease, and rheumatoid arthritis. [6]Yoga-based lifestyle is a highly promising alternative therapy that altered the inflammatory cytokines (IL-6, TNF-α, and his-CRP) significantly. [7]

METHODS

DATA SOURCES

A systematic search on Pubmed, Embase, and Google scholar was done on 06/12/2020 at the library ofAIIMS, Rishikesh. Search terms “yoga AND RA” ;“yogic AND RA”, “Yoga AND Rheumatoid Arthritis” and “Yogic AND Rheumatoid Arthritis” were used according to the search strategy of each database. Thesearch was done by two authors independently, and each article was checked for eligibility by reading the abstract.

STUDY SELECTION

The inclusion criteria were: 1)Randomized controlled trials published during 2001-2020 with full text inEnglish were eligible; 2) Rheumatoid arthritis patients of age group 18-75years, diagnosed according toACR guidelines or any other guideline were eligible. Patients having other comorbidities made no restrictionin the eligibility; 3) Yoga as a unique technique for RA patients, including at least one from asanas,Pranayama, meditation, and lifestyle changes according to yogic theory. No restriction was made upon thespecific style like hatha yoga, Iyengar yoga, vinyasa yoga, etc.; 4) Outcome measures - For eligibility of thestudies must have included at least inflammatory markers and pain measures as primary or secondaryoutcomes; 5) Human studies; and 6) English language.

CURRENT EVIDENCE FOR YOGA AS THERAPY

TABLE 1: CHARACTERISTICS AND FINDINGS FROM THE SELECTED STUDIES:

STUDY	INTERVENTION	COMPARISON	INCLUSION CRITERIA	ASSESSMENTS	PRIMARY OUTCOME (S)	SECONDARY OUTCOME (S)	SAMPLE SIZE	(FREQUENCY *SESSION* LENGTH INTERVENTION *DURATION =TOTAL DOSE IN MINUTES	DURATION	MEAN AGE
Ganesan. S.et.al (2020) (India)	yoga(12 asana)+ pranayama(3) +Dhyan (OM Chanting	control group received only Standard medical treatmen t	RA patients (diagnosi sofRA &made as per 2010 of ACR/EU LAR criteria) both genders, ages between 30 and 60 years	Baseline & 12 weeks	Disease severity assessment (DAS 28) measureme nt Recording and analysis ofheart rate variability (HRV) Estimation of IL-1a, IL-6, TNF-a, and cortisol		166	3 times/week* 30 minutes * 12 tes* =1080 minutes	12 weeks	46.5+9.6
Gautam.S .et.al (2018) (India)	yoga based MBI (15 asanas) + pranayama (4) +nada anusandhan a +dhyan	control group follow normal day today	outpatie nt unit of Rheumat ology dept of AIIMS New	Baseline & 8 weeks	Biomarkers include- biomarkers of systemic inflammatio n acute phase	Assess the change in the severity of depressi	70	120 minutes /day *5 / week *8 weeks=4800 minutes	8 weeks	

	+shanti Mantra + interactive Session/Self directed learning	activities	Delhi during April 2016 to June 2018,18-60 years old RA patients diagnosed as per 2010 ACR/ EULAR RA Classification criteria, whose DAS 28ESR was >2.6 and were on routine medical treatment For at least 6 months.		reactants (ESR and CRP), pro-inflammatory anti-inflammatory cytokines (IL-6, IL-7A & TNF-α, TNF-β) and immunomodulatory marker-soluble HLA-G; biomarkers of neuroplasticity –BDNF, serotonin, β endorphins; biomarkers of cellular health-Oxidative stress (ROS and TAC), DNA damage (80HdG), health span & longevity (SIRT 1) And cellular	on in RA patients which was measured by Beck Depressive Inventory-II scale (BDI-II) scores (week 2,4,6,8)				

					aging Telomerase activity & telomere length.					
Ward.L.et .al (2017)	Hatha yoga: (Begin with introduction & yoga Philosophy theme, Breathing practice Pawanmukt asana1, Supine, seated & Standing yoga Postures, guided Relaxation, closing Discussion.	control group received usual medical care	Included age >= 18 years; physicia n-diagnose d RA, accordin g to ACR/ ELA Rheumat ism 2010 classifica tion criteria; average self-reported pain over the previous month >=3 on a 10-point Numeric al RatingSc ale;	Baseline, week 9 & week 12	Feasibility & safety	Pain VAS, ISI, HAQ-di, CDAI, EQ-5D-3L, EQ-5D -3L vas, HADS anxiety HADS depressi on, BRAF-NRS level, BRAF-NRS the effect, BRAF-effect, BRAF-NR Scoping	26	75 min/weekly* 8 weeks= 600 minutes	3 month	

			average self-reported sleep disturbance overthe previous month greater than30 min per night; and the ability toSelf-mobilize up &Down from a chair.							
Vijay et. al. (2011) (India)	Gayatri Mantra ,Kunjal, Jal Neti ,Asanas :(9)+ Pranayamas (3)+ Meditation+ Quarries and feedbacks.	Controls were informed to be provided same yoga program after one and half month practice	23-48 years, interested and capable to practice prescribed yoga the program was	Baseline & 40 Days.	pain intensity, number of inflamed joints, the time duration of early morning stiffness on joint movement, pulse		80	40 days*90 minutes=3600 minutes	40 days	Yoga group – 35.075± 7.334 Control group - 34.65±7.3

		with participants.	included under the study		rate (PR), systolic blood pressure (SBP), diastolic blood pressure (DBP), lymphocyte count (LC). C-reactive protein (CRP) and serum uric acid (UA)					

Table 1: Summarises various clinical studies conducted on RA patients with yoga as intervention and with outcome measures **as** inflammatorymarkers and pain measures.

Ganesan.S.et.al (2020) assessed the effect of 12- week yoga therapy on disease activity, inflammatory markers, and HRV in patients with RA, in Northern India. 166 patients of both genders and ages (30-60 years) participated in this study with an allocation ratio of 1:1 for 12 weeks. The yoga group received the intervention 3 times/week and the control group received standard medical treatment only. DAS 28 (Disease activity), IL-1α, IL-6, TNF-α (Inflammatory markers), and cortisol level checked at baseline and 12 weeks. The yoga group showed a better reduction in DAS 28 at ($p<0.001$), IL-1α, and cortisol at ($p<0.005$) and improvement in sympathovagal balance. This study suggests that yoga therapy may be used safely as an adjunct to standard medical treatment for RA patients.

Gautam S.et.al (2018) explored the effect of yoga-based mind body intervension (MBI) on disease-specific inflammatory markers and depression severity in active RA patients on routine disease-modifying anti-rheumatic drugs(DMARDs) therapy.70 North Indian RA patients were enrolled with the age group of 18-60 years as per 2010 ACR/EULAR RA guidelines. In this study,block randomization was done and investigator was blinded for outcome. In the yoga group, reduction in primary outcomes CRP,ESR,IL-6,IL-17A,TNF-α and increase in TGF-β, BDNF, Serotonin, β-endorphin was found after 8 weeks ($p<0.0001$).Improvement in oxidative stress and Reduction in DNA Damage was also found at $p<0.001$. Depression scores (Beck Depression Inventory-II) also decreased at weeks 2,4,6 and 8 in the yoga group at ($p<0.0001$). No adverse events were recorded in the study. The study concludes that yoga may be a cost-effective adjunct mind-body intervention that helps in achieving immunological tolerance and molecular remission.

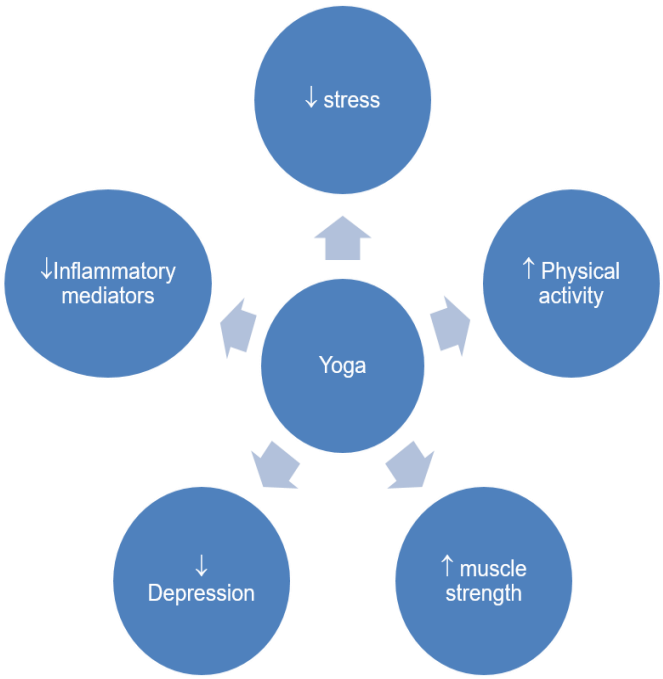
Ward.L.et.al. (2017) evaluated the feasibility of a relaxation-based yogic intervention on 26 patients with RA for 3 months (once weekly 75 min). An independent assessor allocated the 13 patients in each group where. Feasibility and safety were measured as primary outcomes while pain, quality of life, anxiety-depression, sleep quality were assessed by visual analog scale, EQ-5D-3L, Hospital Anxiety Depression Scale, Insomnia Severity Index questionnaires at baseline, week 9, and week 12. Reduction in pain and improvement in the quality of life was

found statistically significant ($p<0.001$) in the yoga group. Significant changes in sleep, anxiety, and depression were also observed in the yoga group. The retention rate was 100% in the yoga group while 92% in the usual care group as 1 subject left the study. 13 patient-reported 25 mild adverse events during the study most commonly mild to moderate musculoskeletal pain and nausea (repeatedly by the same patient) in the yoga group. The study reports its safety and feasibility suggesting it to check on a large group.

Vijay et. al. (2011) studied the effect of yoga on RA patients in a parallel group of 80 patients from 2 hospitals of Haridwar, in northern India. The yoga group (40 subjects) received the intervention for 7 weeks while the control arm (40 subjects) remained on the usual medications with a no drop out rate. Pain intensity by Simple Descriptive Pain Intensity Scale (SDPIS), C-reactive protein, serum uric acid, number of inflamed joints, lymphocyte count, blood pressure were measured at baseline and after 7 weeks. In the yoga group pain intensity, joint inflammation and morning stiffness decreased at $p<0.001$ within-group and $p<0.001$ between-group (compared to usual medication). CRP level and serum uric acid also decreased in the yoga group at $P<0.01$ group. No adverse event was reported in the study hence the study concludes that yoga can be used as a complementary therapy to the usual medication in reducing the RA symptoms for faster recovery.

These findings suggest yoga may have beneficial effects in RA patients, where postures, breathing relaxation techniques, and meditation are integrated into a single therapy. Overall, yoga is a safe and effective therapy to improve the outcomes of people with RA. The beneficial effects of yoga were seen on both outcomes among patients with RA.

FIGURE1. POSSIBLE MECHANISM OF BENEFITS OF YOGA IN RHEUMATOID ARTHRITIS



STRENGTHS AND LIMITATION OF YOGA LITERATURE IN RA

There strengths and limitations of the reviewed studies are summarised.

Strengths include four randomised control trials conducted for assessment of effect of yoga therapy, which are considered gold standard for evidence based medicine. [8,9,10,11]The use of ACR/EULAR criteria for diagnosis ofRA, primary outcome measures included were clinically relevant . the study also evaluated effect of yoga on psychological health via changes in inflammatory biomarkers, parameters of HRV,reduction in depression severity.

Some of the Limitations of this study were short duration of follow up in some studies and long term assessment was not done. The study involved heterogeneity of yoga styles . Quality assessment of the RCTs was also not done.

CONCLUSION:

In this review, 4 studies were included which assessed yoga as an intervention for Rheumatoid Arthritis Patients.The review was focused to evaluate the status of yoga on pain and inflammation among the RA patients based upon the clinical evidence in form of RCTs. Hence, the review concludes that yoga is safe and feasible practice for RA patients and helps to reduce the pain and inflammation in RA patients.

CONFLICT OF INTEREST STATEMENT:

There are no conflict of interest.

REFERENCES:

1. Marrie RA, Hitchon CA, Walld R, Patten SB, Bolton JM, Sareen J, Walker JR, Singer A, Lix LM, El-Gabalawy R, Katz A. Increased burden of psychiatric disorders in rheumatoid arthritis. Arthritis care & research. 2018 Jul;70(7):970-8.
2. Handa R, Rao UR, Lewis JF, Rambhad G, Shiff S, Ghia CJ. Literature review of rheumatoid arthritis in India. International journal of rheumatic diseases. 2016 May;19(5):440-51.
3. Scott DL, Wolfe F, Huizinga TW. Rheumatoid arthritis. Lancet (London, England). 2010 Sep 25;376(9746):1094-108.
4. Yadav BS, Roy AN, Fatima SS. A cross-sectional study of different rheumatic diseases and their respective comorbidities at a tertiary care hospital in India. Indian Journal of Rheumatology. 2019 Jan 1;14(1):42.
5. https://www.cdc.gov/arthritis/basics/rheumatoid-arthritis.html
6. Djalilova DM, Schulz PS, Berger AM, Case AJ, Kupzyk KA, Ross AC. Impact of yoga on inflammatory biomarkers: a systematic review. Biological research for nursing. 2019 Mar;21(2):198-209.
7. Shete SU, Verma A, Kulkarni DD, Bhogal RS. Effect of yoga training on inflammatory cytokines and C-reactive protein in employees of small-scale industries. Journal of education and health promotion. 2017;6.
8. Ganesan S, Gaur GS, Negi VS, Sharma VK, Pal GK. Effect of Yoga Therapy on Disease Activity, Inflammatory Markers, and Heart Rate Variability in Patients with Rheumatoid Arthritis. J Altern Complement Med. 2020 Jun;26(6):501-507. DOI: 10.1089/ACM.2019.0228. Epub 2020 Apr 23. PMID: 32326727.
9. Gautam S, Tolahunase M, Kumar U, Dada R. Impact of yoga-based mind-body intervention on systemic inflammatory markers and co-morbid depression in active Rheumatoid arthritis patients: A randomized controlled trial. RestorNeurolNeurosci. 2019;37(1):41-59. DOI: 10.3233/RNN-180875. PMID: 30714983.
10. Ward L, Stebbings S, Athens J, Cherkin D, David Baxter G. Yoga for the management of pain and sleep in rheumatoid arthritis: a pilot randomized controlled trial. Musculoskeletal Care. 2018 Mar;16(1):39-47. DOI: 10.1002/MSc.1201. Epub 2017 Jun 16. PMID: 28621011.

11. Singh VK, Bhandari RB, Rana BB. Effect of the yogic package on rheumatoid arthritis. Indian J PhysiolPharmacol. 2011 Oct-Dec;55(4):329-35. PMID: 23362725.
12. Daul P, Grisanti J. Monitoring response to therapy in rheumatoid arthritis—Perspectives from the clinic. Bull NYU Hosp Jt Dis 2009;67:236–242.

x*x*x*x*x*x*x*x*x*x*x*x*x*x*x*x*x*x*x*x*x*x*x*x*x*x*x*x*x*x*x*x*x*x*x*x*x*x