

Effect of integrated Multi Model-Wellness protocol for seronegative Rheumatoid Arthritis-A Single Case Report

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ABSTRACT:

Seronegative rheumatoid arthritis (RA) is a challenging subtype of RA with diagnostic difficulties and delayed treatment initiation. Pharmacological interventions used commonly, may have adverse effects. Non-pharmacological approaches, such as integrated yoga and naturopathy interventions, offer potential benefits for managing seronegative RA, but their efficacy remains understudied. In this case a 62-year-old female patient diagnosed with seronegative RA exhibited typical RA symptoms and joint damage. Thorough evaluation of medical history, comorbidities, and previous treatments was assessed. The integrated protocol included yoga and naturopathy treatments of electro acupuncture, neem oil massage with infrared therapy, an anti-rheumatic diet chart. The patient's progress was monitored over the duration of four months using a single subject research design. The integrated wellness protocol yielded significant improvements in joint pain, stiffness, and joint mobility in the patient with seronegative RA along with notable reductions in inflammatory markers (CRP and ESR). This case study suggests that an integrated Multi-model Wellness Protocol (IMMWP) shows promise as a comprehensive and personalized approach to managing seronegative RA. While these findings are promising, larger scale research with longer follow up duration is needed to conclude further.

KEYWORDS: Inflammatory markers, Integrated wellness protocol, Seronegative RA, Personalised approach, Yoga & Naturopathy.

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INTRODUCTION:

Rheumatoid arthritis (RA) is a complex and chronic autoimmune disease that primarily affects the joints, leading to inflammation, progressive joint damage, and systemic manifestations. It is characterized by the infiltration of immune cells into the

synovium, resulting in synovial hyperplasia, cartilage destruction, and bone erosion. RA can significantly impair a person's quality of life and functional abilities [1].

In India, seropositive RA is the more common subtype, comprising approximately 70-80% of RA cases.

Seropositive RA is characterized by the presence of rheumatoid factor and anti-cyclic citrullinated peptide antibodies. On the other hand, seronegative RA accounts for the remaining 20-30% of cases and is defined by the absence of these serological markers [2]. RA poses a diagnostic challenge as it can be difficult to distinguish from other inflammatory joint diseases, leading to delayed initiation of appropriate treatment.

The conventional approach to treating RA involves the use of pharmacological interventions, particularly disease-modifying antirheumatic drugs (DMARDs) such as methotrexate, sulfasalazine, and biologic agents like tumour necrosis factor inhibitors [3]. While these medications can effectively control inflammation and slow down disease progression, they may also be associated with adverse effects and long-term risks.

In recent years, there has been growing interest in exploring non-pharmacological approaches as adjunctive or alternative therapies for RA management. Integrated interventions that incorporate practices like yoga, exercises, acupuncture, and dietary modifications have gained attention in the field of naturopathy. [4] These approaches aim to address not only the physical symptoms but also the mental and emotional well-being of individuals with RA. Previous research has shown promising results for the use of integrated yoga and naturopathy interventions in managing seronegative RA [5]. These interventions have been found to improve joint function, reduce pain and inflammation, enhance overall quality of life, and promote psychological well-being. The combination of physical exercises, including yoga asanas and stretching, helps maintain joint flexibility and muscle strength. Acupuncture, a traditional Chinese medicine

technique, may provide pain relief and reduce inflammation. Additionally, an anti-rheumatic diet chart, which includes foods with anti-inflammatory properties, may complement the holistic approach.

However, despite of the potential benefits, the efficacy of integrated approaches as an alternative to modern pharmacology for the treatment of seronegative RA remains largely understudied.

CASE DESCRIPTION:

This case study presents the clinical observations of a 62-year-old female patient diagnosed with seronegative RA in 2022. The patient presented with typical RA symptoms, including joint pain, swelling, morning stiffness, and functional limitations of her proximal interphalangeal joint bilaterally. The patient has a history of chikungunya 14 years ago. Despite the absence of serological markers, thorough clinical evaluations and imaging studies confirmed the presence of RA-related joint damage and inflammation. The patient's medical history, including comorbidities and previous treatments, was carefully assessed.

THERAPEUTIC INTERVENTION:

The study utilized an integrated protocol consisting of yoga [19], exercises, acupuncture [20], and an anti-rheumatic diet chart (Table-3) [21], which was administered on a daily basis in the naturopathy OPD. It employed a single subject research design to monitor the patient's progress over a duration of 4 months. After the completion of the treatment, the patient was advised to engage in regular yoga practices and follow the prescribed diet plan (Table-1). Additionally, a follow-up was conducted, during which the patient was instructed to revisit the OPD if any symptoms recurred.

ASSESSMENT CRITERIA:

The following scales were used to assess the patient's condition before and after the intervention (Table-2): height, weight, and BMI measurements were taken. Pain intensity was evaluated using a visual analogue scale. The Pittsburgh Sleep Quality Index was used to assess sleep quality.

Isometric hand grip strength was measured. The Disease Activity Score-28 (DAS28) was employed to assess swollen joints, tender joints, and the rate of erythrocyte sedimentation. Additionally, C-reactive protein (CRP) levels were monitored [14-18].

Table 1: Therapeutic Intervention:

Treatment	Duration
Yoga and exercise <i>Suksma vyayama (loosening exercises)</i> (Figure 2) Resistive exercises	20 mins/day 10 mins/day
Naturopathy treatment Electro Acupuncture points (LI4, SI3, SI5, H8, L10) (Figure 1) Oil massage (neem oil) + IR to both hands and fingers Anti-Rheumatic Diet chart (Table 3)	20 mins/alternate weeks 10 mins (8+2)/day Daily

Table 2: Results on parameters:

Baseline characteristic and other outcome measures.

Variables	Pre intervention baseline	Post intervention
Height	160 cm	160 cm
Weight	67 kg	62 kg
BMI	26.2kg/m ²	24.2kg/m ²
VAS	8/10	3/10
Pittsburgh SQI	13	7
Isometric hand grip test		
Right hand	26.4 mmHg	60.2 mmHg
Left hand	21.6 mmHg	51.5mmHg
DAS28	4.41	3.16
Inflammatory markers		
CRP	12.67 mg/L	6.2 mg/L
ESR	70mm/hr	28mm/hr

Table-3: An illustration of sample diet chart for Rheumatoid Arthritis

Types Of Foods	Contents
Anti- inflammatory foods	Fish, berries, nuts, legumes, whole grains, turmeric
Dietary Fibres	Spinach, cabbage, celery, drum stick
Pro-Biotics	Yogurt, soya beans, pickles

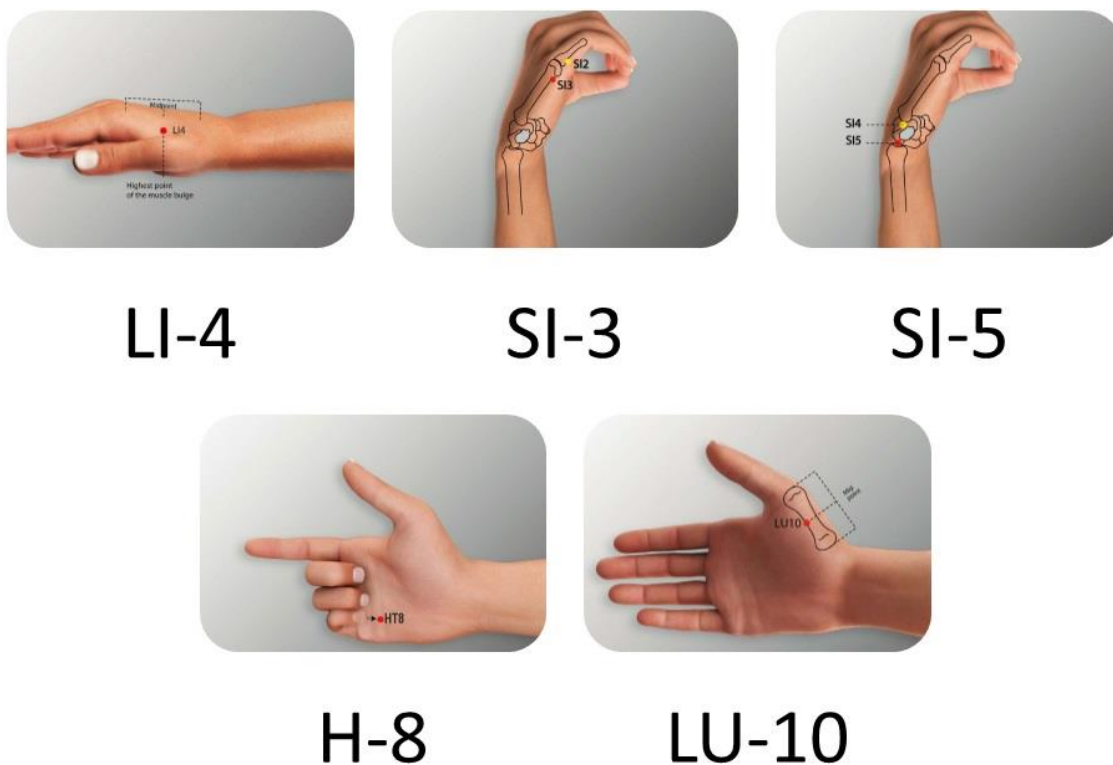


Figure 1: An illustrative representation of acupuncture points given to the patient

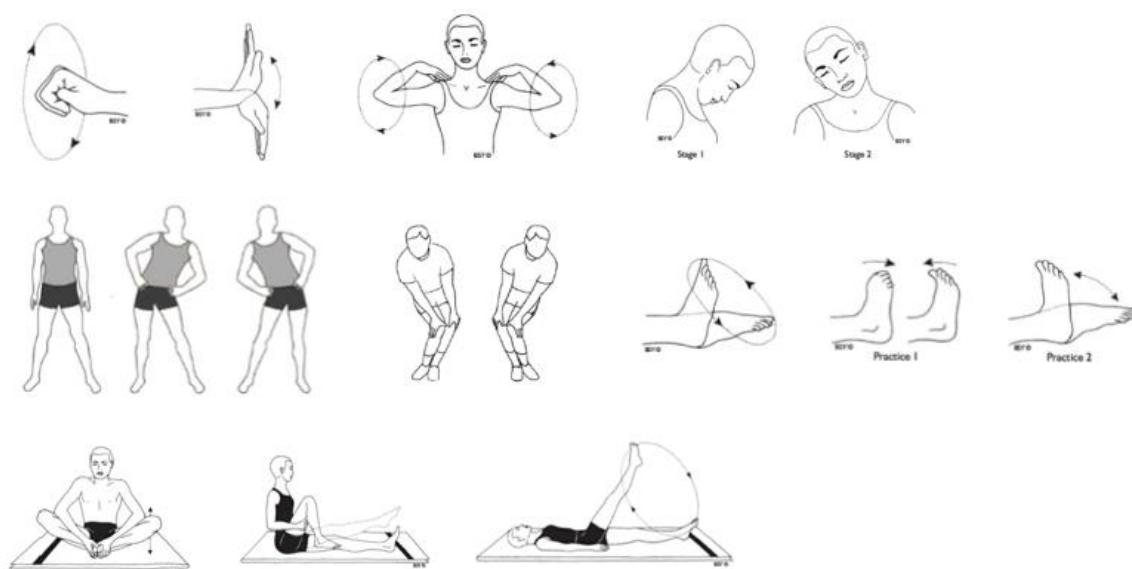


Figure 2: An illustrative presentation of Suksma Vyayama given to the patient

RESULT AND DISCUSSION:

In patient with seronegative RA, integrated multi model wellness protocol was found effective in reducing joint pain, stiffness and improved joint mobility. The intervention also resulted in decreased levels of inflammatory markers (CRP, ESR).

A rare case report focusing on a seronegative RA patient who underwent a yoga intervention gives a potential benefits and feasibility of this approach. The multi-factorial approach of yoga and naturopathy includes components such as physical postures (*asanas*), breathing exercises (*pranayama*), relaxation techniques, meditation, dietary modifications, lifestyle recommendations, and holistic counselling. These components are integrated to address not only the physical symptoms but also the mental, emotional, and spiritual aspects of an individual's well-being. Previous research studies have consistently indicated that the incorporation of yoga and naturopathy interventions in the management of rheumatoid arthritis (RA) has shown significant improvements in symptom control and a reduction in inflammatory markers associated with arthritic flare-ups. Yoga, which works from the *Annamaya kosha* (physical Body) helps to gain mastery over the body and mind, with its combination of gentle stretching, strengthening exercises, and mindful movements, has demonstrated beneficial effects on joint flexibility, range of motion, and muscle strength in individuals with RA. Thereby contributing to a better quality of life for RA patients [6].

Sukshma Vyayama, which means 'subtle exercise,' is an integral component of *Pawanamuktasana* series (Anti-Rheumatic exercises). Which is highly beneficial as it effectively opens up all the major joints and induces relaxation in the body's muscles, making it an excellent preparatory exercise

[7]. Additionally, previous study mentioned During exercise, skeletal muscle releases myokines, triggering a direct anti-inflammatory effect with each activity or enhancing comorbidity. The level of inflammatory biomarkers, such as tumour necrosis factor, C-reactive protein, and interleukin-6, is significantly lower for athletes and patients with RA who exercise regularly [8]. The implications of Pereira et al.'s findings extend beyond the immediate realm of physical activity, resonating with broader considerations in the management of rheumatoid arthritis. The study not only highlights the safety of such exercises in terms of exacerbating diseases but also underscores their potential in modulating inflammation and improving disease activity, as evidenced by a significant reduction in DAS28-ESR [9].

Acupuncture regulates the balance of local macrophages, thereby playing an anti-inflammatory role. Acupuncture also regulates the process of oxidative stress, improves SOD activity through the Nrf2/HO-1 pathway, eliminates oxygen free radicals to reduce damage, and inhibits ROS, MDA, and MPO production, to inhibit inflammatory cell infiltration, and alleviate inflammation-induced tissue injury and dysfunction. [10]

Neem extract has anti-inflammatory properties by modulating macrophage migration and activity [11]. The use of IR was found to have beneficial effect in inflammatory arthritis as it penetrates deep into the joints and tissues. The integration of dietary modifications within the scope of naturopathy has been found to have positive impacts on RA management. Certain foods, such as those rich in antioxidants and anti-inflammatory properties, can potentially help reduce systemic inflammation and alleviate RA symptoms. [12] Collectively, these

interventions aim to address the comprehensive needs of individuals with RA, not only by targeting the physical symptoms but also by addressing the underlying inflammatory processes. The reduction in inflammatory markers associated with arthritic flare-ups observed in earlier research studies suggests that the multi-dimensional approach of yoga and naturopathy has the potential to modulate the immune system, promote overall health, and enhance the overall management of RA [13].

CONCLUSION:

This case study suggests effectiveness of an integrated wellness protocol for managing seronegative rheumatoid arthritis (RA) in a 62-year-old female patient. The four-month intervention included yoga, exercises, acupuncture, and an anti-rheumatic diet chart. Positive outcomes were observed, including reduced joint pain, improved mobility, and decreased inflammatory markers. The holistic approach addresses physical, mental, and emotional well-being. Results align with previous research on integrated approaches for RA.

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Patient perspective:

Hello I'm dealing with this thing called seronegative rheumatoid arthritis (RA). When my joints started getting stiff and pain, I had to take medication but the swelling & pain didn't go away. So, I joined this study. Daily yoga and exercises, special needle sessions (acupuncture), a bit of oil massage, and a diet that fights my inflammation. But it made a real difference for me.

The yoga and exercises made my joints feel looser and less achy. They made my hands feel so much better with infra-red rays and acupuncture. My life has become better not only in physical ways but my quality of life too and mental health has been improved. Now, I have Less joint pain, I move better, and the inflammation markers went down. Now, I'm sticking with these habits because they've become a part of feeling good.

Limitation of study:

The only limitation was that it was a single-subject study design and intervention was of short duration.

Consent of patient:

Patient signed consent was taken before the study.

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