



## Ayurvedic Management of Autoimmune Disorders: A Systematic Review

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### ABSTRACT:

In autoimmune disorders, immune cells are mistakenly attacking our own cells and appear as a curse to this society. This study systematically reviewed the published clinical articles in PubMed regarding *Ayurvedic* management of autoimmune disorders. For that purpose, articles available in PubMed were searched and analyzed for scientific evidence. Out of seventy-three records found, ten related studies were included in the final analysis and showed *Ayurvedic* therapies had an effect on the management of autoimmune disorders. Even though autoimmune thyroid disease and Type 1 Diabetes are the most common of these conditions, scientific publications are more on rheumatoid arthritis. However, the lack of a strong voice in scientific journals was also well represented. At the same time, the management of autoimmune disorders will also open a new door for developing super-speciality clinics in *Ayurveda* and will become the need of the present era.

#### Keywords

*Ayurvedic* management, Autoimmune disorders, Systematic review

## INTRODUCTION

Autoimmune disorders result from an interruption of immunologic tolerance leading to an immune response contrary to self-molecules; on most occasions, the events that initiate the immune response to self-molecules are unknown; however, several studies recommend associations between environmental and genetic factors and certain types of infections.<sup>1</sup> Women have a higher risk of developing an autoimmune disease than men, as > 75% of those suffering from autoimmune diseases are female.<sup>2</sup> Young women, following puberty, are approximately 10 times more liable than men to develop the autoimmune disease.<sup>3</sup> Autoimmune diseases were considered to be rare but, through rigorous epidemiological studies, have now

been shown to affect 3–5% of the population, with autoimmune thyroid disease and Type 1 Diabetes being the most common of these conditions.<sup>4</sup>

#### Statement of the problem

The body, with all its parts co-existing with interconnection and mutual interaction, makes it difficult to comprehend when approached separately. In recent times, the holistic approach to health with the multidimensional aspects of body, mind, and soul is beginning to be realized by humanity<sup>5</sup> those preached by Ayurveda ages ago. Nowadays, life has been made easy for a man with modernization on every step. Nevertheless, autoimmune disorders are developed as a curse to this society. In autoimmune diseases severity of symptoms and



organs affected varies and can significantly impair quality of life, resulting in high health care costs. And complementary and alternative medicines (CAM) are becoming attractive options for many patients; of the various CAM interventions, the traditional Indian medicine *Ayurveda*, a whole medical system, is increasingly used worldwide and is recognized by the World Health Organization as medical science<sup>6</sup>.

#### **Objective of research**

This study aimed to systematically review the published clinical research in PubMed on *Ayurvedic* management and their reliable mechanisms of action in controlling autoimmune disorders.

## **MATERIAL AND METHODS**

#### **Searched databases**

*Ayurvedic* management of autoimmune disorders has been evaluated. For this purpose, electronic databases, PubMed, also searched for the studies showing human evidence of the efficacy of *Ayurvedic* management in autoimmune disorders. Collected data were for the years 1989 to 2022. The search term was: "Autoimmune disorders and *Ayurveda*". Also reviewed the reference lists of retrieved articles for additional applicable studies.

#### **Inclusion and exclusion criteria**

Examined each article's title and abstract. Studies assessing CAM other than *Ayurvedic* management, duplicates, and reviews, were excluded.

#### **Quality assessment**

Performed analysis and quality evaluation of the literature. Out of 73 records found in the PubMed databases, 10 related studies were included in the final analysis (Figure 1). This review has focused on the clinical studies of treatments for autoimmune disorders.

## **RESULTS AND DISCUSSION**

#### **Autoimmune pancreatitis**

The participant was a 30-year-old female diagnosed with autoimmune pancreatitis with multisystem involvement with increased levels of immunoglobulin G (IgG), glycosylated haemoglobin (HbA1c), cholesterol, triglycerides, low-density lipoprotein and body mass index. She was on anticholinergic agents, antacids, levothyroxine, multivitamin and iron and antihistamine drugs in the last 1 year, but with little relief. Therefore, the participant was treated with classical *Virechana* and *Madhutailika Basti*. After the completion of therapy, it was observed, that there

was a decrease in IgG, HbA1c, S. cholesterol, S. triglyceride, low-density lipoprotein (LDL) and body mass index (BMI). This shows that *Virechana* and *Basti* play a significant role in a participant with autoimmune pancreatitis associated with other disorders<sup>7</sup>.

#### **Rheumatic disorders**

Various studies are conducted on rheumatoid arthritis (RA) with different *Ayurvedic* formulations.

A randomized investigator-blind controlled study was carried out to compare standardized *Ayurvedic* formulations and hydroxychloroquine sulfate (HCQS) in the treatment of RA; one hundred twenty-one participants with active moderately severe RA (ACR 1988 classified) were randomized. In this three-arm (two *Ayurvedic* and HCQS) multicenter drug trial study; polyherb (*Tinospora cordifolia* and *Zingiber officinale* based) and monoherb (*Semecarpus anacardium*); by treatment groups an intent-to-treat analysis (ANOVA, significance  $P < 0.05$ ) did not show significant differences; In the monoherb, polyherb, and HCQS arms, 36%, 44%, and 51%, respectively, showed ACR 20 index improvement; several efficacy measures improved significantly in the polyherb groups and HCQS with no difference between the groups (corrected P); however, the latter was individually superior to monoherb; only mild adverse events were informed with no differences between the groups; this preliminary drug trial controlled for HCQS demonstrated a standardized *Ayurvedic* polyherb drug to be effective and safe in controlling active RA; they suggested a better-designed study with a longer evaluation period<sup>8</sup>.

In double-blind, randomized, controlled, pilot study comparing classic *Ayurvedic* medicine, methotrexate, and their combination in rheumatoid arthritis; forty-three seropositive RA participants by disease duration of fewer than 7 years with American College of Rheumatology (ACR) criteria were assigned to the following treatment groups: methotrexate plus *Ayurvedic* placebo (n = 14), *Ayurveda* plus methotrexate (n = 17), or *Ayurveda* plus methotrexate placebo (n = 12). Outcomes included the Disease Activity Score (DAS28-CRP), ACR20/50/70, and Health Assessment Questionnaire-Disability Index; all assessments were obtained every 12 weeks for 36 weeks; analyses included descriptive statistics, analysis of variance, student t test, or  $\chi^2$ ; all groups were comparable at baseline in disease characteristics and demographics;

there were statistically insignificant differences among the 3 groups on the efficacy measures; ACR20 results were *Ayurveda* 100%, methotrexate 86%, and combination 82%, and DAS28-CRP responses were *Ayurveda* -1.7, MTX -2.4, and combination -2.4. Statistically, insignificance was also noted in the differences in adverse events among groups<sup>9</sup>.

Another study was a prospective pilot study that assessed the efficacy & safety evaluation of *Ayurvedic* treatment (*Ashwagandha* powder & *Sidh Makardhwaj*) in rheumatoid arthritis participants; eighty-six participants satisfied the inclusion criteria and were included in the study; participants took 5gm of *Ashwagandha* powder with milk or lukewarm water twice a day for three weeks. *Sidh Makardhwaj* (100 mg) with honey was administered daily for the next four weeks; the primary efficacy end point was based on the American College of Rheumatology (ACR) 20 response. Secondary end points were ACR50, ACR70 responses, change from baseline in disease activity score (DAS) 28 score and ACR parameters; participants with moderate and high disease activity were 57.7 per cent (45/78) and 42.3 per cent (33/78), respectively; all participants were tested positive for rheumatoid factor and increased ESR level; *Ashwagandha* and *Sidh Makardhwaj* treatment decreased RA factor. A significant change in post-treatment scores of tender joint counts, swollen joint counts, physician global assessment score, patient global assessment score, pain assessment score, patient self-assessed disability index score and ESR level were observed compared to baseline scores. ACR20 response was observed in 56.4 per cent (44/78) participants (American College of Rheumatology criteria) and moderate response in 39.74 per cent (31/78) participants (European League against Rheumatism (EULAR) criteria). However, after treatment, increased urinary mercury levels were observed. The present study concluded that this *Ayurvedic* treatment could potentially be used to treat rheumatoid arthritis<sup>10</sup>.

Antioxidant potential of two polyherbal preparations, *Maharasnadhi Qwatha* and *Weldehi Choorna* (WC), used in *Ayurveda* for the treatment of rheumatoid arthritis in Sri-Lanka; the overall results of the study demonstrate that *Maharasnadhi Qwatha* has much greater antioxidant potential than WC; thus, on therapy with *Maharasnadhi Qwatha* for 3 months, the initial activities of plasma enzymes superoxide dismutase (SOD), catalase and glutathione peroxidase (GPX), were enhanced by 44.6, 25.2%, and 39.8 respectively; there was insignificant

improvement in any of these enzyme activities in participants treated with WC for the same time period as *Maharasnadhi Qwatha*; although the extent of lipid peroxidation in plasma of RA participants could be decreased by both drug preparations, the reduction mediated in 3 months by *Maharasnadhi Qwatha* (34%) was markedly significant than that due to WC (21.8%); the total serum iron and Hb concentrations in the RA patients included in the study could be significantly improved by treatment with *Maharasnadhi Qwatha* but not by WC; thus, at the end of 3 months treatment with *Maharasnadhi Qwatha*, concentrations of the total serum iron and Hb, of participants improved by 26.8, and 24.8, respectively<sup>11</sup>.

Oxygenation of arachidonic acid is increased in inflamed tissues. In this condition products of two enzymatic pathways--the cyclooxygenase and the 5-lipoxygenase producing respectively prostaglandins and leukotrienes--are elevated; of the cyclooxygenase products, PGE2 and the lipoxygenase products, LTB4 are the strongest candidates for mediating inflammation; ginger is administered for that purpose and is reported in the *Ayurvedic* system of medicine to be useful in rheumatic disorders. Seven patients suffering from such disorders reported relief in pain and associated symptoms on ginger administration<sup>12</sup>.

A clinical study was conducted in 28 participants of *Amavata* with *Amrita Ghrita* and it has shown a significant reduction in the positivity of the RA titer ( $t > 5.09$ , at the 0.001% level), CRP titer ( $t > 4.82$ , at the 0.001% level), and ASO titer ( $t > 4.08$ , at the 0.001% level), and weight gain ( $t > 5.12$ , at the 0.001% level), as also decrease in ESR ( $t > 9.70$ , at the 0.001% level) and an increase in Hb% ( $t > 9.22$ , at the 0.001% level), and platelet count ( $t > 5.90$ , at the 0.001% level)<sup>13</sup>.

### *Psoriasis vulgaris*

A 36-year-old lady participant who was diagnosed as having stable psoriasis vulgaris for the last seven years was selected for the pre and post test case report; she was administered internal and external treatments along with *Shodhana* therapies (bio-cleansing procedures) and then followed by intake of *Thuvaraka Rasayana*; the total duration of the treatment was 43 days, and the study participants were assessed before treatment, after treatment and on follow-up for improvement using PASI scoring, and histopathological study; all the symptoms observed in the initial stage were found considerably reduced, and the severity was also noticed mild; on the follow-up, it

concluded that the skin set back to its normal texture and the lesions disappeared completely<sup>14</sup>.

#### ***Autoimmune Bullous Skin Disease***

Herein this study report autoimmune bullous skin disorder (*Visphoṭaka*) for a 40-year-old male who failed to respond to allopathic medicines and was subsequently treated with *Ayurvedic* treatments and achieved complete remission<sup>15</sup>.

#### ***Multiple Sclerosis***

A study shows toxic effects in *Ayurvedic* medicine in treating Autoimmune disorders i.e., symptomatic liver injury (hepatotoxicity) associated with administration of complementary and alternative products (*Ayurveda-AP-Mag Capsules*(®)) in a beta-interferon-treated multiple sclerosis participants<sup>16</sup>.

### **CONCLUSION**

According to numerous parameters that affect the pathophysiology of autoimmune disorders, it is believed that *Ayurvedic* formulations have benefits and result in autoimmune disorders. At the same time, some studies mislead the scientific community that the *Ayurvedic* drugs used in autoimmune disorders have side effects, possibly because of improper purification of the medicine or studies with single chemical constituents. Even though several autoimmune disorders are present, only few numbers of diseases and its *Ayurvedic* managements available in PubMed. And also, autoimmune thyroid disease and Type 1 Diabetes are the most common autoimmune disorders, but scientific publications are more on rheumatoid arthritis. However, these are well represented the decreased voice in scientific publications. So, different clinical trials must be needed to evaluate the effects of *Ayurvedic* preparations on autoimmune disorders. Black box design may be more helpful in the *Ayurvedic* field as *Ayurveda* is an individualistic medicine. Management of autoimmune disorders will also open a new door for developing super-specialty clinics in *Ayurveda* and will become the need of the present era.

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Fig 1

