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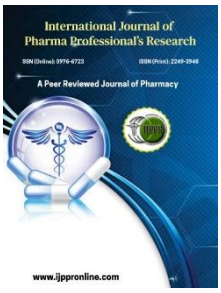

Review on "Herbal Preparations from Ayurveda used to treat Rheumatoid Arthritis"

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Abstract: Ayurveda is a natural medicine system that originated in India over 3,000 years ago. The name "Ayurveda" (science or knowledge) is derived from the Sanskrit words Ayur (life) and Veda. Thus, the name Ayurveda, which means "knowledge of life." The popularity of Ayurveda, or traditional. Since most patients begin taking conventional medications as soon as they are diagnosed, ayurvedic therapies are usually administered in combination with or after orthodox medical techniques. To properly grasp the potential effect of food, spices, and medicinal plants, one must have a thorough understanding of their actions. Realizing the potential of Ayurvedic medicine and philosophy and incorporating it into contemporary medical practice is crucial. There are some significant differences between the mechanisms of action of synthetic pharmaceuticals and single constituents and those of polyherbal treatments and their extracts. Despite being based on natural herbal elements, the safety of ayurvedic treatments depends on how they are delivered, taking into account the needs of the individual and their specific sickness circumstances. Many contemporary drugs are derived from the botanicals used in Ayurveda and other traditional medicinal systems. It is expected that a significant step toward resolving some of the current challenges in treating complex disorders like arthritis with only modern pharmaceuticals would be the confirmation of a combined therapy strategy (Ayurveda and contemporary medicine) with improved efficacy and safety.

1. Introduction

Ayurveda, the traditional Indian medical system, is one of the oldest currently in existence, having a solid experimental and philosophical base. It is a life science that places a strong focus on individualized care and a comprehensive view of wellness. It is widely acknowledged to be a complete medical system that addresses well-being on all levels, including mental, emotional, spiritual, philosophical, and ethical.[1] Because it maintains that all cells are essentially reflections of pure intelligence, Ayurveda is referred to be the self-healing science.[2] The self-healing theory

in this ancient Indian medical practice equally depends on applying herbal treatments. The World Health Organization estimates that 70–80% of the world's population, mostly those who obtain their medicine from herbal sources, depend

on complementary and alternative medicine.[3] The public's interest in complementary and alternative medicine has increased due to several factors, including the growing side effects of synthetic medicines, the inability to cure many chronic ailments, the high cost of new medications, microbial resistance, emerging disorders, etc.[4] We consider that to understand Ayurveda's ancient philosophy and system processes, common ground between the two systems should be explored using modern science and logic, which is why we give this critical review using "arthritis" as a model illness.[5,6] Then, we review topics essential to developing and validating an Ayurvedic-biomedicine interface, drawing on our understanding from Ayurvedic medicines studies carried out since 1996. We conclude with some reflections and proposals for the future.

1.1 Rheumatoid Arthritis

Rheumatoid arthritis (RA) is the most prevalent type of chronic, excruciatingly painful sickness that affects several joints, causes swelling, and causes debilitating abnormalities in the majority of cases.[7] Globally, the prevalence rate [8] is about 1%; our most current data from population surveys in India was 0.3-0.7%. [9] In addition to increasing the risk of early atherosclerosis and coronary artery disease, RA causes extra-articular systemic issues. It is most common in perimenopausal women and typically leads to a poor quality of life. It usually leads to a low quality of life and is more common in perimenopausal women.

Pain relief can be achieved instantly with analgesics (like paracetamol/tramadol) and non-steroidal anti-inflammatory drugs (NSAIDs) like celecoxib, ibuprofen, and diclofenac. NSAIDs reduce joint swelling, but they can also have adverse effects on the gastrointestinal, renal, and cardiovascular systems. When treating RA, oral steroids are a common and effective anti-inflammatory medication, but they should be taken very carefully. Steroids have the ability to cause a wide range of toxicities, even at very modest dosages and for short periods of time. Current treatments for the condition include methotrexate, sulfasalazine, leflunomide, and chloroquin. These medications are necessary to stop the disease's activity and development. They aim to promote remission and can halt or postpone abnormalities. Their maximal impact reduces or even eliminates the need for NSAIDs, steroids, and analgesics; it takes a few months to achieve this.

However, due to their immunosuppressive nature, they need close clinical and laboratory monitoring and can have serious systemic effects, including infections. More often than not, they are combined for higher efficacy, which does not always translate into increased toxicity. Over time, patient compliance is low; only 50–55% of patients receive effective disease care.

The treatment of RA remains one of the major challenges facing modern medicine. As of right now, the chronic sickness has no known cure. The most that can be done for IHD, like with other chronic, hard-to-treat conditions like diabetes, hypertension, and heart failure, is to manage symptoms. Over time, the likelihood of toxicity increases. Even with the powerful tools available for treating RA, long-term maintenance and control (control) remain major challenges. Alternatives have to exist. The use of Ayurvedic herbal formulations in clinical trials for the treatment of RA is summarized below.

1.1.1 RA-1[10]

Purified plant extracts from Withania somnifera, Boswellia serrata, Zingiber officinale, and Curcuma longa were combined to create a standardized formulation known as RA-1. This formulation was tested in a phase II drug trial that lasted 16 weeks and was placebo-controlled, randomised double blind (RDB), parallel efficacious, with a 20% dropout rate and 80% power to detect significant difference at P 0.05. substitutes. The use of Ayurvedic herbal formulations in clinical trials for the treatment of RA is summarized below.

Here, the effectiveness was assessed on 182 people with active-on-chronic RA in accordance with the methodology. Oral paracetamol is suitable as a pain reliever in an emergency. Patients received a single daily dose of prednisolone at a fixed, stable dosage of no more than 7.5 mg. A diet or exercise program was not advised, and NSAIDs were prohibited. The main efficacy response against placebo did not reach significance in an intent-to-treat analysis, but it did for the following outcomes: (i) a higher percentage of patients with a 50% decrease in swollen joint count (95% CI, 1.52, 29.90) and swollen joint score (95% CI, 0.91, 28.73); (ii) a lower RF titer (95% CI, –303.7, –2.72); and (iii) higher blood hemoglobin. ACR (American College of Rheumatology) results were observed in 39% of the RA-1 group and 30% of the placebo group. Remarkably, RA-1 outperformed placebo in terms of numbers for each major and secondary effectiveness measure. Treatment groups reported very few side effects; nine patients (active) and eight patients (placebo) withdrew; none of them did so as a result of medication toxicity.

In all ACR key effectiveness indicators, including a validated adapted version of the Stanford Health Assessment Questionnaire (HAQ) for Indian usage, patients demonstrated significant improvement at weeks 32 and 54 of the ongoing open-label phase. [10-13]

In conclusion, it was shown that RA-1 had an excellent safety record and was a moderately effective disease-modifying antirheumatic drug (DMARD).

1.1.2 IRA-01[14]

Extracts of Salai Guggul, Fenugreek, Flaxseed, Green tea, Turmeric, Gokshur, and Black pepper were found in IRA-01. The trial sample size was planned with a 20% dropout rate, 5% Type I error (<0.05), and 80% power (to detect a 20% difference between active and placebo). Prednisolone, NSAIDs, or DMARDs were not allowed for the full one-year trial period. On an as-needed basis, rescue analgesics such as paracetamol were permitted. Here, 130 patients signed up for the research. All effectiveness measures throughout the RDB phase demonstrated higher improvement with IRA-01 compared to placebo; however, only the physician global evaluation of disease activity exhibited statistical significance (Mann Whitney, Z=2.18; 95% CI of change –1.15, –0.01). In the active IRA-01 group, the RF titer considerably decreased, but in the placebo group, it deteriorated. There was a clear significant placebo clinical response (ACR 20 improvement for 53% of patients on placebo, 60% on active medication). With the exception of 38 patients who left the active and placebo groups, there were no statistically significant changes. Over the course of the research, only mild side effects were noted; IRA01 did not significantly modify routine hematological, renal or hepatic biochemistry, or metabolic markers.

Following three months, 70 patients went into the open-label phase, and 58 (83%) of them finished the one-year follow-up. Upon completion, all efficacy factors, such as joint pain, edema, and Indian HAQ, showed a substantial improvement (some < 0.001). Here, the ACR 20 and ACR 50 improvement responses were attained by 80% and 40% of the patients, respectively. Significant increases in active arm blood HDL (raised) and LDL (decreased) levels throughout the RDB phase were seen, and these changes persisted for the duration of the trial, which led to some interesting incidental findings. At 12 months, there were additional increases in serum protein and a noteworthy rise in serum albumin (95% CI -0.35, -2.90). Throughout the experiment, only minimal side effects were reported, and there were no significant alterations to normal haematological, hepatic or renal biochemistry, or metabolic indices linked to IRA-01.

1.1.3 NMITLI/B1 [15-20]

B1, an Ayurvedic treatment developed as part of the NMITLI (New Millennium Indian Technology Leadership Initiative) project, contains plant extracts of Guduchi (Tinospora cordifolia), Ashwagandha (Withania somnifera),

Gokshur (Tribulus terrestris), and Shunthi (Zingiber officinale).In this experiment, B1 was compared with hydroxychloroquin (HCQS), a well-known biological DMARD used to treat mild to moderate RA and provide long-term management, and a proprietary monoherb preparation (a formulation of Bhallataka, Semecarpus anacardium). A total of 121 patients with active RA were randomly assigned to a three-arm, 24-week, multicenter, single-blind (investigator), parallel efficacy research (2 Ayurvedic and 1 HCQS). In a previous controlled experiment including OA knees, B-1 had demonstrated improved pain alleviation (although not statistically substantially) compared to placebo. Fixed oral dosages of prednisolone (≤ 5 mg daily), paracetamol rescue, and meloxicam (an NSAID, for the first 12 weeks only) were allowed. An ANOVA intent-to-treat analysis (significant < 0.05) was performed. At baseline, all groups matched well. With the exception of physician global evaluation, no effectiveness measure showed a significant difference between the groups at the end. For the B-1, HCQS, and mono-herb, the ACR 20% improvement response was seen in 44%, 51%, and 36% of the samples, respectively. There were no differences between "B-1" and HCQS in pairwise comparisons (corrected significant < 0.02), however both HCQS and poly-herb "B-1" were more effective than mono-herb "BP." The B-1 and HCQS arms also displayed notable decreases in RF titers. All groups had modest side effects; however, HCQS patients had more cutaneous and gastrointestinal complaints. Furthermore, 34% of patients withdrew; none did so as a result of an adverse event, and none reported a significant AE. This is probably the first head-to-head controlled RA comparison study ever conducted. The exploratory controlled drug research shown similar effectiveness to HCQS but safety profiles approximating standardized Ayurvedic polyherbal formulations.

2. Discussion

Certainly, offer great clinical relief from pain and swelling. Significant difficulties arise from irregularities and dose-related toxicity, especially when long-term therapy is necessary. The potential of Ayurvedic drugs in treating various disorders should be explored and, if shown to be effective, converted into realistic treatment paradigms that effectively bridge the gap between Ayurveda and modern medicine. The outcomes of the controlled pharmaceutical trials that are the subject of this discussion demonstrate that ayurvedic medications can benefit RA patients in the short and long term. provide effective therapies for chronic illnesses that are difficult to treat. Biomedical and Ayurvedic physicians need to put in a lot of effort to have the same understanding of how to lessen human suffering in order to put this into practice. [21-25]

3. Conclusion

We concluded by going over several core Ayurvedic ideas, with a focus on arthritis. Descriptions of biomedical and ayurvedic procedures led to the identification of gray areas and shared ground for integrated care. Research on the safety and efficacy of certain Ayurvedic formulations in conventional clinical drug research for arthritis was given. In Ayurvedic treatment, the concept of "Rasayana" was stressed for immunological modulation and healing in difficult-to-treat ailments like RA. We think we have provided enough details and consideration to create an interface between biomedicine and Ayurveda. Eventually, this ought to provide an all-encompassing, empirically supported healthcare system that improves medical treatment by combining the best features of both worlds. Thus, ayurveda will provide for many needs that modern medicine cannot fulfill.

Reference-

1. Semwal DK, Mishra SP, Chauhan A, Semwal RB. Adverse health effects of tobacco and role of Ayurveda in their reduction. 2015; Dec,15:139–46.
2. Lad V. 2nd ed. New Delhi: Lotus Press; 1987 Jan.

3. Jacqui W. Herbal products are often contaminated, study finds. 2013 dec; 347: f6138.
4. Humber JM. The role of complementary and alternative medicine: Accommodating pluralism. 2002; dec 288:1655–6.
5. Chopra A. Ayurvedic medicine and arthritis. 2000; Aug. 26:133–44.
6. Chopra A, Patil J, Doiphode V, Patwardhan B. Exploring ancient Ayurveda for rheumatology: Traditional therapy, Modern relevance and challenges. 2001 march, 4:190–9. Alyce M, Oliver E, Clair WS. Rheumatoid Arthritis-Treatment and Assessment. In: Klippel JH, editor. 13th ed. Atlanta: Arthritis Foundation; 2008.Jan, pp. 133–41.
7. Chopra A, Abdel-Nasser A. Epidemiology of rheumatic musculoskeletal disorders in the developing world. 2008; aug,22:583–604.
8. Joshi VL, Chopra A. Population surveys of rheumatic musculoskeletal disorders in the Pune region of India using the COPCORD Bhigwan model. 2009; aug,36:614–22.
9. Begum VH, Sadique J. Long-term effect of herbal drug Withania Somnifera on adjuvant-induced arthritis in rats. 1988; dec,26:877–82.
10. Felson DT, Anderson JJ, Boers M, Bombardier C, Chernoff M, Fried B, et al. The American College of Rheumatology preliminary core set of disease activity measures for rheumatoid arthritis clinical trials: The committee on outcome measures in rheumatoid arthritis clinical trials. 1993; july,36:729–40.
11. Chopra A, Raut A, Bichile L, G Narsimulu, Handa R, Saluja M, et al. A controlled drug trial to evaluate Ayurvedic derived Shunthi-Guduchi based standard formulations in the treatment of Osteoarthritis (OA) Knees: A Government of India NMITLI Arthritis Project. 2006, dec;65:226.
12. Chopra A, Gore A, Paranjape S, Edmonds J. Victoria, Australia: ICMS Pty Ltd; Modified Health Assessment Questionnaire: An Indian study for validity and relevance; 1996.jan, p. 87. (323)
13. Ghosal S, Lal J, Shrivastava R, Bhattacharya SK, Upadhyay SN, Jaiswal AK, et al. Immunomodulatory and CNS effects of sitoinosides IX and X, two new glycowithanolides from W somnifera. 1989; dec, dec, 3:201.
14. Ziauddin M, Phansalkar N, Patki P, Diwanay S, Patwardhan B. Studies on the immunomodulatory effects of Ashwagandha. 1996; 50:69–76.
15. Patwardhan B, Vaidya A, Chorghade M. Ayurveda and natural products drug discovery. 2004; jan, 86:789–99.
16. Engel LW, Straus SE. Development of therapeutics: Opportunities within complementary and alternative medicine. 2002; march, 1:229–37.
17. Mashelkar RA. Second World Ayurveda Congress (Theme: Ayurveda for the Future)–Inaugural Address: Part III.2001 aug,55-70
18. Mofrad P, Contos MJ, Haque M, Sargeant C, Fisher RA, Luketic VA, Clinical and histologic spectrum of nonalcoholic fatty liver disease associated with normal ALT values 2003 Jun;37(6):1286-92. doi: 10.1053.
19. Charatcharoenwitthaya P, Lindor KD, Angulo P. The spontaneous course of liver enzymes and its correlation in nonalcoholic fatty liver disease. 2012.Jul;57(7):1925-31Dig Dis
20. Chalasani, N.; Younossi, Z.; LaVine, J.E.; Charlton, M.; Cusi, K.; Rinella, M.; Harrison, S.A.; Brunt, E.M.; Sanyal, A.J..The diagnosis and management of nonalcoholic fatty liver disease: Practice guidance from the American Association for the Study of Liver Diseases. Hepatology, 2018 Jan;67(1):328-357
21. Younossi, Z.M.; Golabi, P.; de Avila, L.; Paik, J.M.; Srishord, M.; Fukui, N.; Qiu, Y.; Burns, L.; Afendy, A.; Nader, F. The global epidemiology of NAFLD and NASH in patients with type 2 diabetes: A systematic

review and meta-analysis. J. Hepatol. 2019 Oct;71(4):793-801.

22. sargher, G.; Lonardo, A.; Byrne, C.D. Nonalcoholic fatty liver disease and chronic vascular complications of diabetes mellitus. Nat. Rev. Endocrinol. 2019 Oct;71(4):793-801
23. Anstee, Q.M.; Targher, G.; Day, C.P..Progression of NAFLD to diabetes mellitus, cardiovascular disease or cirrhosis. Nat. Rev. Gastroenterol. Hepatol. 2013 Jun;10(6):330-44.
24. Eslam, M.; Sanyal, A.J.; George, J.; International Consensus Panel. MAFLD: A Consensus-Driven Proposed Nomenclature for Metabolic Associated Fatty Liver Disease. Gastroenterology 2020 May;158(7)