Agreement among Ayurvedic practitioners in the identification and treatment of three cases of inflammatory arthritis

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ABSTRACT

Objective
To conduct a preliminary investigation into the consistency of approach between three Ayurvedic medicine experts on treatments for inflammatory polyarthritis.

Methods
A convenience sample of three experienced Ayurvedic practitioners was recruited. These practitioners independently assessed three subjects with inflammatory polyarthritis for health status, treatment history, and lifestyle, conducted a physical examination, and then independently determined the treatment plan. The treatment plan was recorded on standardized collection forms. The subject examination order was randomized for each practitioner. Following completion of the assessments, a facilitated discussion among the practitioners permitted each to discuss all aspects of the recommended therapies. Proceedings were audio-taped and the content analyzed.

Results
All three practitioners agreed upon a unified concept of Ayurvedic disease origin, disease diagnosis, and treatment approach for each patient. Seven specific treatment groupings (i.e. modalities) emerged: diet, exercise, relaxation, analgesic, anti-inflammatory, immune-enhancing, and detoxification/cleansing. Based on the single visit, the practitioners agreed upon 17 of 21 treatment groups for the three patients.

Conclusion
Despite Ayurvedic medicine’s individualized approach, considerable agreement existed among the practitioners studied. The identified Ayurvedic treatment approaches require investigation in a controlled clinical setting.

Key words
Inflammatory arthritis, Ayurveda, complementary and alternative medicine.
Ayurvedic medicine and inflammatory arthritis / H.M. Prlic et al.

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Introduction

Complementary and alternative medicine (CAM) is an increasingly used treatment option in both developing and industrialized countries (1-5). The prevalence of CAM usage among the general population in the United States increased from 34% in 1990 to 42% in 1997 (2, 3). CAM usage is particularly associated with arthritis and other chronic conditions (3, 6-8). In fact, 60-70% of arthritis patients use CAM as a method for managing their arthritis (9-11).

A report to the National Institutes of Health identified Ayurvedic (Indian) medicine as one of the most formalized and well-established forms of CAM (12). Ayurveda, meaning knowledge (veda) of life (ayur) in Sanskrit, has been in practice in India since 4000 B.C. and has influenced both the ancient Greek and Chinese forms of medicine (13, 14). The Ayurvedic treatment approach includes herbal medicine, dietetics, body work, surgery, psychology, and spirituality.

Ayurvedic medicine’s concepts of health and disease are based on the ‘tri-dosha’ theory and are briefly summarized here (15). The three ‘doshas’ (Vata, Pitta, and Kapha) are energies which exist in the body and control all biological, psychological, and pathophysiological functions (14-16). One dosha will usually dominate and determine an individual’s constitution (14). Based on this theory, an individual is healthy when each of the three doshas are in equilibrium. However, an imbalance in one, two, or all three of the doshas will result in disease. An imbalance is instigated by the inability to adapt to an excess or deficit in emotional, physical, mental, spiritual, or environmental factors (15, 17). This imbalance creates minor physical symptoms which further contribute to the disequilibrium (14, 16). Over time, an imbalanced dosha will initiate the destruction of an area of the body (e.g. joints) and generally, it is the body’s genetically pre-existing weak points that are targeted. Concurrently, these weak points become vulnerable to external sources of disease such as viruses or bacteria. As a result of the destruction of the body’s weak points, complex symptoms surface that further perpetuate the dosha disequilibrium and a disease manifests. In Ayurvedic medicine, chronic diseases such as arthritis are believed to occur as a result of a chronically imbalanced dosha. A chronically imbalanced dosha will eventually affect the balance of the remaining doshas, in turn affecting other systems in the body unrelated to the original imbalanced dosha (Fig. 1).

The primary objective of the treatment approach is to return the dosha(s) to equilibrium. The disease origin, which is based on an individual’s constitution and the imbalanced dosha, the disease diagnosis, and resultant symptoms are all addressed in the treatment approach. Although individuals may be diagnosed with the same disease, the disease origin is unique and necessitates an individualized treatment regimen (14).

Traditionally, researchers studying Ayurvedic medicine or other CAM modalities have singled out specific treatments and studied them in isolation (13). For example, herbs such as Boswellia serrata have been investigated for their anti-inflammatory properties (18-21). However herbal preparations are almost always used in combination with lifestyle modifications such as diet, exercise, and relaxation (15, 22). As noted by Chopra et al. (19) and others (22,23), the holistic approach of the Ayurvedic medical system has not been critically evaluated, likely because of the inherent difficulties in evaluating the effects of a multifaceted system and because treatment is individualized (19,23). Clearly, the nature of Ayurvedic medicine can make it difficult to assess its scientific validity using the randomized control design (19).

The objective of the present study was much more limited than a randomized trial. We have conducted a preliminary investigation into the consistency of the approach to diagnosis and treatment of inflammatory arthritis as represented by three actual patients. The consistency was assessed for three Ayurvedic practitioners. While an earlier study (24) suggested that consistent...
Methods and materials

Ayurvedic practitioners and patients
We recruited a convenience sample of three practitioners, one from the USA and two from Canada, who met the following inclusion criteria: (i) a degree in Ayurvedic medicine from an Ayurvedic university, (ii) five years or more of clinical experience, and (iii) participation in lecturing, mentoring, and/or research. Accessibility and diversity in educational and practice backgrounds were also considered.

Three patients with inflammatory polyarthritis were recruited from a rheumatology practice in Vancouver, BC, Canada and informed consent was obtained. Patients were excluded if they were unable to comprehend English, or were confined to a bed or wheelchair. Each subject received $20 to cover out-of-pocket expenses. A rheumatologist (JC) reviewed the patient medical records to confirm the diagnosis of inflammatory polyarthritis. The patient characteristics are shown in Table I.

Methods
The three practitioners independently conducted a 30-60 minute Ayurvedic out-patient examination on each of the three patients. Practitioners were instructed to conduct the examination as they would in everyday practice; thus the examination procedure was not standardized. The patient examination order was randomized for each practitioner. Patient medical records were not made available to the practitioners. Immediately after each patient examination, the practitioners recorded their impressions, diagnoses, and treatment approaches on a standardized data col-

Table I. Patient characteristics.

<table>
<thead>
<tr>
<th></th>
<th>Patient 1</th>
<th>Patient 2</th>
<th>Patient 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>52</td>
<td>54</td>
<td>68</td>
</tr>
<tr>
<td>Gender</td>
<td>Female</td>
<td>Female</td>
<td>Male</td>
</tr>
<tr>
<td>Diagnosis</td>
<td>Seronegative polyarticular psoriatic arthritis</td>
<td>Seropositive rheumatoid arthritis</td>
<td>Seropositive rheumatoid arthritis</td>
</tr>
<tr>
<td>Disease duration (years)</td>
<td>15</td>
<td>13</td>
<td>11</td>
</tr>
<tr>
<td>Affected joints</td>
<td>DIPs, PIPs (hands), MCPs, wrists, knees, ankles</td>
<td>PIPs (hands), MCPs, wrists, elbows, shoulders, knees, &amp; MTPs, PIPs (feet)</td>
<td>PIPs (hands), MCPs, wrists, elbows, shoulders, knees, &amp; MTPs, PIPs (feet)</td>
</tr>
<tr>
<td>Past medications</td>
<td>Prednisone, HCQ, SSA, Gold, MTX, doxycycline penticillamine</td>
<td>SSA, Gold, HCQ, MTX</td>
<td>HCQ, MTX, minocycline</td>
</tr>
<tr>
<td>Current medications</td>
<td>Prednisone, CSA</td>
<td>CSA</td>
<td>MTX, CSA</td>
</tr>
<tr>
<td>Other</td>
<td>Recent chemotherapy for breast cancer (in remission)</td>
<td></td>
<td></td>
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</tbody>
</table>

The practitioners did not interact with each other between the examinations. This written information was collected at the end of the session by the investigators.

Patient examinations were followed by a facilitated discussion led by two investigators. The purpose of the discussion was to: 1) present the information recorded on the standardized collection forms, 2) facilitate understanding of the practitioners’ treatment choices by providing them with an opportunity to explain the treatments recorded on the forms, and 3) determine whether the practitioners agreed with treatment choices that differed from their own. The purpose was not to reach a consensus. The discussion was audi-taped and transcribed.

The Ayurvedic practitioners transferred the information recorded on the standardized data collection forms onto easel paper for easy viewing. Information regarding each patient was reviewed separately and each practitioner had the opportunity to be the first to present a patient. The practitioner who presented the patient discussed his impressions and conclusion. This was followed by a discussion of the similarities and differences in diagnosis and management amongst practitioners. The facilitator ensured that a structured approach was followed in order to answer the following research questions: 1) What is your diagnosis for the patient and how did you come to that conclusion? 2) What is the recommended treatment and expected duration of treatment? 3) What are the similarities/differences between patients? and 4) In comparison to the treatment recommended by the other practitioners, how is your treatment similar/different?

Analysis
The analysis was based on the information collected on the standardized data forms. The discussion transcription was referred to only in order to better understand this information. The information recorded on the standardized forms was categorized into three groups: disease origin/diagnosis, treatment approach, and specific treatments. In this study, the term ‘specific treatments’ refers to all the potential treatments which could be recommended, including herbal treatments, yoga or other exercise, massage and meditation. Once the information was categorized, it was coded based on three levels of practitioner agreement: complete agreement (all 3 practitioners recorded identical responses), partial agreement (2 of 3 practitioners recorded identical responses), and no agreement.

Results
Based on the standardized collection forms, the Ayurvedic practitioners completely agreed on the diagnosis, treatment approach, and most treatment modalities, but not always on the recommended specific treatment.

1. Disease origin and diagnosis
The practitioners were in complete agreement for each patient on all factors grouped under disease origin and disease diagnosis (Table II). For example, the practitioners agreed that Patient #1 had a Vata Pitta constitution. Each patient had a different imbalanced dosha. The practitioners agreed with conventional (allopathic) medicine’s diagnosis of inflammatory arthritis. However, based on Ayurveda’s concept of disease origin, the practitioners independently concluded that each of the patients had a different form of arthritis.

2. Treatment approach
Practitioners were in complete agreement on the primary target for initial treatment, the treatment pace, and the expected effectiveness for each patient (Table III). The practitioners identified the immune system and the nervous system as the primary targets for initial treatment for Patients #1 and #2, respectively, while the primary target for Patient #3 was diet and lifestyle, requiring a change in behaviour. The practitioners stated that the treatment pace for Patient #1 should be conservative, starting with a small number of treatments such as a change in diet and a few mild herbal treatments to boost her immune system (i.e. the primary target). For Patient #2, the practitioners also recommended starting with a conservative treatment approach, but it would be more aggressive than the one recommended for Patient #1 (e.g. more potent herbs or a slightly higher dosages of milder herbs). All three practitioners stated that Patient #3 was physically capable of handling an aggressive treatment approach.

Regarding expected effectiveness, the practitioners believed the recommend-

<table>
<thead>
<tr>
<th>Disease origin</th>
<th>Patient #1</th>
<th>Patient #2</th>
<th>Patient #3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constitution</td>
<td>Vata Pitta*</td>
<td>Pitta Vata*</td>
<td>Kapha*</td>
</tr>
<tr>
<td>Imbalanced Dosha</td>
<td>Vata*</td>
<td>Pitta*</td>
<td>Kapha*</td>
</tr>
<tr>
<td>Disease diagnosis</td>
<td>Dry (Vata) related arthritis*</td>
<td>Acid (Pitta) related arthritis*</td>
<td>Kapha related arthritis*</td>
</tr>
</tbody>
</table>

*Complete agreement achieved

<table>
<thead>
<tr>
<th>Treatment approach recommended by the practitioners for each patient.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient #1</td>
</tr>
<tr>
<td>Primary target</td>
</tr>
<tr>
<td>Treatment pace</td>
</tr>
<tr>
<td>Expected effectiveness</td>
</tr>
</tbody>
</table>

†Complete agreement achieved
ed treatments would mainly provide symptomatic relief for Patients #1 and #2, as irreversible joint damage had already occurred. They agreed that Patient #3’s disease was not as severe as Patients #1 and #2 and was expected to improve significantly with an Ayurvedic treatment regime. The practitioners agreed that long-term treatments would be required for each patient. They all recommended visits once every two weeks initially, followed by visits once a month until the patient’s condition was stable.

3. Specific treatments
The practitioners agreed that seven treatment modalities should be incorporated in the treatment approach for all three patients: diet, exercise, relaxation, analgesic, anti-inflammatory, immune-enhancing, and detoxification/cleansing. Despite agreement on the treatment pace, varying definitions of ‘conservative’ or ‘aggressive’ treatment resulted in the practitioners not always agreeing on whether to introduce a modality at the first visit. Table IV illustrates the levels of agreement on whether a specific treatment modality should form part of the recommended management for a particular patient. Of 21 modalities (7 x 3 patients), complete agreement existed for 17/21 (81%), partial agreement existed for 3/21 (14%), and no agreement existed for 1/21 (5%). Partial agreement existed for the use of an immune-enhancing modality for one patient and exercise was the least agreed upon modality. The selection of a specific treatment choice varied within a given modality. All three levels of agreement were observed across the seven modalities. For example, the practitioners agreed upon the specific diet to recommend but did not agree on which anti-inflammatory herbal treatment to recommend.

Discussion
Despite Ayurvedic medicine’s emphasis on an individualized approach, the three practitioners in this study agreed on the disease origin, diagnosis, and treatment approach, indicating that the management of inflammatory polyarthritis was similar. The seven treatment modalities identified by the practitioners, with the exception of detoxification/cleansing, were not unlike some of the modalities used in conventional medicine for inflammatory polyarthritis patients. Although they agreed on the treatment pace, varying definitions of conservative or aggressive treatment resulted in the practitioners not always agreeing on the introduction of a modality on the first visit. The lack of agreement regarding the recommendation of exercise for Patient #2 is one example. By allowing the practitioners to freely give their diagnosis and approach, and by allowing them to choose from the multitude of treatment modalities used in conventional Ayurvedic practice, we found that similarities in diagnosis and management existed, but that differences in specific treatment choice also existed. The facilitated discussion gave us insight into why differences were noted. We learned that, akin to Western medical treatments of rheumatoid arthritis (25), the treatment preferences for Ayurveda may differ based on geographic location.

This study has several potential limitations. Despite the selected practitioners’ diverse backgrounds, the sample size was small and a larger sample of practitioners might have produced a different result regarding the disease diagnosis and treatment approach. Another limitation may have been the recruitment of patients with severe and long-standing disease rather than a greater range of disease severity. However, based on Ayurvedic principles disease diagnosis and severity varied considerably across patients, thereby strengthening the conclusions of substantial consistency among practitioners. Finally, no controls were included in this study, as the purpose was not to evaluate treatment efficacy but only consistency in the treatment approach. Agreement existed for the disease origin, diagnosis, and treatment approach, indicating that the management of inflammatory polyarthritis was similar among these three practitioners despite Ayurvedic medicine’s emphasis on an individualized approach. By allowing for a multi-dimensional treatment approach we observed considerable agreement among the Ayurvedic practitioners, suggesting that novel study designs such as this are necessary to study Ayurvedic medicine. Further studies will be required to improve upon this design and to validate it on other CAM systems.

### Table IV. Agreement among ayurvedic practitioners on treatment modalities recommended for each patient.

<table>
<thead>
<tr>
<th>Treatment modalities</th>
<th>Patient #1</th>
<th>Patient #2</th>
<th>Patient #3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diet</td>
<td>CA</td>
<td>CA</td>
<td>CA</td>
</tr>
<tr>
<td>Exercise</td>
<td>NA</td>
<td>PA</td>
<td>PA</td>
</tr>
<tr>
<td>Relaxation (nervous system)</td>
<td>CA</td>
<td>CA</td>
<td>CA</td>
</tr>
<tr>
<td>Analgesic</td>
<td>CA</td>
<td>CA</td>
<td>CA</td>
</tr>
<tr>
<td>Anti-inflammatory</td>
<td>CA</td>
<td>CA</td>
<td>CA</td>
</tr>
<tr>
<td>Immune-enhancing</td>
<td>CA</td>
<td>PA</td>
<td>CA</td>
</tr>
<tr>
<td>Detoxification/cleansing</td>
<td>CA</td>
<td>CA</td>
<td>CA</td>
</tr>
</tbody>
</table>

CA: complete agreement, PA: partial agreement, NA: no agreement.

References
6. DRUSS BG, ROSENHECK RA: Association
between use of unconventional therapies and conventional medical services. JAMA 1999; 282: 651-6.