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Effect of acupuncture on the pain management of Osteo arthritis of knee

Authors
Vungarala Satyanand[1], Shaik Salma[2], Sundi Swapna[3], Ahammad Basha Shaik[4] Shaik Mahaboobvali[5]

[1]Professor, Department of Philosophy of Nature Cure, Narayana Yoga Naturopathy Medical College and Hospital, Nellore-524003 (A.P.) India
[2]Lecturer, Department of Philosophy of Nature Cure, Narayana yoga Naturopathy Medical College and Hospital, Nellore-524003. (A.P.) India
[3]Lecturer, Department of Yoga, Narayana Yoga Naturopathy Medical College and Hospital, Nellore-524003 (A.P.) India
[4]Statistician-cum-Assistant Professor, Department of Community Medicine, Narayana medical college, Nellore-524003 (A.P) India
[5]Scientist, Department of Advanced Research Centre, Narayana Medical College & Hospital, Nellore – 524003 (A.P.) India

ABSTRACT
Acupuncture is a traditional Chinese Medicine commonly used for pain relief and it effectively helpful in the Musculoskeletal problems including low back pain, shoulder stiffness and knee pain. The present study aimed to evaluate the effectiveness of Acupuncture in the pain management of osteoarthritis of knee.10 patients with complaints of knee pain attending the Narayana Yoga and Naturopathy Hospital, Nellore are recruited into the study. Acupuncture treatment was done for a period of 20 sittings. Before and after the 20th sitting of Acupuncture, the pain intensity in the subjects is assessed by a Visual Analaog Scale. Acupuncture is proved to be effective method to relieve the pain in Osteoarthritis patients.
Keywords: *osteoarthritis of knee, acupuncture, pain management.*

INTRODUCTION

Osteoarthritis is the commonest joint disease, with many patients having persistent disability due to pain and stiffness. [1, 2] Osteoarthritis involves damage to articular cartilage and other structures in and around joints, with variable levels of inflammation. [3] The most commonly affected joints are the knee and the hip. It is a common condition; for example, about 10% of people aged over 55 years in the United Kingdom have painful knee osteoarthritis associated with mild to moderate disability.[4] Many patients with osteoarthritis have significant pain and loss of function, often episodically, and will require treatment to control their symptoms. Around 25% of those with knee osteoarthritis are severely disabled. [4] Every year, symptomatic knee osteoarthritis accounts for about 0.5% of all primary care consultations by those aged over 55 years, rising to 1% for those over 70 years. [4] Disability due to osteoarthritis can limit quality of life and independent living, or the ability to care

for a disabled spouse. [5,6,7] As one of the most common age-related disease leading to restrictions in daily activities of the elderly, osteoarthritis is set to become the 4th-highest impact condition in women and the 8th-highest in men. The prevalence of osteoarthritis is steadily increasing across all age groups [8]. Given the high morbidity and huge economic burden of osteoarthritis, there is an urgent need to define the pathogenic factors involved in osteoarthritis development. Osteoarthritis is a multistep, multifactorial disease that involves a complex interplay between genetic and environmental factors. Besides the traditional common risk factors, such as aging, obesity, previous injury, smoking habit and hormone therapy,[9] recent studies have revealed that inflammatory processes play a pivotal role in osteoarthritis pathogenesis. [10] Pro inflammatory cytokines are now implicated as important mediators in osteoarthritis, and Tumor Necrosing Factor - α (TNF-α) and interleukin 1 beta (IL-1β) are considered the major factors. Tumor Necrosing Factor - α is a multifunctional pro-inflammatory cytokine involved in various physiological and pathological processes, including inflammation, immune regulation, proliferation and apoptosis. [11] Tumor Necrosing Factor - α is produced by Chondrocytes, mononuclear cells, Osteoblasts and synovial tissues, and can stimulate its own production and induce chondrocytes and synovial cells to produce other cytokines. Tumor Necrosing Factor - α also induces Osteoclastic bone resorption [12] and destruction of cartilages. [13] Elevated levels of Tumor Necrosing Factor - α have been found in the synovial fluid, synovial membrane, Subchondral bone and cartilage osteoarthritis patients, [14, 15] confirming its important roles in osteoarthritis pathogenesis. Analgesic and anti-inflammatory therapy is limited by side effects and not all patients are adequately controlled with lifestyle changes.[1,2] Reports of the therapeutic and analgesic effects of acupuncture in osteoarthritis have stimulated interest in acupuncture as complementary - or even as an alternative – to Western orthodox medicine.[16-20] Many patients suffering from osteoarthritis of the knee, who have not been helped by one or more Western therapy regimes, find relief from alternative medical approaches, including acupuncture.[20-31]A survey in 1996 showed that more than 50% of all cases treated by acupuncturists in the United Kingdom had osteoarthritis.[32] It has been suggested that acupuncture, with its good safety record,[32-34]can be used to manage osteoarthritis in patients for whom conventional Western treatments are inadequate or contraindicated.[35,19,20] The main aim of this present study is to evaluate the effect of Acupuncture in the pain management of osteoarthritis of knee joints.

MATERIAL AND METHODS

INCLUSION CRITERIA

1. Male or female aged more than 30 years
2. Patients suffering with knee OA (grade I-III)
3. No previous acupuncture treatment

EXCLUSION CRITERIA

1. Pregnancy
2. Other type of arthritis, eg: rheumatoid arthritis, Psoriatic arthritis, gout and severe OA of the hip
3. Fitted pacemakers
4. Known metal allergies
5. History of prosthetic or damaged cardiac valves
6. Haemophilia
7. Anticoagulants, cortisone or oral corticosteroid medication
8. Dementia, psychiatric disease and life threatening illness
9. Uncontrolled diabetes

Subjects

The present study includes 10 patients of age group more than 30 years of both genders. The study conducted in the Narayana Yoga Naturopathy Hospital. Patients with complaints of

knee pains are included in the study. The study executed after the approval of institutional ethical committee. Signed informed consent is obtained from all the patients after giving a detailed description of acupuncture and about the study.

Procedure

Patients who filled the criteria of osteoarthritis are informed about the role of Acupuncture. The intensity of pain will be noted with" Visual Analog scale, it contains 1 – 10 points denoting intensity of scale. 0 denotes no pain, from 0 -5 moderate pain, 5 -10 from moderate to worst pain."The intensity of pain will be recorded at the first visit to hospital and at the last sitting of the study.

Acupuncture treatment given for about half an hour daily .Acupuncture is administered by qualified Doctor in points selected according to standardised acupuncture formulae, traditionally used for the treatment of osteoarthritis. The patient laid in supine posture with a pillow under both the knees for the treatment. The acupuncture needles used for the treatment will be 0.25 x 13, solid disposable stainless steel needles. The depth of the needle insertion varied with the thickness of the skin and subcutaneous fatty tissue at the site of acupuncture points, usually 1-1.5 cm. Needles will be left in situ for 30 minutes.

Based on the theory, a combination of local and distal classical Chinese acupuncture points used for OA knee: Xiyan (eyes of the knee), St 34, SP 9, GB 34, Sp 6, LR 3, and LI 4.

Scale:

The intensity of pain is evaluated on a 10 point VAS.

0	No Pain
2	Mild Pain
4	Moderate Pain
6	Severe Pain
8	Very Severe Pain
10	Worst Pain

Statistical Analysis

The data was analyzed with the Statistical Package for Social Sciences (SPSS) version 16.0. Descriptive analyses were expressed as Mean ± Standard Deviation. Chi square test were performed between the patients before and after the treatment. P = 0.04 was considered to be statistically significant.

RESULTS

Table 1. VAS scale before and after treatment

Patient No	Before treatment	After treatment
Patient-1	VAS Scale - worst	No pain
Patient-2	VAS Scale - worst	Mild pain
Patient-3	VAS Scale – severe pain	Moderate pain
Patient-4	VAS Scale – very severe pain	Moderate pain
Patient-5	VAS Scale – severe pain	Moderate pain
Patient-6	VAS Scale – very severe pain	Moderate pain
Patient-7	VAS Scale – very severe pain	Moderate pain
Patient-8	VAS Scale – very severe pain	Moderate pain
Patient-9	VAS Scale – worst pain	Mild pain
Patient-10	VAS Scale – very severe pain	Moderate pain

BEFORE Treatment	N	%
Severe Pain	2	20
Very Severe Pain	5	50
Worst Pain	3	30
Grand Total	10	100.0

AFTER Treatment	N	%
Mild Pain	2	20
Moderate Pain	7	70
No Pain	1	10
Grand Total	10	100

AFTER Treatment				
BEFORE Treatment	Mild Pain	Moderate Pain	No Pain	Grand Total
Severe Pain	0	2	0	2
Very Severe Pain	0	5	0	5
Worst Pain	2	0	1	3
Grand Total	2	7	1	10

Chi-square test = 10.00, P Value = 0.04 (Sig.)

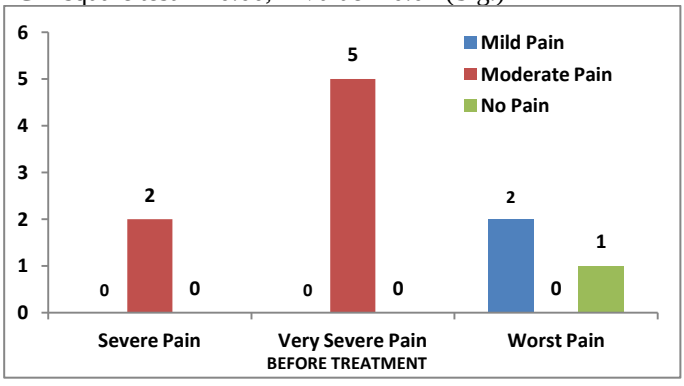

Figure 1. VAS scale before treatment

Total number of patients involved in this study was 10. there were no dropouts during the treatment period. Before and 20th sitting after the completion of the treatment, the observed pain scale scores were found to be as follows.

Mean age of patients was 52.3, male: female ratio was 2:3; average weight of patients was 70 kgs; average height of the patients was 163 cm. The VAS score before Acupuncture therapy were severe pain (20%), very severe pain (50%), worst pain (30%) and Acupuncture therapy, the VAS score were Mild pain (20%), Moderate pain (70%), No pain (10%) which showed a significant improvement.

DISCUSSION

Osteoarthritis is the most common form of arthritis. Its prevalence is greater among women than men. Several factors contribute to the risk of osteoarthritis, including age, gender, genetics, behavioural influences, obesity, injury, and reduced muscular strength. Significant consequences of osteoarthritis are activity limitations, reduced participation in work and social activities, and mental distress. Like other complementary therapies, Traditional Chinese Acupuncture has assumed great interest in western medicine for its analgesic property in the treatment of pain, [36] particularly in knee Osteoarthritis.[8,18]While there are guidelines for assessment of osteoarthritis, there is no such internationally recognised guidance for the use of acupuncture. The recent review by Ezzo has proposed same minimum adequacy criteria which were met for this study. [37]

The most recent clinical guidelines based upon evidence from the United Kingdom National Institute of Clinical Excellence and the Osteoarthritis Research International (OARSI) suggest that the treatment for Osteoarthritis be multidisciplinary in nature and consider non-pharmacological treatment such as education, aerobic and resistance exercises, and weight loss as well as pharmacological treatment options anti-inflammatory drug example paracetamol when an additional treatment is required. In an Osteoarthritis Research International systematic review, five of the eight guidelines considered acupuncture to be one of the 12 possible non-pharmacological therapy modalities for Osteoarthritis. Acupuncture has been demonstrated to be a safe treatment with a low risk of serious side effects.

Although many studies show the efficacy of acupuncture for Osteoarthritis pain, the lack of a common methodology for the trial design complicates the possibility of comparing the respective results in order to determine treatment efficacy.

In this study, 10 patients with knee pains who completed Acupuncture treatment gained significant benefit, the results showed that Acupuncture can be an effective treatment for the knee pain patients. [38]This study demonstrated that acupuncture decreased pain, stiffness, and physical difficulty in persons with Osteoarthritis of the knee. [18]

Out of total 10 patients, 5 complained very severe pain before giving the Acupuncture treatment after the 20th day acupuncture treatment we observed that the pain reduced to moderate level and swelling around the joints and stiffness completely reduced. 3 patients complained worst pain before the treatment, after the treatment it is observed that 2 patients said that their pain reduced to mild level and one subject doesn't have pain, it is completely reduced to that patient. 2 patients complained severe pain after the treatment, observed moderate pain with reduction in swelling and range of motion of knee joint improved.

Additionally, the current economic reality that dictates the need to develop favourable cost-benefit therapies for both patients and the health-care system should not be overlooked, and acupuncture is a cost-effective therapy for the treatment of knee osteoarthritis.

In conclusion, the present results show that, in patients with chronic pain due to osteoarthritis of the knee who were receiving routine primary care,

addition of acupuncture to the treatment regimen resulted in a clinically relevant and persistent benefit. Acupuncture should be considered as a treatment option for patients with knee osteoarthritis –associated chronic pain. [39]

Finally, a great deal of evidence indicates that various possible physiological mechanisms explain how acupuncture may provide pain relief, and these indicate that further research is needed to clarify the interrelationship and regulation of these mechanisms.

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