To Evaluate the Efficacy of Homoeopathic Medicine In Management of Osteoarthritis of Knee

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Abstract: Objective: To evaluate the efficacy of Homoeopathic Medicine in Management of Osteoarthritis of Knee. Method: Out of 2300 patients attending Out Door Patient Department 100 patient were selected on the basis of inclusion criteria, diagnostic criteria of American college of Rheumatology and regularity in follow-ups. Knee injury and Osteoarthritis outcome score (KOOS) scoring system was followed as baseline and during the study at every month follow-ups. Results: The outcome of Homoeopathic treatment was observed on the basis of KOOS scoring system which includes Pain, Symptoms, Activity of Daily Living, Sports and recreational activity and Knee related activity. It was observed that Rhus tox. tops the list among all 6 medicine found to be prescribed in Osteoarthritis of knee joint with 88.64% improvement in pain, 85.71% improvement in Symptoms, 88.09% improvement in Activity of Daily living, 80% improvement in Sports and recreational activity and 75% improvement in Knee related activity. Bryonia precedes Rhus tox., then Calc. fluor., then Causticum then Calc. carb and least was Kali. Carb. Conclusion: If we can take the concept of Individualization at grass root level and understand what pathophysiology occurs at the level of knee joint then it becomes very obvious to learn that Rhus tox. primarily where popliteal muscle tendon was damaged followed by OA changes Bryonia was effective when there is micro trauma or overuse injury to osseous part, ligament or menisci leads to variety of symtoms. Causticum is effective where there is progressive loss of quadriceps muscle strength with damage to popliteal and patellar tendons. Calc. flour showed effectiveness where there is presence of Osteophytes leads to repeated synovitis and calc. carb had osteoporosis. [P Dave, Natl J Integr Res Med, 2018; 9(3):52-59]

Key Words: osteoarthritis, knee, homeopathic medicine, casticum, cal flour, thus tox, cal carb,kali carb,Bryonia etc…

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Introduction: Osteoarthritis is currently defined by the American College of Rheumatology as a heterogeneous group of conditions that leads to joint signs and symptoms which are associated with defective integrity of articular cartilage, in addition to related changes in the underlying bone at the joint margins. Come 2013 and India is likely to notice an endemic of osteoarthritis with about 80% of the 65+ population in the country suffering with wear and tear of joints. 40% of these people are likely to suffer from severe osteoarthritis, which will disable them from daily activities, say the experts quoting the World Health Organisation (WHO).

The reason behind the onset of this endemic is said to be increasing longevity of Indians. By 2020 the number of 65+ population in India is likely to be about 177 million, where as India had 100 million people in this age group in 2010. Limitations of conventional medical management of this condition indicate a real need for safe and effective treatment of osteoarthritic patients. This study review the clinical evidence for the effectiveness of homeopathic medicines in the treatment of patients with osteoarthritis.

Objective: To Evaluate the Efficacy of Homoeopathic Medicine in Management of

Osteoarthritis:

Methods:

1.Type of Study: The study was carried out at O.P.D of Dr. V. H. Dave Homoeopathic Medical College, Anand, Gujarat.

It was a randomised, controlled, Prospective, open intervention trial to evaluate the efficacy of Homoeopathic Medicines in the management of Osteoarthritis.

2.Type of Participant: Adults (18 years and older) with osteoarthritis, of either gender, at any stage of disease, will be included. Studies that evaluate patients with radiographic evidence or with American College of Rheumatology (ACR) clinical criteria for osteoarthritis will be included.

3.Type of Intervention: Total 2300 patient surveyed to find out the cases of Osteoarthritis attending the Out Door patient Department.

4.Criteria for Diagnosis of Osteoarthritis of Knee by American College of Rheumatology

- Knee pain and;
- At least three of the following 6 criteria:
- 50 years of age or older,
- Stiffness lasting less than 30 minutes,
- Crepitus,
- Bony tenderness,
- Bony enlargement,
- No warmth to the touch

Laboratory findings which are useful to assessing knee osteoarthritis include sedimentation rate less than 40 mm/hour,
Rheumatoid Factor less than 1:40, and
Synovial fluid examination showing clear, viscous fluid with a white blood cell count less than 2,000/mm3.

5.Inclusion Criteria:

- Radiographically Confirmed cases of Osteoarthritis
- At least Mild Pain on movement of Affected Knee
- Age above 18 years.

6.Exclusion Criteria:

- Other Joint Disease or Any Systemic Disease
- Severe Osteoarthritis requiring surgical Intervention
- Non Ambulatory Patient.

Knee Injury And Osteoarthritis Outcome Score (KOOS): The Knee Injury and Osteoarthritis Outcome Score (KOOS) is a questionnaire designed to assess short and long-term patient-relevant outcomes following Osteoarthritis of Knee. The KOOS is self-administered and assesses five outcomes: pain, symptoms, activities of daily living, sport and recreation function, and knee-related quality of life. The KOOS meets basic criteria of outcome measures and can be used to evaluate the course of Osteoarthritis and treatment outcome. KOOS is patient-administered, the format is user-friendly and it takes about 10 minutes to fill out.

In this study all five criteria i.e. Pain, Symptoms, Worsening, Sports and Recreational Activity and Knee related activity were evaluated in each case for each criteria. After calculating total score a mean was derived at baseline and same procedure followed at the end of every month for 6 month. Total 6 medicines were prescribed on the basis of symptomatology of Osteoarthritis and improvement was assessed for all 6 medicine for all 5 criteria.

1. The Medicine prescribed during study were Bryonia, Causticum, Calc. carb., Calc. fluor., Kali carb. and Rhus tox. On the basis of their indication in osteoarthritis.
2. **Scoring instructions :**
3. The KOOS's five patient-relevant dimensions are scored separately: Pain (nine items); Symptoms (seven items); ADL Function (17 items); Sport and Recreation Function (five items); Quality of Life (four items). A Likert scale is used and all items have five possible answer options scored from 0 (No problems) to 4 (Extreme problems) and each of the five scores is calculated as the sum of the items included.
4. **Interpretation of scores:** Scores of all criteria are calculated for the observation regarding age and Gender. Rest of the observations were done separately for each criteria. Mean of total score was derived at the baseline and regularly calculated at the every month for 6 month. Percentage of improvement was derived from the baseline score and last observed score putting in the formula of Improvement.

Pain

P1 How often is your knee painful?	Never	Monthly	Weekly	Daily	Always
What degree of pain have you experienced the last week when…?					
P2 Twisting/pivoting on your knee	None	Mild	Moderate	Severe	Extreme
P3 Straightening knee fully	None	Mild	Moderate	Severe	Extreme
P4 Bending knee fully	None	Mild	Moderate	Severe	Extreme
P5 Walking on flat surface	None	Mild	Moderate	Severe	Extreme
P6 Going up or down stairs	None	Mild	Moderate	Severe	Extreme
P7 At night while in bed	None	Mild	Moderate	Severe	Extreme
P8 Sitting or lying	None	Mild	Moderate	Severe	Extreme
P9 Standing upright	None	Mild	Moderate	Severe	Extreme

Symptoms

Sy1 How severe is your knee stiffness after first wakening in the morning?	None	Mild	Moderate	Severe	Extreme
Sy2 How severe is your knee stiffness after sitting, lying, or resting later in the day?	None	Mild	Moderate	Severe	Extreme
Sy3 Do you have swelling in your knee?	Never	Rarely	Sometimes	Often	Always
Sy4 Do you feel grinding, hear clicking or any other type of noise when your knee moves?	Never	Rarely	Sometimes	Often	Always
Sy5 Does your knee catch or hang up when moving?	Never	Rarely	Sometimes	Often	Always
Sy6 Can you straighten your knee fully?	Always	Often	Sometimes	Rarely	Never
Sy7 Can you bend your knee fully?	Always	Often	Sometimes	Rarely	Never

Activities of worsening

What difficulty have you experienced the last week…?					
A1 Descending	None	Mild	Moderate	Severe	Extreme
A2 Ascending stairs	None	Mild	Moderate	Severe	Extreme
A3 Rising from sitting	None	Mild	Moderate	Severe	Extreme
A4 Standing	None	Mild	Moderate	Severe	Extreme
A5 Bending to floor/picking up an object	None	Mild	Moderate	Severe	Extreme
A6 Walking on flat surface	None	Mild	Moderate	Severe	Extreme
A7 Getting in/out of car	None	Mild	Moderate	Severe	Extreme
A8 Going shopping	None	Mild	Moderate	Severe	Extreme
A9 Putting on socks/stockings	None	Mild	Moderate	Severe	Extreme
A10 Rising from bed	None	Mild	Moderate	Severe	Extreme
A11 Taking off socks/stockings	None	Mild	Moderate	Severe	Extreme
A12 Lying in bed (turning over, maintaining knee position)	None	Mild	Moderate	Severe	Extreme
A13 Getting in/out of bath	None	Mild	Moderate	Severe	Extreme
A14 Sitting	None	Mild	Moderate	Severe	Extreme
A15 Getting on/off toilet	None	Mild	Moderate	Severe	Extreme
A16 Heavy domestic duties (shovelling, scrubbing floors, etc)	None	Mild	Moderate	Severe	Extreme
A17 Light domestic duties (cooking, dusting, etc)	None	Mild	Moderate	Severe	Extreme

Sport and recreation function

What difficulty have you experienced the last week…?					
Sp1 Squatting	None	Mild	Moderate	Severe	Extreme
Sp2 Running	None	Mild	Moderate	Severe	Extreme
Sp3 Jumping	None	Mild	Moderate	Severe	Extreme
Sp4 Turning/twisting on your injured knee	None	Mild	Moderate	Severe	Extreme
Sp5 Kneeling	None	Mild	Moderate	Severe	Extreme

Knee-related quality of life

Q1 How often are you aware of your knee problems?	Never	Monthly	Weekly	Daily	Always
Q2 Have you modified your lifestyle to avoid potentially damaging activities to your knee?	Not at all	Mildly	Moderately	Severely	Totally
Q3 How troubled are you with lack of confidence in your knee?	Not at all	Mildly	Moderately	Severely	Totally
Q4 In general, how much difficulty do you have with your knee?	None	Mild	Moderate	Severe	Extreme

The score in each of this question was calculated as below
None = 0
Mild = 1
Moderate = 2
Severe = 3
Extreme = 4
The symptom score was prepared from the entry point of case and at the end.
Improvement was calculated using formula:

$$\text{Improvement} = \frac{\text{Baseline Score} - \text{Score At End}}{\text{Baseline score}} \times 100$$

Changes were graded as ,
Marked improvement (75 to < 100% improvement),
Moderate improvement (50 to < 75% improvement),
Mild improvement (25 to < 50% improvement),
Not significant improvement (< 25% improvement),
Static (no change), and
worse (increase in symptoms score with complication).

In each the prescribed medicine was recorded and the symptom totality was also recorded on the basis of improvement. Remedy profile of each remedy was prepared on the basis of symptoms it has relieved.

Results And Observation:

Table 1: Distribution of Cases As Per Age Group

Age Group (In Years)	No. Of Cases	Ma. I.	Mo. I.	Mi. I.	Percentage (%)
21 – 30	02	01	01	00	100.00
31 – 40	06	01	02	01	066.67
41 – 50	27	05	10	06	077.78
51 - 60	24	04	12	04	083.33
61 – 70	21	04	08	03	071.42
71 – 80	20	03	04	03	050.00
Total	100	18	37	17	072.00

Observation: The study showed that as the age advances the incidence of osteoarthritis gradually increased. Age group between 41- 60 comprises 51% of total cases whereas up to the age of 40 the incidence rate is only 8%.

Table 2: Distribution of Cases As Per Gender

Age Group (In Years)	No. Of Cases	Ma. I.	Mo. I.	Mi. I.	Percentage (%)
Male	044	10	18	05	075.00
Female	056	08	19	12	069.64
Total	100	18	37	17	072.00

Observation: The study showed that incidence rate was higher among female comprising 56%.

Table 3: Comparison of Mean Koos Score for Pain Versus Different Medicines At Different Time Intervals

Duration	Bryonia	Causticum	Cal. carb.	Calc. flour.	Kali Carb.	Rhus Tox.
Base Line	8.4	7.8	8.2	8.0	7.9	8.8
1 Month	6.2	6.6	7.0	7.0	6.7	8.0
2 Month	5.8	5.4	5.8	6.0	5.5	7.0
3 Month	5.0	3.2	4.6	5.0	3.3	6.0
4 Month	4.8	2.0	3.4	4.0	2.1	3.0
5 Month	3.2	1.0	2.2	3.0	1.0	2.0
6 Month	1.2	1.0	1.2	1.4	1.0	1.0

Observation: The study showed that at the end of 6 month all homoeopathic indicated medicine showed more than 85% improvement except calcarea fluor which showed 82.5% in pain as per KOOS score.

Table 4: Comparison of Mean Koos Score for Symptoms Versus Different Medicines At Different Time Intervals

Duration	Bryonia	Causticum	Cal. carb.	Calc. flour.	Kali Carb.	Rhus Tox.
Base Line	7.0	6.0	6.8	6.6	5.8	7.0
1 Month	6.4	5.6	6.6	6.2	5.2	6.2
2 Month	6.0	5.4	6.2	5.4	5.2	5.6
3 Month	5.2	5.0	5.4	4.4	5.0	4.4
4 Month	4.2	4.2	3.8	3.2	4.2	3.2
5 Month	3.2	2.0	2.0	2.2	3.6	2.2
6 Month	1.0	1.2	1.4	1.0	3.2	1.0

Observation: The study showed that Rhus tox and Bryonia showed highest improvement (i.e. 85.71%) in symptoms whereas Kali carb showed 44.83% improvement in symptoms as per KOOS score.

Table 5: Comparison of Mean Koos Score for Worsening Versus Different Medicines At Different Time Intervals

Duration	Bryonia	Causticum	Cal. carb.	Calc. flour.	Kali Carb.	Rhus Tox.
Base Line	16.2	13.4	14.6	15.8	12.8	16.8
1 Month	13.4	11.4	12.6	13.6	11.0	14.2
2 Month	12.8	9.4	11.2	11.4	9.8	12.2
3 Month	10.8	7.4	10.0	9.2	7.8	10.2
4 Month	8.8	5.4	8.8	7.0	5.7	8.2
5 Month	6.4	3.4	6.4	4.0	4.6	6.2
6 Month	2.0	2.6	3.0	2.0	4.2	2.0

Observation: The study showed that Rhus tox., Bryonia and Calc. fluor showed 88.09%, 87.65% and 87.34 % improvement respectively in aggravating factors. Kali carb showed 67.14% improvement in Aggravating conditions as per KOOS score.

Table 6: Comparison of Mean Koos Score For Sports And Recreational Activity Versus Different Medicines At Different Time Intervals

Duration	Bryonia	Causticum	Cal. carb.	Calc. flour.	Kali Carb.	Rhus Tox.
Base Line	4.8	3.0	3.2	4.6	3.2	5.0
1 Month	3.2	2.8	2.8	3.2	2.8	4.6
2 Month	2.8	2.2	2.2	2.8	2.2	3.2
3 Month	2.2	1.2	1.2	2.2	1.4	2.8
4 Month	1.2	1.0	1.2	1.2	1.4	2.2
5 Month	1.0	1.0	1.2	1.2	1.4	1.2
6 Month	1.0	1.0	1.2	1.0	1.4	1.0

Observation: The study showed that Rhus tox., Bryonia and Calc. fluor showed 80%, 79.16% and 78.26% improvement respectively in sports and recreational activity as per KOOS score.

Table 7: Comparison of Mean Koos Score for Knee Related Acitivty Versus Different Medicines At Different Time Intervals

Duration	Bryonia	Causticum	Cal. carb.	Calc. flour.	Kali Carb.	Rhus Tox.
Base Line	4.0	3.2	3.0	3.4	3.0	4.0
1 Month	3.2	2.8	2.8	3.2	2.8	3.2
2 Month	2.8	2.2	2.2	2.8	2.2	2.8
3 Month	2.2	1.2	1.2	2.2	1.4	2.2
4 Month	1.2	1.0	1.2	1.2	1.4	1.2
5 Month	1.0	1.0	1.2	1.2	1.4	1.0
6 Month	1.0	1.0	1.2	1.0	1.4	1.0

Observation: The study showed that Rhus tox., Bryonia and Calc fluor showed 75%, 75% and 70.59% improvement respectively as per KOOS score.

Table 8: Distribution of Cases of Osteoarthritis As Per Effect Of Medicine Versus Koos Criteria

Womac Criteria	Bryonia	Causticum	Cal. carb.	Calc. flour.	Kali Carb.	Rhus Tox.
Pain	85.71	87.77	85.37	82.50	87.34	88.64
Symptoms	85.71	80.00	79.41	84.45	44.83	85.71
Worsening	87.65	80.59	79.45	87.34	67.18	88.09
Sports Related & Recreational Activity	79.16	66.67	62.50	78.26	56.25	80.00
Knee Related Injury	75.00	68.75	60.00	70.59	53.33	75.00

Observation: The study showed that Rhus tox showed over all 75% improvement, Bryonia also showed 75% improvement whereas Calc. fluor showed 70.59% improvement.

Discussion: A Prospective Study "To Evaluate the Efficacy of Homoeopathic Medicine in Management of OSTEOARTHRITIS" of 100 patients derived following observation worth discussing.

Incidences of osteoarthritis increase with age due to simple "wear and tear" on the joints – the older you are, the more you have used them. However, that doesn't mean OA is an inevitable part of aging because not everyone gets it. The study confirms the observations of literature reviewed during study with 51% case between age of 41 to 60 and 41% cases between age of 61 to 80.

Literature review suggests that in people younger than 45, osteoarthritis occurs more frequently in men. After age 45, it develops more often in women. It also suggests that women may also experience greater muscle and joint pain, in general, than men. The incidence rate of osteoarthritis in this study showed 56% female cases and 44% Male patients.

The mean baseline score calculated for pain criteria as per KOOS system revealed 88.64% improvement with Rhus tox., 87.34% improvement with Kali. Carb., 87.17% improvement with causticum, 85.71% improvement with Bryonia, 85.37% improvement with calc. carb., 82.5% improvement with Calc. flour. Even though the sphere of action of all above medicine are different and relieve pain which originated either from joint, muscle or effusion.

The mean base line score calculated for Symptoms of Osteoarthritis as per KOOS system revealed 85.71% improvement with Rhus tox. And Bryonia, 44.83% improvement with Kali. Carb., 80% improvement with causticum,, 79.41% improvement with calc. carb., 84.85% improvement with Calc. flour. Rhus tox. And Bryonia are such medicine which covers the pathogenesis of osteoarthritis at each stage and give maximum relief when prescribed.

The mean base line score calculated for Activity in daily living as per KOOS system revealed 88.09% improvement with Rhus tox., 87.65% improvement with Bryonia, 67.18% improvement with Kali. Carb., 80.59% improvement with causticum,, 79.45% improvement with calc. carb., 87.34% improvement with Calc. flour. It was commonly observed among the patients suffering from osteoarthritis that if pain and symptomatic relief is achieved then patients activity in daily life becomes hassle free.

The mean base line score calculated for Sports and recreational activity as per KOOS system revealed 80% improvement with Rhus tox., 79.16% improvement with Bryonia, 56.25% improvement with Kali. Carb., 66.67% improvement with causticum,, 62.5% improvement with calc. carb., 78.26% improvement with Calc. flour. Sports and recreational activity are strenuous activity and are difficult to perform with damage to ligament, menisci or cartilage. It is also difficult to perform such activity where there is gross effusion.

The mean baseline score calculated for Knee Related Activity as per KOOS system revealed 75% improvement with Rhus tox. and Bryonia, 53.33% improvement with Kali. Carb., 68.75% improvement with causticum,, 60% improvement with calc. carb.,70.59% improvement with Calc. flour. As this study concern with Osteoarthritis of knee joint Rhus tox. and Bryonia are the most effective remedy.

The statistical test chi square also showed the equal efficacy of Prescribed Homoeopathic medicine.

Summary And Conclusion: The outcome of osteoarthritis of the knee not be as dramatic as that of a myocardial infarct but it is certainly expensive in personal terms to an individual patient and in societal terms for the cost of services to cope with that individual disability and with the cost of the eventual joint replacement. The ultimate end point – the time to joint replacement - which has been used in at least one trial comparing non-steroidal anti-inflammatory drugs, is not viable practically because of the long natural history of the disease. It should, however, be factored into the equation, particularly in economic terms as joint replacement is becoming such a frequently performed operation.The development of consensus guidelines for assessment of osteoarthritis and conduct of clinical trials will go a long way in helping us to meet the challenge of osteoarthritis with Homoeopathic Medicines.

A Prospective Study "TO EVALUATE THE EFFICACY OF HOMOEOPATHIC MEDICINE IN MANAGEMENT OF OSTEOARTHRITIS OF KNEE" concludes verified indication of 6 prescribed medicine.

1.Bryonia:

- Over usage, lack of exercise, lack of water, excess salt consumption causes lack of synovial fluid in synovial cavity.
- Microtrauma or overuse injury to osseous part, ligament or menisci leads to variety of symptoms.

Remedy Profile:

- Tensive and painful stiffness of the knees.
- Red and shining swelling of the knees, with violent shootings, esp. on walking.
- Painful stiffness of the knees, with stitches, esp. when moving them.

2.Causticum:

- It is effective where there is progressive loss of quadriceps muscle strength with damage to popliteal and patellar tendons.
- Damage to tendons causes tearing and stitching type of pain.

Remedy Profile:

- Heavyness and Weakness in Joints.
- Stiffness in hollow of knee (due to popliteal tendonitis).
- Burning in joints (Inflammation of the surrounding joint capsule can also occur causing.)
- Cracking and Tension in knees.

3.CALC. CARB:

- The primary disturbance of pituitary or thyroid gland leads to alteration in the calcium metabolism and leads to development of osteoarthritis.
- Contrary to higher bone density in case of osteoarthritis we will find low bone density in this remedy.

Remedy Profile:

- Swelling of the knees.
- Cramps in the calves of the legs
- Weakness of knee
- Cold Knee.

4.CALC. Flour:

- It is characterized by increased bone density and bony growths (osteophytes) in conjunction with articular cartilage degeneration.
- Presence of osteophytes leads to repeated synovitis as a presentation of osteoarthritis.

Remedy Profile:

- Chronic Synovitis of knee joint.
- Cracking in joint.
- Exostoses (Osteophytes)

5.Kali Carb:

- It is one of the very good remedy osteoarthritis has led to permanently swollen or deformed joints.
- Certain hormonal changes allow women's bodies to adjust to the growing demand of both pregnancy and child birth. One of the most notable changes is the production of relaxin, a hormone that increases the mobility or movement of joints within the body. This hormone is vital to pregnancy because it allows the hips to spread and move to prepare for childbirth. While its biological design during pregnancy is to increase the width of the hips, relaxin can also affect other often used joints such as wrists, elbows, and knees. This excess mobility in the joints is usually the culprit behind occasional pregnancy clumsiness.
- In some occasions, especially if a woman was predisposed to any type of arthritis or has had a previous injury, the production of relaxin can

greatly increase the risk of developing secondary osteoarthritis.

- Once the joints begin to be affected by relaxin, in many cases the joints do not react the same after the pregnancy has ended. Inflammation, discomfort, and displacement can commonly result after pregnancy thus aggravating a form of osteoarthritis that was otherwise undisturbed.

Remedy Profile:

- Uneasiness, heaviness and tearing in knee joint.
- Chronic inflammatory changes (White swelling.)
- Cramp in calf.
- Great weakness of right, feeling as if it would give way when walking.
- Difficulty in knees on going up or downstairs.
- Dull pains in side of knee, walking or extending leg.

6.Rhus Tox:

- Rhus tox being tops the list of medicine indicated in the Osteoarthritis of knee joint.
- Study revealed that whenever there is overuse/strain on popliteus tendon, which connects the popliteus muscle to the thigh bone (*femur*) near the knee.
- The popliteus muscle helps bend and rotate the knee. Pain in the knee, specifically the outer (*lateral*) and back (*posterior*) portions.
- Inflammation in the patellar tendon where it attaches to the patella and may progress by tearing or degenerating the tendon.
- Patients present with an ache over the patella tendon. Edema in the proximal aspect of the patellar tendon

Remedy Profile:

- Hot painful swelling of Knee.
- Tearing pain in tendons, ligaments.
- Better by motion.
- Medial condyle of femur painful.
- Stiffness of knee joint.
- Tenderness of knee joint.

Osteoarthritis is a common rheumatic disease. Limitations of conventional medical management of this condition indicate a real need for safe and effective treatment of osteoarthritic patients. The authors review the clinical evidence for the effectiveness of homeopathic medicines in the treatment of patients with osteoarthritis. The authors conclude that the effectiveness of homeopathic remedies in the treatment of patients with osteoarthritis. The clinical evidence appears promising, however more research into this area seems warranted.

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