

## PREVENTION AND MANAGEMENT OF OSTEOARTHRITIS: A REVIEW

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### ABSTRACT

In the science of life all the aspects of human being health are clearly mentioned. Due to changes in day-to-day life style, the superiority of human health is falling. Dreadful changes in life style have lead to disorders like obesity, diabetes, arthritis etc. Among these osteoarthritis is observed commonly in large populace. Along with old age, it is also prevalent in young generation. It is a disease of degeneration that means harmful degeneration initiate in early age group, which hamper quality of life. Even taking the treatment of modern medicine like chronic use of analgesic affects patient badly. These adverse effects are extremely hazardous. For that purpose, one can adopt right treatment which gives instant and safe result, without hassle. So, Ayurveda gives preventive measures which serve our life healthy and management that grants constructive safe and sound outcome. Hence the treatments like Vigdhakarma (pricking), Agnikarma (cauterization), and massage pressure points in osteoarthritis and essentiality of it for fast altering life style is discussed in full paper.

**KEYWORDS:** Osteoarthritis, Adverse effect, Instant and Safe Treatment.

### INTRODUCTION

Osteoarthritis is wears and tears disease involving group of mechanical abnormalities resulting in degradation of joint, articular cartilage and sub-chondral bone. Inflammation takes place in joint with certain characteristics which leads to loss of function or aggravation of pain during and after movement. In modern science, effective medicine on osteoarthritis is not available till now. Most of the old age population usually suffers from this disease which hampers quality of life. To give effective relief to patient, one should adopt appropriate lifestyle mentioned in context of Ayurveda. In Ayurveda, there are several preparations to treat Osteoarthritis. But there is a need to diagnose patient in right way and prescribed medicine according to Prakruti of patient (i.e. Vata, Pitta, Kapha, etc.). It is a modest attempt to make people, patient and doctor friends aware about Osteoarthritis.

- Inflammation and in menopausal age, its level deplete.
- In this age there is tend to be fatter on belly which puts more pressure over knee.

#### Incidence

1. Higher incidence of Osteoarthritis is mostly in knee, hip and spines.<sup>[1]</sup>
2. Epidemiological study reveals that it mostly affects poly articular joints in women >55 yrs (i.e. in

menopausal age).<sup>[1]</sup> It may be due to-

- Estrogen protects cartilage from inflammation and in menopausal age, its level deplete.
  - In this age there is tend to be fatter on belly which puts more pressure over knee.
3. Incidences mostly seen in bus drivers, conductor, computer operators and school teachers.<sup>[1]</sup>

#### Etiological Factors

- Overweight (since it put more pressure on joints and can cause the cartilage between joints to tear rapidly).

#### Age degenerative changes

- History of trauma which leads to misalignment or deformities
- Metabolic dysfunction
- Inflammatory condition
- Hereditary – Mostly among females particularly knee and hand Osteoarthritis.<sup>[1]</sup>

#### Symptoms

- Pain in joints (major symptoms), mostly it is sharp in nature or may be burning sensation associated with muscles and tendons
- Joint stiffness
- Tenderness
- Loss of function or mobility due to locking of joints
- Muscles spasm

- Crepitus (Crackling noise)
- Effusion (Joint filled with fluid) sometimes occur.<sup>[2,3]</sup>

#### Differentiating feature from Rheumatoid Arthritis

- 1) Aforementioned symptoms get aggravated by humid and cold weather environment
- 2) Patient feels better with moderate use of joint but intensity of pain increases after excessive or prolonged use.
- 3) Stiffness generally relieved by movement
- 4) Heber den's nodes appear over terminal interphalangeal joints which are generally painless but restrict movements of that joints.<sup>[2,3]</sup>

#### Diagnosis

- By clinical methods and examination
- In case of trauma, to rule out pathology X-RAY, CT and MRI are done<sup>3</sup>

#### Pathology and physiology of Osteoarthritis

- Due to increased age, water content or synovial fluid in joints get decreased.
- Due to friction of bony parts, erosion and inflammation of surrounding joint capsule, breakdown of particles from cartilage releases in joint space.
- Progressive erosions of articular cartilage and formation of bony overgrowth at joint margins due to calcification i.e. osteophytes in latter stage (Figure I)
- Bone exposed, damaged due to less protection by cartilage, cartilage become thin and soft due to degeneration (Figure II)
- Decreased activity, localized muscle pain may undergo disuse atrophy, ligament becomes more lax (Table 1)
- Gross deformity and instability of joint<sup>2,3</sup>

#### Modern treatment

- Use of analgesics and steroids
- Weight control or reduction in weight
- Exercise
- Physiotherapy
- Surgery<sup>[3]</sup>

#### Limitations to modern treatment

- 1]. Quick relief achieved by the use of potent drugs usually tend to cause more stiffness and might worsen the condition on long use or may create life threatening complications (Specially due to overuse of steroid e.g. Osteoporosis or steroid induced Diabetes Mellitus.<sup>[2]</sup>
- 2]. Analgesics and NSAID never stops the disease progression.<sup>[2]</sup>

So it is better to seek, safe and effective treatments measures to prevent Osteoarthritis by maintaining healthy life styles by applying principles of Ayurveda.

Aacharya mentioned the concept of Sandhigata vata in

Ayurveda context as below;

**Sushruta:** When Vata takes recourse to joints it interferes with the functions of the joints and causes pain and swelling.<sup>[4]</sup>

**Dalhana commentary:** Dalhana commenting on this verse interprets that vitiated Vayu damages the joints and give rise to absence of functions of flexion and extension.<sup>[5]</sup>

**Charak:** Characteristic features of swelling of joints quotes that by touch the swollen joint is felt as leather sac filled with air resulting in inability to extend and flex the limbs due to pain.<sup>[6]</sup>

In Charaka Chikitsa in Pranakamiya Rasayanadhikara chapter, enumerated the degenerative changes which takes place in the joints and bone in one line.<sup>[7]</sup>

This denotes the erosion joints

- 1) Sandhi (joint) is site of Shleshaka kapha. As age increases, vata dosha in body also increases and Kapha specifically Shleshaka kapha decreases hence joints become less functional as vitiated vata gets lodged in Sandhi.<sup>[8]</sup>
- 2) Joint is one of the of Marma (vital point in our body), Janu sandhi (knee joint) is also one of them i.e. Sandhigata vata which mostly involves it comes under the category of Madhyama Marga disease, That's why these diseases (progressive pathological joints problems) are difficult to treat. Since, there is no direct route for medicaments to reach within joints.<sup>[9]</sup>
- 3) Joint is one of the Vranasthana (site of inflammation). This vranashaya contains multiple tissues where there are more chances of their Vranashotha i.e. Inflammation can occur. According to treatment point of view, inflammatory changes are most important while considering Sandhi as "Vranasthana", it is easy to understand patho-physiology of Osteoarthritis.<sup>[10]</sup>

#### Samprapti (Patho-physiology)<sup>[11]</sup>

- 1]. Nidanasevana (Improper diet, faulty life style) → Aggravation or vitiation of Kapha and Meda → Weight Gain → Sthoulya (Obesity) and Agnivaishamya (Flatulence).

This is common risk factor of Sandhigata Vata.

- 2]. In old age<sup>[12]</sup>  
Age (Vardhyakya), Dhatukshaya (degeneration of tissues) → Vitiation of Vata and Kaphakshaya → Rukshata (Dryness), Laghuta (Lightness due to porosity) and Kharatwa (Coarseness in joints) → Shoola (Pain) and in Chronic Osteoarthritis Snadhishotha (Swelling in joints).

#### Ayurveda management of Osteoarthritis

Ideal treatment of sandhigata vata should be planned by

taking into consideration of factors as doshic involvement, vitiated dhatu and importance of Sandhi as vranasvastu.

- In case of Dhatukshaya (degenerative changes), treatment should be given for santarpana and Dhatu Poshana (i.e. nutrition).<sup>[13]</sup>
- In case of Margavarodhajanya (obstructed pathology), one has to treat vitiated Kapha and Meda and then to Vata dosha. In this case Snehana (intake of oil) or Abhyanga (application of oil) should be contraindicated in initial stage.<sup>[14]</sup>

#### Standard treatment regime for Sandhigata Vata

- External Therapy- Snehana (application of oil), Janubasti or janudhara, swedana (Nadi sweda, Poulitice, Pinda Sweda, Diatharmy)- types of hot fomentation, Lepa, Agnikarm, Bandage (Bandhana), Mardana and Leech Application
- Internal Treatment: Deepana – paachana Strotoshodhaka drugs, Rasayana (rejuvenative) Drugs, Basti (Sneha: Panchatikta, Erandamuladi, Vaitarana etc.)
- Exercise or Physiotherapy
- Lifestyle modifications including restriction in diet and daily activities

#### Reduction of Vranashotha (Inflammation)

Inflammation coexists with degeneration of joint. Joint contain majority of Dhatu and due to their inflammation, pathways for medicinal entry are not clear hence their specific suitable atmosphere should be created by using following regime-

- No local application of oil.
- Deepana – pachana strotoshodhaka (channel clearing) drugs.<sup>[15]</sup>

Clear channels regressing inflammation and enhance the effect of further treatment e.g. Shunthi, Musta, Lashuna are best for it. Rasanasantakam kashaya, Maharasnadi decoction with Guggulu preparation likes Yograja or Kaishora etc. have very well strotoshodhana property. Manjisthadi and Kokilaksha kashaya plays important role in reduction of inflammation.

- Local heating in the form of Nadi sweda, Poulitice, hot powder for application should be used. It relieves stiffness of joint and increases activity or improves motility of joint. Fomentation with poulitice has important role in all stages of inflammation of joints.

Local heating in the form of Agnikarma<sup>[16]</sup> (cauterization), Mardana (body massage) also helps to increase blood circulation and local permeability so helpful to decrease the swelling around the joint. Leech application is also helpful to do the same.

All above measures make the joint more open to accept the benefits of next mentioned nutritive therapy.

#### Proper nourishment to the tissues is essential in management of any degenerative diseases

It includes Rsasayana (rejuvenative) drugs, Basti (Sneha basti, Panchatikta kshir basti etc), Pindasweda, various type of Snehana in the form of Abhyanga with medicated oil, Janudhara, Janubasti etc. Sandhi is the main site of Shleshaka kapha. To give nutrition to it and for pacification of Vata, such medicine should be used which have dual action on Vata and Asthi also. Ghee medicated with Tikta dravya e.g. Mahatikta or Tikta (bitter) ghee fulfills abode principle of treatment.

Ghee contains vitamin D which plays major role to utilize calcium and phosphorus in blood and bone building.

**Snehabasti:** As per Sushruta, joints diseases are better treated by snehabasti alone.<sup>[17]</sup>

Tikta ksheer basti having miraculous results in Asthi dhatu related problem as narrated by Charaka.<sup>[18]</sup> Gandha Taila and Ksheerabala for internal and external use also attain the same purpose.

All the above mentioned treatment enhances the effect of treatment by attaining good quality of dhatu by doing Santarpana and dhatuposhana (nourishment).

Treatment option for Sandhigata vata should vary depending upon stage and severity of disease and condition of patient.

#### Stages

##### In Early Stage

- Pain on movement
- No crepitus
- No loose bodies in X ray
- No osteophytes
- Minimal disc space reduction
- Use Vaitarana basti with Dhanyamala. Erandamuladi basti to reduce inflammation and to induce strotoshodhana.
- In acute condition of pain occurring in steroid dependent patient use Haritaki powder 10 gm with ghee twice a day.<sup>[2]</sup>

##### In latter stage or advanced degenerative changes

- Crepitus
- Osteophytes
- Loose bodies in X-ray
- Use Tikta ksheera basti with Dashamoola ghee as shamana (pacify) snehapana.<sup>[2]</sup>

#### Condition of patient

1. If patient is obese, having Atherosclerosis, Hyperlipidaemia, and Diabetes Mellitus then one should give first preference to deepana paachana and strotoshodhana drugs and langhana (fasting) treatment using ushna (hot) and vata-kapha reducing drugs.
  - Varunadi Kashaya

- Rasana-erandadi Kashaya with Punarnavadi Kashaya in case of joint effusion
- Rasnaguggulu
- Sahacharadi taila for shamana snehapana at night with milk
- Erandamuladi basti with fomentations.

Once they are brought to main stream by aforesaid methods, use of Aavarthi or Tailam can be used [The advantage of using these Aavarthi is that quantity of fat is very less, therapeutic value is high, because of repeated processing adopted using same drug.]

2. If patient is lean and Vata dominance then bruhana component of treatment is given emphasis.
  - a. If there is no strotorodha, no osteophytes, use medicines containing Vidaryadi ghana
  - b. If strotorodha is there then snighdha virechana oil can be used.<sup>[19]</sup>
    - Vidaryadi kashaya
    - Dhanwaram kashayam
    - Maharasnadi kashaya
    - Ksheerbala Aavarthi or Dhanawatara Aavarthi with milk at night.

#### Severity of diseases

It is better to avoid keeping much expectation from treatment in following conditions.

- Where there is gross degeneration and marked various/vulgar deformity
- Absence of joint spaces in radiographs
- Presence of osteophytes in abundance
- Extreme limitation of movement and intractable pain in spite of adequate treatment. In this condition, total knee replacement is the final option.

So after proper screening and analyzing these conditions one should go for planning of treatment.<sup>[2]</sup>

#### Role of Optimal Exercises

- Disuse or overuse of joint should be avoided (optimally controlled movement of joint should be done)
- Specifically Quadriceps exercises should be advised which are guided by physiotherapist
- Swimming is best exercise
- Importance of exercise:
  - For strengthening the muscular support around joint
  - For preventing joints from freezing up
  - Improves and maintains joint mobility
  - Helps in weight reduction
  - Promotes endurance.<sup>[2,3]</sup>

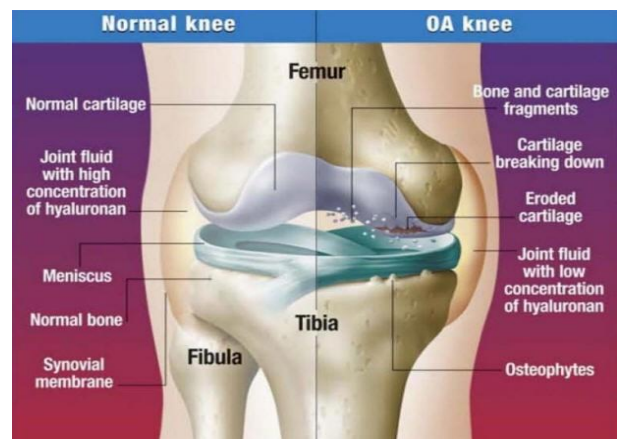
#### Role of life style modifications including restricted diet and life style

Life style modifications are the highly recommended steps for healthy and active life and to get in shape (to avoid obesity) which is basic part of treatment of Osteoarthritis.

Food habits- American College of Rheumatology recommends the careful use of dietary supplement and herbal medicines during early stages of such disease to limit the degree of destruction (F).

Nutritious food contains Ca, P with optimum use of milk, Ghee products, and green vegetables.

- Proper sleep: Improper sleep leads to constipation and vitiation of Vata.
- Moderate and optimal use of joint by avoiding sedentary lifestyle.
- Positive attitudes towards life: It is a last but most important factor and one should adopt this attitude.



**Table 1: Symptoms of osteoarthritis compared with Sandhigat vata in Ayurveda.**

| Symptoms (Sandhigata Vata)  | Symptoms in O.A.            |
|-----------------------------|-----------------------------|
| Sandhishoola                | Joint in pain               |
| Aatopa                      | Joint Crepitations          |
| Vedanayukta Sandhipravritti | Painful movements of joints |
| Sandhi sthambha             | Stiffness of joint          |
| Shotha                      | Swelling of joints          |

#### CONCLUSION

A disease of degeneration that means harmful degeneration initiate in early age group, which hamper quality of life. Even as taking the treatment of modern medicine the chronic use of analgesic affects body badly. These adverse effects are extremely hazardous. For that purpose, we can adopt right way treatment which gives instant and safe end result easily. Ayurveda gives us preventive measures.

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