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The study on prevalence and management of osteoarthritis in South India

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Abstract

Purpose: The main aim of the study was to explore the prevalence and management pattern for osteoarthritis. It mainly due to age, occupation, obesity, stress in the joint, injury. And To compare the number of affected gender, relationship between ages, occupation. And to know their pain mode in knee stage. The study is to reduce joint pain and inflammation mainly in knee joint by total knee replacement or by medication, exercise and physiotherapy.

Methodology: The study design was an prospective and retrospective observational study. The study was conducted at out-patient and in-patient department in Chalmeda Anand Rao of medical science and Renne orthopaedics hospital in karim nagar city, relationship. This study was carried out for a period of six months and total number of sample was 144 osteoarthritis patient document.

Results: Results shows that 46-60 years age groups were most affected and female were mostly affected by osteoarthritis than men. Housewife are more affected than other occupation. 25% participants underwent total knee replacement. And outcome of the treatment is 54% subjects are satisfied.

Keywords: Prevalence, osteoarthritis, total knee replacement, management, knee, Karimnagar

Introduction

Definition

Arthritis is a general term used when there is inflammation with in the joints. Osteoarthritis said to be Osteoarthrosis (or) also known as degenerative joint disorderliness. Osteoarthritis is a long term chronic disease characterized by the breakdown of joint cartilage [15].

Epidemiology: In India, osteoarthritis scores top 5 chronic disease, adult population affect about 4-6% of osteoarthritis. Osteoarthritis is a chronic, age related, degenerative which ultimately leads to joint failure [24, 8]. In globally suffer from osteoarthritis, 100 million people reported worldwide in cause of disability [4, 1]. In the world, prevalence is more in osteoarthritis musculoskeletal disease. Globally knee osteoarthritis is 4th most significant causes of incapability in women and 8th in men [18, 2].

Stages of knee osteoarthritis

In healthy knee: The articular cartilage is smooth with no fissuring and bone smooth. The synovial fluid is viscous aids in lubrication. The knee moves full range of motion without pain [14].

With mild knee osteoarthritis: It begins with discomfort in the knee joint. Progression of disease may be slow in this stage. Now the joint space is no more the cartilage begins breakdown from combination of wear and tear and bone spurs known as osteophytes [5].

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Fig 1: Mild knee osteoarthritis.

Moderate knee osteoarthritis

The cartilage surface between bones begins to reduce narrowing gap between femur and tibia [20].



Fig 2: Moderate knee osteoarthritis

Severe knee osteoarthritis

Joint space has narrowed causing more rapid and severe destruction of cartilage. The synovial fluid is decreases, increasing friction and pain with in synovial membrane destruction [12, 19].



Fig 3: severe knee osteoarthritis.

Symptoms of osteoarthritis: Joint pain, stiffness, swelling, weakness, cracking (or) crunching [12].

Risk factors: Age, obesity, occupation, trauma, injury, genetics, heredity, gender, diet.

Management

Pharmacological treatment: Acetaminophen, Nsaids, Cox-2 Inhibitors, Narcotics, Chondroitin And Glucosamine Sulphate, Intra-Articular Injection, Corticosteroids, Sodium

Hyaluronate (Or) Hyaluronic Injection, Platelet - Rich Plasama (Prp), Bone Marrow Aspirate Concentrate, Botox Injection, Water- Cooled Radio Frequency Ablation, The Bottom Line [22].

Surgical options: Arthroscopic knee surgery: Surgeon examines and performs surgery on the inside of the knee with an arthroscope and special surgical instruments.

Osteotomy: Osteotomy used for suffering with high tibial osteotomy for bow leg correction. 7cm incision is made.

Stem cells therapy: The therapy to be study advance to treatment of knee osteoarthritis is proved to be effective but the mesenchymal stem cell is produce long term risk therapy. The injection of mesenchymal stem cells take frequentness (or) recurrence timing and culturing technique.

Arthroplasty: Is also known as total knee replacement (or) total knee arthroplasty. The patient suffering from severe knee pain doctor may suggest total knee replacement. 6, 7

Total knee replacement procedure

- Opening of knee skin and deeper structure
- Femur preparation - distal cut - posterior cut
- Tibia preparation - single cut
- Patella preparation - single cut
- Final femur implant - bone cement
- Final tibial implant - bone cement Mating of implant (TKR)
- Final patella implant and also remove excess fluid in synovium.
- Insertion of drainage tubes
- Drain placement prior to closure
- Closure of skin with staples.
- Bandage the knee part and drainage tubes. (Connected to reservoir).



Fig 4: Normal knee, before surgery



Fig 5: After knee replacement surgery.

Physical activity

By doing physical activity we can reduce pain, Weight control, Improve sleep. Improve quality of life, Improve function and mobility, Running/jogging, Swimming, Bicycling, Tai chi, Yoga [8, 20].

Methodology

Materials and Methods

Study site: In present the study was conducted at out-patient and in-patient department in Chalmeda Anand Rao of medical science and Ortho hospital and research institute and renne hospital, in Karimnagar city, Telangana.

Study design: prospective and retrospective observational study.

Study period: This study was carried out for a period of six months.

Study criteria

- **Inclusion criteria:** The adult’s patients and older patients attending the medical outpatient and inpatient department of CAIMS and osteoarthritis research institute and Renee ortho hospital were included.
- **Exclusion criteria :** Children's

Study population: Total 144 Subjects data was collected and the counselling was giving to 50 people.

Sources of data: The data with demography, diagnosis, injury, family history, obesity, stress on joints and all the other purpose and necessary data is collected from Patients case sheets, Patients interview, Treatment charts, Counselling sheets. All the data was record in a suitably designed data collection form. Under take for the study.

Result and Discussion

From this study conducted, there are some finding which can show that is osteoarthritis with age. This study reveals that the women of age group 46-60 are more prone to osteoarthritis

comparative to other age group people. (Table- 7.1).

Table 7.1: Shows the data regarding the age.

| Age | No. of subjects |
|-----------------|-----------------|
| Less than 35 | 10 |
| 35 to 45 | 33 |
| 45 to 60 | 71 |
| Greater than 60 | 30 |
| Total | 144 |

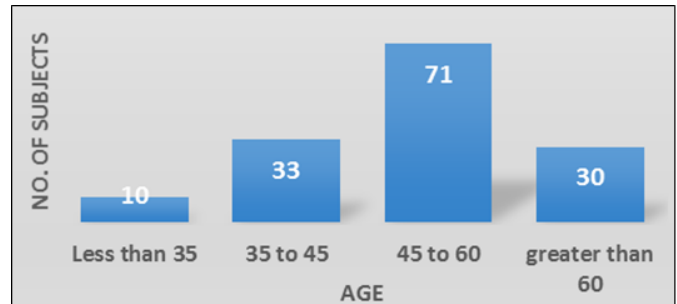


Fig 6: No. of subjects based on age

- out of the total subjects, 23% of subjects are Singareni (21%) and the occupation of remaining subjects are agriculture (19%), House wife (19%), Labour (12%), walking on steps (8%), tailor (6%), driver (5%) etc., respectively. (table- 7.2).

Table 7.2: shows the occupation of the subjects.

| Occupation | No. of subjects |
|------------------|-----------------|
| Agriculture | 19 |
| Driver | 5 |
| House wife | 23 |
| Labour | 12 |
| Singareni | 21 |
| Tailor | 6 |
| Walking on steps | 8 |

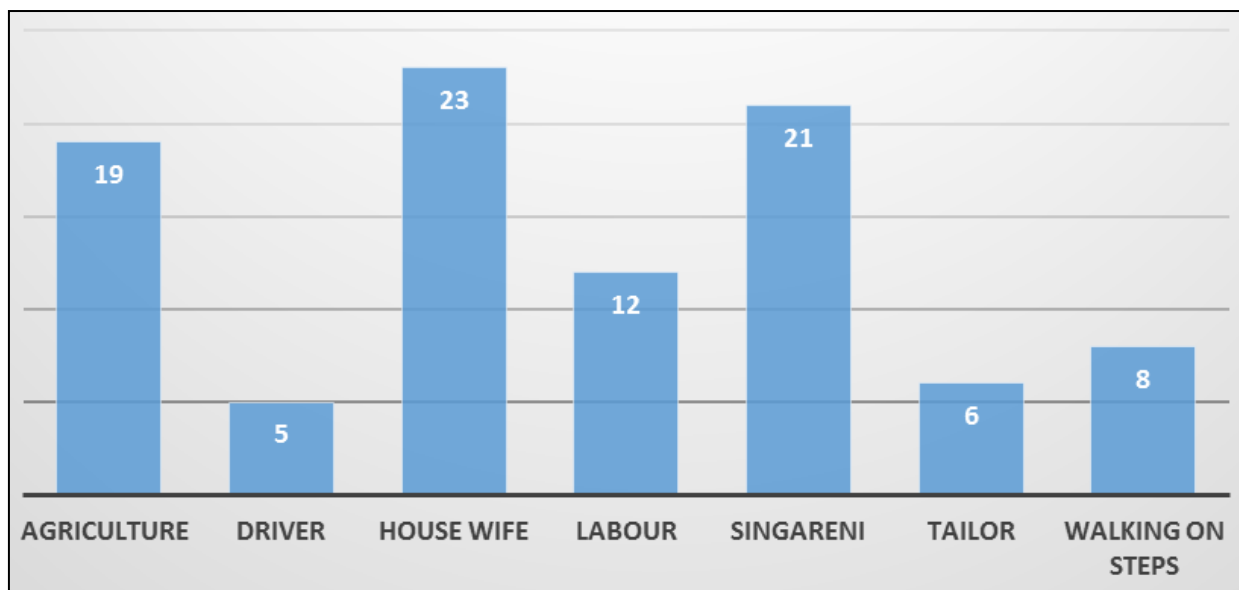


Fig 7: Occupation of subjects

- states that the past history of the subjects are more with hypertension compared to the other past histories like diabetes mellitus, menopause, CKD, asthma,

hypothyroidism. (Table-2)By these, it states that the osteoarthritis is more likely to the women with the past history of osteoarthritis than compared to others.

Table 7.3: shows the data regarding the past history of the subject

| Past histories | No. of subjects |
|-------------------|-----------------|
| Hypertension | 47 |
| Diabetes mellitus | 26 |
| Menopause | 10 |
| CKD | 2 |
| Asthma | 2 |
| Hypothyroidism | 2 |

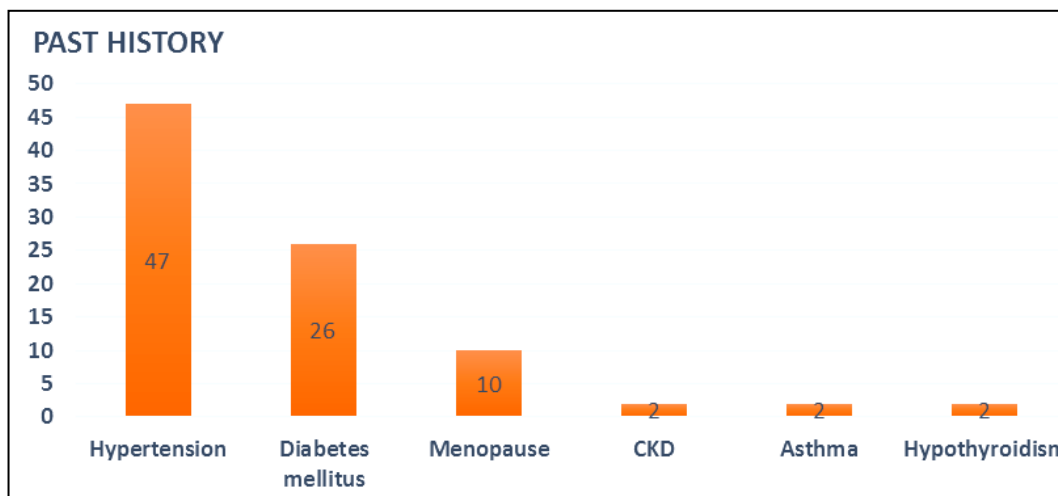


Fig 8: Past History

- Shows the stages of knee osteoarthritis of subjects, out of 144 subjects, 43 subjects are mild knee stage, 54 subjects are moderate knee stage, 47 subjects are severe knee stage and (table- 7.4) By these, it states that the subjects are more with moderate stage compared to the other stages like mild osteoarthritis and severe osteoarthritis.

Table 7.4: Shows the knee stages of the patients

| Stages of knee OA | No. of patients |
|-------------------|-----------------|
| Mild | 43 |
| Moderate | 54 |
| Severe | 47 |

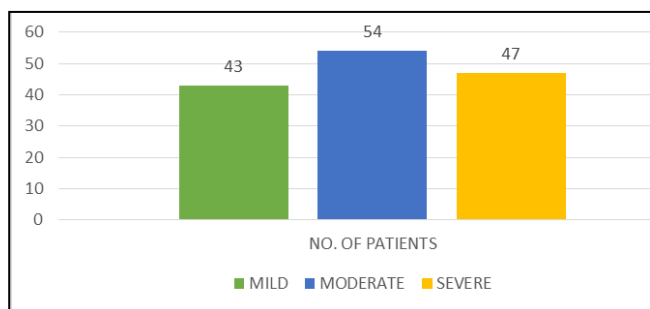


Fig 9: Stages of knee OA

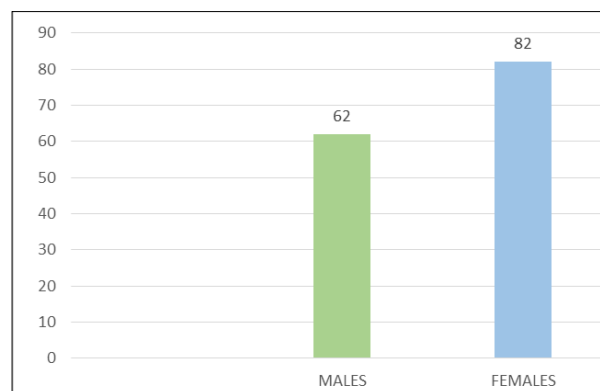


Fig 10: gender of the subject

- Shows the data of other osteoarthritis like injury and overweight. 23 subjects are injury and 28 subjects are overweight. From injury and overweight increase the risk of causing the osteoarthritis. (Table-7.6)

Table 7.6: Shows the other osteoarthritis of the subjects

| Other osteoarthritis | No. of subjects |
|----------------------|-----------------|
| Injury | 23 |
| Overweight | 28 |

- Out of the total subjects, 62 subjects are male and 82 subjects are females. (table- 7.5) It reveals that the women are more prone to osteoarthritis compared to male. it was one of the risk factor.

Table 7.5: shows the gender of the subjects

| Gender | No. of subjects |
|---------|-----------------|
| Males | 62 |
| Females | 82 |

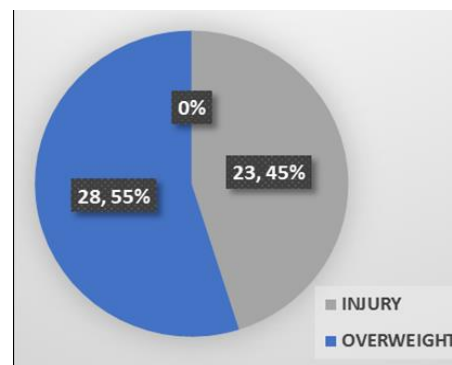


Fig 11: Other osteoarthritis

- Out of the total subjects, 69 subjects are affect the both knee, 41 subjects are affect the right knee, 34 subjects are affect left knee. (table-7.7).

Table 7.7: Show the affect the knee in the subjects

| Affect the knee | No. of patient |
|-----------------|----------------|
| Left knee | 34 |
| Right knee | 41 |
| Both knee | 69 |

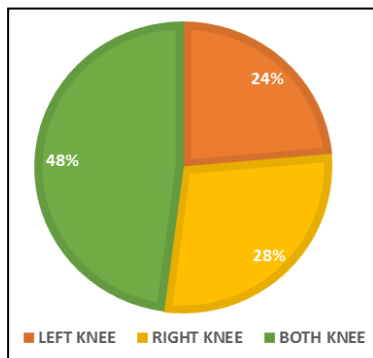


Fig 12: Affect of knee

- Out of total, 75% of the subjects are underwent the surgery (TKR) and 25% of the subjects received the medication. Table (7.8).

Table 7.8: Shows the treatment received by the subjects

| Treatment | No. of patients |
|------------------------------|-----------------|
| Total knee replacement (TKR) | 36 |
| Medication | 108 |

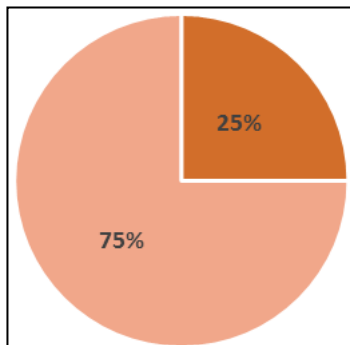


Fig 13: Treatment

- We observed that, most of the patient were given calcium supplement and Rega DSR and ranitidine to avoid GIT disorder. the patient were also given ketorolac tromethamine, naproxen, aceclofenac, calci-Cz, calmet etc., but these medicine were used most

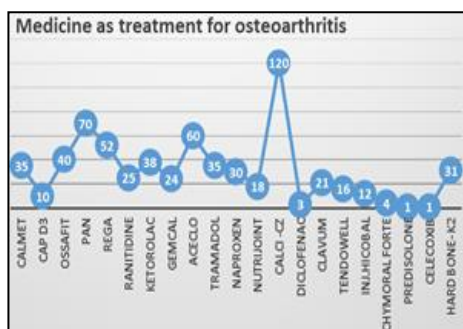


Fig 14: Medicine as treatment of osteoarthritis

In this study only 78 (54%) subjects' aims of treatment is achieved in out of 144 subjects. and remaining 43 (30%) are not satisfied with the treatment. Table (7.10).

Table 7.9: Outcome of treatment

| Outcome of treatment | No. of subjects |
|----------------------|-----------------|
| Satisfied | 78 |
| Non-satisfied | 43 |
| No improvement | 23 |

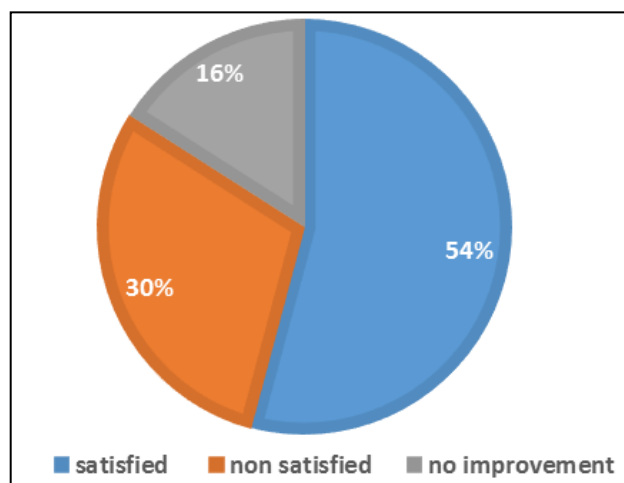


Fig 15: Outcome of treatment

Discussions

144 patients of osteoarthritis were observed during this studied. Out of them, 62 patients were male and 82 patients were female. The subjects were divided in to four age groups period of this study. first age group is less than 35years, and second age group is (35-45) years, third age group is (45-60) years and fourth group is more than 60 years. it indicates that overall 45-60 years are affected more with osteoarthritis. Occupation of osteoarthritis patients was an important focusing point of this study. In our study 23 patients were house wife that means housewife are mostly affected by knee. in this study only 25% participants underwent total knee replacement. And outcome of the treatment is 54% subjects are satisfied and remaining 30% are not satisfied.

Conclusion

The main aim of the study was to explore the prevalence and management pattern for osteoarthritis. In this study it was proved that osteoarthritis is common over 46-60 years of age and 82 subjects females are more affected than male. Among 144 participants, 23 participant was housewife. it indicates that housewife are more affected by osteoarthritis. This study conclude the overall figure of age group, gender distribution, weight variation, occupation, stages of pain and management pattern of patients in Karimnagar.

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