



The Management of Degenerative Joint Diseases: Exploring Conservative and Surgical Approaches to Treating Osteoarthritis, Rheumatoid Arthritis, and Other Degenerative Conditions, with a Focus on Pain Relief and Functional Restoration

¹Dr Muhammad Azeem Akhund²Dr Kishore Kumar khatri, ¹Mobeen Ali, ²Ali Raza, ³Mohib Ali, ⁴Hadi Raza

¹Associate Professor Department of

Orthopaedic Surgery and Traumatology PUMHS Nawabshah

²Assistant Professor Department of

Orthopaedic Surgery and Traumatology PUMHS Nawabshah

Vol 14-02

Submission: 10th January 2024, Acceptance: 8th August 2024, Publication: 11th October 2024

Abstract

Background: Osteoarthritis (OA) and rheumatoid arthritis (RA) are two of the most prevalent chronic musculoskeletal diseases that lead to disability. These conditions cause the production of passive metabolites and multifocally located pain, inflammation of joints, destruction of the cartilage and deformity of the skeletal structure, essentially limiting the patient's quality of life. Conservative and aggressive treatments are needed depending on the stage of the disease in order to highlight the task of a good manager.

Aim: This paper involves a review on the authors' experiences and an evaluation on the findings of other investigators on the conservative and surgical management of degenerative joint diseases with reference to pain relief, functional restoration and outcome prognosis. To that end, this is the comparison of nonsurgical management and surgical approaches in decisions on the management of patients.

Methods: An analysis of literature review / targeted review / clinical trial / case study related to the topic was also performed. The patient population envisaged encompasses the patients of all age which are diagnosed with OA and RA at various stages of the disease progression level- from initial to the final. A conservative treatment discussed are NSAIDs, corticosteroids, physiotherapy, new treatments like PRP and stem cell therapy. Arthroscopy, joint replacement and osteotomy are some of the surgical procedures that were compared. We used Visual Analogous Scales to quantify change in pain, functional mobility scores, and quality of life of the patients.

Results: Nonoperative interventions are useful mainly for the short-term management of pain and function in early stages of disease failed they are ranked as having inferior long-term outcomes, particularly in the more progressive forms. Conversely, surgical procedures, especially total joint arthroplasties, provide significant long-term pain reduction and functional improvement, despite possible



complications, such as prosthesis infection, and operatively necessary revisions. Surgical outcome satisfaction was higher in the advanced stage of diseases.

Conclusion: Conservative measures are helpful in early stage but are generally not effective in managing the focal symptoms in the late stages and surgery is then required. Accordingly, it means that the necessary treatment should be unique and prescribed according to the disease's stage, age, and condition of the patient. Consequently, there is the need to continue the characterization of minimally and regenerative treatment options for enhancing their effectiveness.

Keywords: Degenerative joint diseases, osteoarthritis, rheumatoid arthritis, conservative treatment, surgical treatment, pain relief, functional restoration, joint replacement, PRP, stem cell therapy.



Introduction

Chronic joint disorder diseases such as OA and RA are common diseases that affect millions of people across the world. These conditions cause continual degeneration of structures that make up the joint and especially includes the cartilage, synovium, and other connecting tissues. Osteoarthritis is more often referred to as 'wear and tear' arthritis, which involves the degeneration of cartilage and bone; rheumatoid arthritis is more an autoimmune disease, which means that the body's own immune system attacks the tissues of the joint. As a result, both conditions lead to chronic pain and mobility issues, which have an impact on the quality of life of millions of people around the globe. It is important to better appreciate the disease management strategies in order to enhance the patients' care and to reduce the diseases' impact on the system [1].

DJDs are in fact diseases that result in progressive inflammation and progressive breakdown of the joint structures and their function. Out of these, OA and RA are most prevalent in the population and therefore the main ones discussed in this paper. OA is also the most common form of arthritis and occurs in more than 32 million adults in the United States. It normally results from wear and tear of the cartilage, aging and mechanical stress on the joints. When cartilage is damaged, bones start chafing one another leading to pain, inflammation, and restricted mobility of the joint [2].

Rather, rheumatoid arthritis is an autoimmune disease that impacts about one percent of the world's population. This is a medical condition in which the body's immune system starts to attack the synovium which is a lining of the tissues that surround the joint. This results into inflammation which is associated with discomfort and which may ultimately result in cartilage and bone damage within the joint. While it is customary for OA to be associated with age and joint stress, RA can happen to individuals of any age and can therefore cause system afflictions such as heart and lung diseases among others. RA is managed by early diagnosis and treatment to minimize joint destruction or deformity.

Other degenerative conditions include, ankylosing spondylitis and psoriatic arthritis, also contribute to the global burden of joint diseases. Again, we found out that all these conditions represent a painful, stiff and less mobile joint but they differ in the way they develop. Although the disease causation mechanisms may be different, the effect is severe, as the diseases cause disability, lower quality of life and increase healthcare costs [3].

Diseases of the joints are a major burden to people globally. Osteoarthritis alone results in millions of YLDs per year, and thus is a major contributor to disability in the elderly. Their projection is that in 2030, about 66.7 million Americans will have been diagnosed with arthritis by a physician which they attributed to the rising population pyramine and



longer life expectancy. Degenerative joint diseases are also known to add tremendously to global health care costs not only in terms of cost of treatment and medications, but also due to losses in productivity by disease afflicted individuals, time off work, and chronic care requires. Unfortunately, the quality of people's life, affected by these diseases, can be sharply worsened. Pain and the inability to move or support oneself affects every aspect of the human lifecycle from simple placement of two feet on the ground to accomplish a simple act of walking or climbing a single step all the way to the fine motor skills required for work and leisure. Psychosocial impacts are also usual in patients where major depression, anxiety, social isolation are common among patients. As for the specific complications for the patient with rheumatoid arthritis, the systemic manifestations of the disease may lead to even such consequences as cardiovascular diseases, osteoporosis, involvement of the lungs, which in turn, will worsen their quality of life significantly.

In general, DJDs are diseases whose processes entail joint degeneration but the aetiology could be different between OA or RA. Osteoarthritis is a process in which the joint-bearing cartilage of a synovial joint becomes progressively worn, in contrast to rheumatoid arthritis, in which the cartilage becomes inflamed. In OA, a lot of mechanical stress, obesity, aging and joint injuries result in cartilage wear. This loss of cartilage result

to direct wearing of bones thereby causing pain, inflammation and restricted mobility of bones. Later on, other changes such as osteophytes — bony knobs or spurs — form to reduce the range of motion and intensify pain [4].

Rheumatoid arthritis has a pathophysiology that is initiated centrally by an autoimmune process. The synovial membrane is attacked by the immune system and is in a way seen as foreign tissue that needs to be eradicated. This results in chronic inflammation of synovium which translates into joint pain, swelling and finally, synovitis and cartilage, bone erosion. The process inflammation is systemic and this is in that RA can involve multiple joints concurrently and manifest generalized systemic manifestations that include fatigue, fever and weight loss etc. The inflammation may also occur in other parts of the body such as the lungs, heart, and eyes, and if this is not treated, RA may be fatal.

OA and RA are both characterised by inflammation, pain and impaired function in a cycle of inflammation pain and function impairment. The patient with these conditions suffers from chronic pain and reduced mobility which creates a vicious cycle: as the patient is mostly immobile, being out of joint weakens already unstable muscles that support the joint. When joint degeneration increases, patient reliance on pain management techniques and other joint- preserving treatments increases.



Osteoarthritis and rheumatoid arthritis as diseases which are managed under degenerative joint diseases involve a complex and ever evolving health area. consequently, there is no cure nor is there prevention possible but instead patient care aims at the reduction of disease severity and rate and overall attempts to enhance the patient's quality of life. The purpose of this article is to review both medical and surgical management of these diseases with emphasis on pain control and rehabilitation. Non- surgical interventions which are the first-line treatment include medications, physical therapy, dietary changes and up position. All of these approaches emphasizes the reduction of pain, restoration of range of motion and abatement of joint deterioration. But for patients with irreversible joint conditions or for others who did not improve with medication the surgical procedures like total joint arthroplasty may be required [5]. The aim of this article is to investigate conservatively and surgically treated patients therefore the article is mainly comparing conservative and surgical interventions of patients with degenerative joint diseases. We therefore aim at bringing to focus the evidence based efficacy, risks and outcomes of each therapeutic approach with the anticipating aim of improving general clinical practice for patient benefit. Furthermore, we will analyse new directions in the therapy, including regenerative medicine and

effective biologics that can become an effective alternative to traditional ones.

The specific research questions of this article are following: To do so, we shall first examine the approaches deemed appropriate for pain management and treatment-focused care in osteoarthritis, rheumatoid arthritis, as well as other degenerative arthritis conditions. This involves circuits on use of pharmacological therapies including nonsteroidal anti-inflammatory drugs, corticosteroids and physical therapy and in addition to acupuncture and nutritional supplementation. Also, it will be investigated how the usage of special aids, such as assistive devices and joint braces; as well as other procedures aimed at improving joint stability and mobility, otherwise [6]. Second, it is the attempt of this article to review a) the success of conservative and b) the success of surgical therapy of degenerative joint diseases. The use of conservative treatment is preferred over any other treatment; however, where these do not hold adequate results, surgery is called for. In accordance with this, we will evaluate the short-and long-term consequences of each approach focusing on the level of patient satisfaction, pain and functional status. It is our intention that by comparing this array of treatment methods, readers will have a better idea of when surgery should be pursued, and how to best tailor patients' treatment plans to the severity of their disease states, and their overall constitution, as well as preference. Collectively, this



article will prove to be a valuable source of information for the physicians most involved in managing degenerative joint diseases and a valuable referential tool for any patient seeking information about joint diseases in general and their treatment in specific [7].

Materials and Methods

To provide more information regarding conservative and surgical management of DJDs, particularly osteoarthritis (OA) and rheumatoid arthritis (RA), this study adopts a systematic review design. Such study design was chosen for this review because it enabled analysis of all existing articles, including clinical trials, observational studies, and case reports, as well as to present a comprehensive overview of both treatment methods. An extensive search using peer-reviewed articles in scientific journals, using clinical trials, and case reports have been included, hence capturing strong evidence. These choices led to the following selection criteria for qualified studies in this review: pain relief, restoration of function, and patient outcomes following conservative and surgical interventions [8].

Sensitive sources including PubMed, Cochrane library and Embase were used to search for relevant studies using the following terms: “osteoarthritis or rheumatoid arthritis or joint degeneration” AND “conservative treatment or surgical intervention or joint replacement” and “pain relief or functional

restoration”. Outcomes measured on scales in terms of pain relief, walking or functional status, and or the patient’s perceived quality of life indicators were taken into consideration. It also looked at biologic agents and other treatment methods that are viewed as novel in the treatment of degenerative joint diseases including stem cell therapy.

The patient population analysed in the selected studies consisted of the adult patients with osteoarthritis, rheumatoid arthritis or other degenerative joint diseases irrespective of their age. Investigations involved participants with different backgrounds in an effort to establish a relationship between the response to the treatment and other demographic parameters. Age groups typically affected by these conditions were divided into three categories: young adults aged group 18-40 years, middle-aged adults aged group of 40- 65years, and elderly adults of 65 years and above [9].

The disease progression stages were defined based on classical clinical markers, including the Kellgren-Lawrence scale for osteoarthritis or the newest ACR/EULAR classification for rheumatoid arthritis. Staging of the disease that present in the initial form of a disease includes only a small amount of cartilage damage and minimum symptoms, in contrast to the later forms, where cartilage damage is severe, joint deformities are significant, and pain is constant. This stratification let comparing the effect of treatment in different stages of disease progression.



Non-surgical therapy is traditionally considered as the initial concept of degenerative joint diseases with focus placed on alleviating pain, reducing intensity of complaints and enhancing the function of the affected joint. The systematic review classified conservative treatment into medicine therapy, physical medicine and rehabilitation, changes in diet and physical activity known as lifestyle change and novel therapy.

Pain management: Drugs continue to be the mainstay of conservative management of DJD. Traditional analgesics are often administered to relieve temperature and minimization of inflammation, aches and pains. These include drugs like, ibuprofen, naproxen and others because are narcotics that arrest action cyclooxygenase (COX) enzymes which fuels inflammation. Nevertheless, its repeated use has been shown to have adverse effects such as gastrointestinal haemorrhaging, and cardiovascular hazards. In situations where NSAIDs are not effective enough, an injection of corticosteroids is given directly into the joint. These injections give a temporary pain relief through the decrease of inflammation which takes place inside the joint, although their constant use brings about a weakening of the tendons, and also leads to joint degeneration.

Physical therapy: According to the extent of conservative treatment, physical therapy is an important part in its early application in the cases of

osteoarthritis and rheumatoid arthritis. It involves exercises that aim at the build up of muscle tone around the joint, flexibility and mobility. Flexibility, strengthening and cardiovascular endurance activities are primary exercises to be carried out with regards to the patient's problem and to assist in stabilizing the affected joint in cases of pain. Hydrotherapy is used to help patients with severe pain, as in a heated pool the load on joints during exercises is lessen. Lifestyle modifications: For patients the recommended advice includes diet, exercises that do not strain the joints among other recommendations. Osteoarthritis is strongly associated with obesity especially in the knee and hip joints which are commonly involved in the basal weight bearing activities. The research works included in the current review described the beneficial effects of weight

management on the joint aches and functioning, despite reporting only slight amounts of weight loss. Cycling, swimming and walking should be practiced because they have little or no effect on the joints but are effective in improving cardiovascular health.

Novel therapies: Over the past few years, Platelet-Rich Plasma (PRP) therapy and stem cell therapy are widely discussed as these therapies are known to revive the worn-out cartilage and possibly enhance the performance of a joint. Autologous platelet- rich plasma consists of separating platelets from the



patient's blood and then injecting them back directly into the joint, where they help heal damaged tissue and decrease inflammation. Likewise, stem cell treatments employ the patient's mesenchymal stem cells which can be acquired from the bone marrow or adipose tissue to help grow cartilage and minimize the harm on joints. The early results still remain preliminary, nevertheless, there is evidence of a slowing down of disease progression and amelioration of symptoms in young people with relatively recent disease onset.

However, if conservative modes of treatment are unable to help provide pain relief or the disease remains in the later stage, the surgical treatment is opted. The review also divided surgical management into minimal invasive surgeries such as arthroscopy, limb salvage surgeries such as osteotomy and extensive procedures such as joint replacement. **Arthroscopy:** Arthroscopic surgery is an outpatient procedure that is employed when the physician is diagnosing osteoarthritis in the early form or when the patient has suffered an injury to a joint. In arthroscopy, the surgeon uses a miniature camera (arthroscope) to view the joint through a small incision; the surgeon may be able to repair the joint by shaving damaged cartilage away or removing any loose pieces. Arthroscopic surgery may offer a symptomatic solution, although disease progressive joint degeneration remains unchanged [10].

Joint replacement (Total/Partial): If the joint is severely damaged such that the cartilage has worn

out and exposure to the underlying bone is commonly seen, joint replacement surgery is done. This entails the excision of the affected area of the joint and replaced with artificial implant which is either metallic, plastic or ceramic. In osteoarthritis, total joint replacement is usually applied to end-stage disease, involving the knee or hip joint; partial joint replacement may be used where joint damage is not as severe, and the patient is relatively young. Analysis of the studies encompassed in this review gave impression of high patient satisfaction as well as long term pain relief after receiving total joint replacement; however, length of patient's recovery may depend on individual's age and overall health state. Some cases require another surgery, for example, for patients with a long life expectancy, who may outlive their joint prostheses [11].

Osteotomy: Quite appropriately, osteotomy is indicated for patients who are young and have misaligned joint or early signs of degenerative arthritis. In osteotomy, the tibia or femur is reshaped by the surgeon by taking out or adding a wedge of the bone with the aim of redistributing the pressure off the damaged cartilage in the joint. Less invasive than joint replacement, osteotomy has some disadvantages; consequently, it is used in younger patients and may take more time to restore the joint. The main types of outcome measures utilised in the individual of studies incorporated in the current review were pain reduction and functional



rehabilitation. The amount of pain relief was generally assessed by means of the VAS, a standard instrument in which the patient quantifies the pain on an improving scale ranging from 0 to 10, no pain to the worst pain possible. Patient self-reports were also active in assessing the two management strategies, conservative and surgical and their value and success was measured by the employment of standardized questionnaires to determine changes in pain, stiffness and quality of life.

Functional restoration was assessed using the ability of the patient to move the joint in question and the strength of the muscles surrounding the joint, as well as the perceived improvements the patient made with regard to performing their daily tasks. Research also incorporated general global quality of life measure, including the Western Ontario and McMaster Universities Arthritis Index (WOMAC) and the Short Form-36 Health Survey (SF-36) to assess the general health effects of treatments on the physical and mental health of patients.

Results

Systematic review results state that conservative intervention has brought out large statistical scores in the reduction of pain and enhancement of functional activity in patients with OA and RA during their initial stages. Results yielded from NSAIDs were rather profound and coherent, as the drugs succeeded in alleviating pain and inflammation and relieving patients' discomfort at once. However, the amount of

pain reduction that patients experience was determined to be more or less depending on the level of joint damage; patients who only had slight to moderate joint damage got the most benefits. The patients reported short-term pain relief especially in flare-ups when corticosteroid injections were carried out, but the duration of the effect was not prolonged. Lower limb mobilization, stretching, and weight loss through a proper diet, and low impact exercises also aided in short-term functional enhancement. Most patients observed improvement in joint flexibility, decrease in joint pain, and general improvement in their ability to undertake activities. Findings of the review suggested that packaged therapy of pharmacological intervention with physical exercise had superior efficacy than pharmacological intervention alone. Strengthening helped



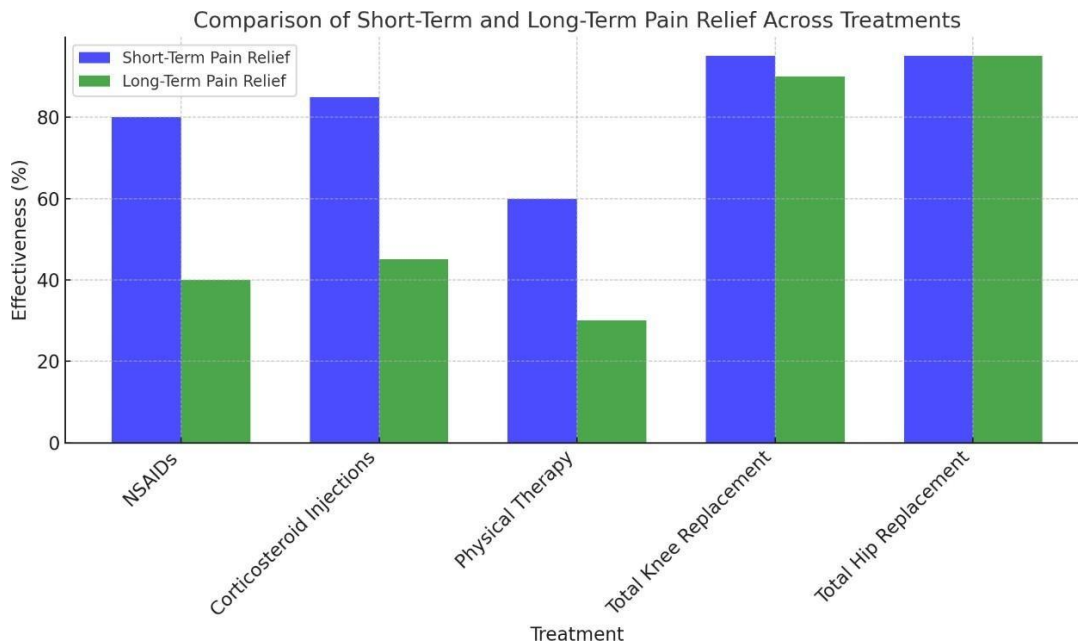
Treatment	Short-Term Relief	Pain	Long-Term Pain Relief
NSAIDs	Effective		Diminished over time
Corticosteroid Injections	Effective (temporary)		Temporary relief
Physical Therapy	Moderate		Limited in advanced cases
Total Knee Replacement	Highly effective		Sustained (up to 15 years)
Total Hip Replacement	Highly effective		Sustained (up to 20 years)

measures
can control
symptoms
in the short
run, their

protect affected joints from increased mechanical load; this also helped to maintain/restore joint function and slow disease processes.

Nonetheless, sustainability of these conservative management interventions was highly questionable, especially in patients with stage III/IV. It is that as the degenerative joint diseases increases, the cartilage starts to wear and tear hence, it reaches a point where it cannot be reversed, thus the use of such conservative measures tend to be less effective. In particular, patients with significant joint changes or deformities described a reduced response to NSAID treatment and exercise therapy. However, analgesia that corticosteroids offered, more frequently used for the temporary pain relief, have its side effects such as joint degeneration, impaired immunity, and cartilage degradation. Thus, even though conservative

effectiveness wearing of the disease progresses and significant joint deterioration occurs [12].



Men and women with end-stage degenerative joint diseases or those who failed to improve with other treatments reported significant long-term benefits from joint replacement surgeries. Various research presented papers which evidenced increased effectiveness of total joint replacements, especially in knee and hip joints. TKR, one of the most frequently performed interventions for OA, produced a considerable pain relief and functional improvement in most patients. Pr like and long-term evolution showed that about 90% of patients reported significant relief of pain and functional recovery during the first 10-15 years after surgery. Likewise, THR was positively linked in the long-term outcome especially on the aspect of mobility as well

as the quality of life among the clients. Compared to the baseline assessment, patients who had undergone THR indicated enhanced ability to perform daily activities, and exercise that lead to improved general quality of life. The presented works also pointed out that initiating joint replacement in patients with suitable indications at an early stage of disability and using a multidisciplinary approach contributed to improved functional results and healing [13]. But surgical anaemia's are not without dangers and crises. The reported prevalence rates included infection accounting to 1 to 2 percent of the distinct total joint replacement surgery. Stiffness was another feature that troubled many patients after the operation, although pain had been controlled effectively as

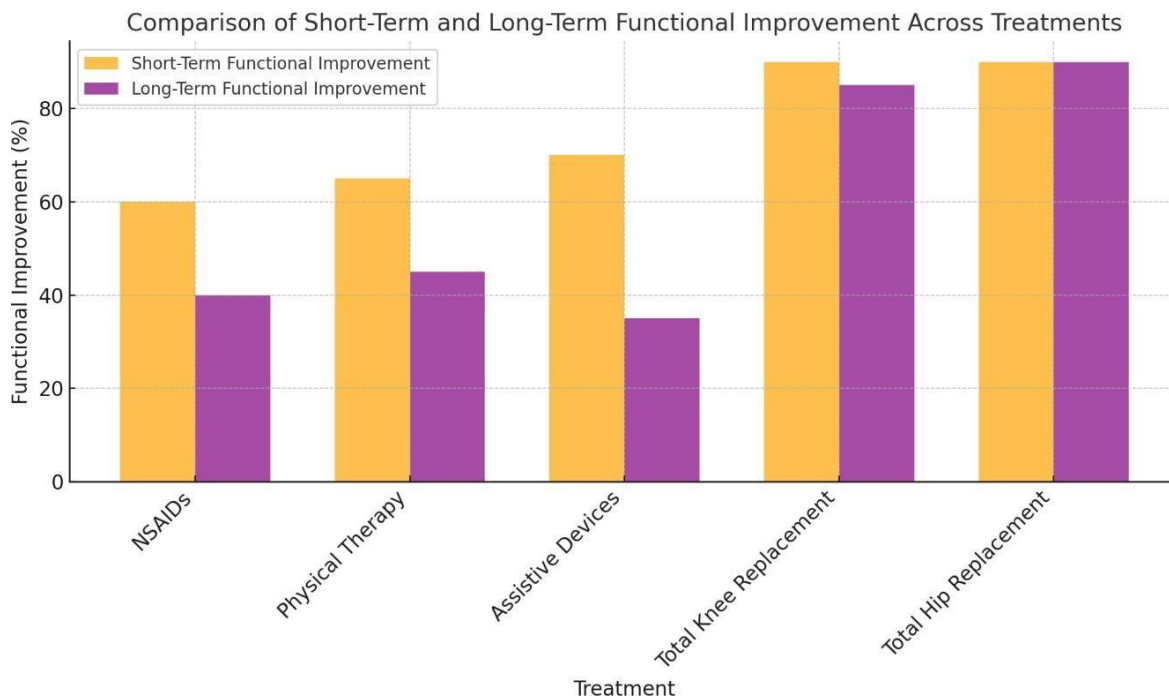


many as 10-15% of knee replacement patients were stiff in the joint. Occasionally a patient needed further operations, for example if the artificial joint deteriorated or became loose. Conversion operations are more likely to be related to higher levels of likelihood of the complications and further surgeries as well as prolonged hospital stays. In particular, the review pointed out the fact that the effectiveness of the surgical intervention depends on the patient's general health and age as well as the state of joint deterioration. Patients who engaged in productive work or other strenuous physical activities and therefore bore the brunt of the prosthetic joint wore out before their counterparts who probably sat at desk jobs and had little physical activity had a higher



chance of requiring revision surgery. satisfaction in that surgical procedure since However, most of the patients expressed their they enjoyed long term pain and joint relief.

Treatment	Functional Improvement (Short- Term)	Functional Improvement (Long- Term)
NSAIDs	Moderate	Limited in advanced cases
Physical Therapy	Moderate	Limited
Assistive Devices	Improves joint stability	Does not halt disease progression
Total Knee Replacement	Significant improvement	Sustained (10-15 years)
Total Hip Replacement	Significant improvement	Sustained (15-20 years)





Treatment	Patient Satisfaction	Recovery Time
NSAIDs	Moderate	Immediate
Corticosteroid Injections	Moderate	Immediate
Physical Therapy	Moderate	Weeks to months
Total Knee Replacement	High	3-6 months
Total Hip Replacement	High	3-6 months

The advantage and disadvantage that is evident from the systematic review when comparing conservative and surgical treatment of elders included. Non-invasive interventions yielded moderate therapeutic outcomes in the short term, mainly for controlling pain and gaining minor functional recovery. It was, therefore, less expensive, involved low risk, and needed minimal time to recover. However, these treatments were less in efficacy with advanced disease and were incapable of halting the process of joint deterioration, which presented a long-term decline in the outcomes of treatment [14].

Conversely, surgical procedures had more definite benefits through regain of painless joint function and pain abatement particularly in instances of prolonged major joint disorder. Orthopaedic patients, who had joint replacement surgeries

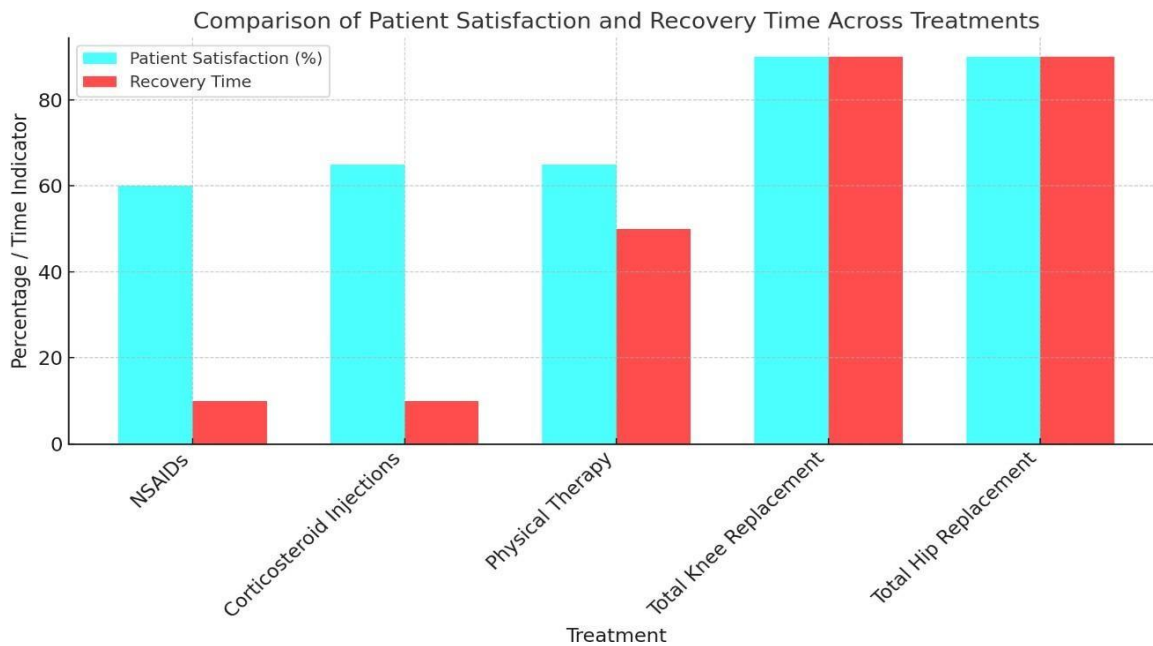
performed on them mostly complained of joint pain and limited joint flexibility which diminished greatly after the operation. The size and number of colorectal tumours and the patient's age affected the overall recovery time; however, surgical intervention was consistently more effective in providing longer-term functional benefits as compared to conservative management. However, surgical treatment reported more costs,

longer moments of immobilization, and possible postoperative complication such as infection or joint stiffness.

Those patients who received surgery reported greater satisfaction compared to those who had conservative treatments in the past. This fact showed that when patients came to surgery after they had tried all the non-operative management methods, they reported more satisfaction and better quality of life.



Nevertheless, surgery was not always the treatment of initial preference because of the risks and potential recovery period linked with surgery, particularly to elderly or otherwise complex individuals [15].



Finally, conservative treatment positioned together with surgical intervention makes for effective approaches to the treatment of degenerative joint diseases, and the choice of method is often based on the stage of the disease and the patient's individual request. These conservative treatments are mainly useful in the short term especially in alleviating pain and other minor disability, which deteriorate as the disease advances. Conventional approaches such as surgical intervention especially joint replacement on the other hand provide long-term cure and are ideal for patients with severe joint disease. However, prospective complications including infections and further joint stiffness inherent in surgical procedures must be given consideration. Therefore, for the

treatment of degenerative joint diseases, it is crucial to develop an individual therapy that selected according to the severity of the disease, the patient's status, and the patient's preferences.

Discussion

Conservative measures still form the main line of interventions for early—stage degenerative joint diseases including OA and RA. Such treatments are most useful in patients with moderate and mild onset arthritis, controlling the pain, preserving the integrity of the joint and thereby avoiding surgical intervention for a considerable period of time. Conservative treatment includes using NSAIDs, corticosteroid injections, physical therapy, and changing ones lifestyle [16].



Also, conservative treatments have some advantages because they don't involve any operations and thus involve minimal risk. NSAIDs are easily available over the counter, and they offer fast pain relief because of the way they decrease inflammation. Consequently, they are useful in managing the knee pain in the course of acute flare-ups of pain and inflammation as well as in patients with corticosteroid-injected weight bearing joints such as the hips. Physiotherapy is a critical factor in functional restoration of the human joint, muscle strengthening around the joint, and joint functioning. Diet and exercise modifications including losing excess weight and avoiding high-impact physical activities do not directly attack arthritis but do decrease mechanical loading on the involved joints and thus slow the natural history of the diseases.

However, the success of conservative treatments generally depends on the patient's compliance with the given advice. There is evidence that shows that the satisfaction of adhering to expected physical therapy regimens the recommended lifestyle changes would enhance an overhaul of a resultantly better end impact in patients. Noncompliance with Weight Management Programs is well recognized; because weight gain over time can put pressure on knee and hip joints this is especially relevant in people with osteo arthritis. However, such treatments increase the likelihood of non-adherence to recommended treatment regimes as follows, Some of the reasons include pain and

discomfort discourages a patient to continue with physical therapy or to exercise as instructed because it is painful and inconvenient.

Long-term effects of these conservative management procedures are other factors that should be considered. They may alleviate the symptoms of the disease and even enhance the ability to function in the early stages; however, they do not correct the problem of the destruction of the joint tissue. Therefore, the disease still worsens overtime and simple intervention is not as useful especially as the conditions get worse such as the patients who have AOORA. In such cases, even though patient took NSAIDs, attended for physical therapy, and other nonsurgical procedures, there may be a stagnant point where pain and functional changes do not improve any further, and carry out their life with severe symptoms may make patient opt for more aggressive management such as arthroscopy [17]. Surgical management and, especially, arthroplasty remain the landmarks in the treatment of progressive degenerative joint diseases. In patients with highly degenerated joint spaces, or joint contracture, pain that cannot be relieved with conventional protocols such knee arthrocentesis, or those who have significant deformities in the joint, surgery affords long-term pain relief and functional improvement in the joints. Other surgery types popular in the course of TKR and



THR continue to yield the highest success ratios where pain and functionality are of importance.

When it comes to scalpel wielding there is little to argue about for those who suffered from severe forms of obesity. Knee or hip replacement patients recover considerable pain relief, quality of movement and functional abilities of the activity of daily living. A number of long-term follow-up studies have shown that 70% of patients with joint replacements have continued functional benefits for 10-20 years after operation depending on the joint involved and the general health of the patient. Also, changes in mode of operation, emergence of new prosthetic materials and post-operative therapy have reduced the time of healing and improved results.

However, surgical treatments are associated with certain risks as pointed out next. Postoperative infections are also relatively frequent following joint replacement but may require additional management, such as revision surgery. Joint stiffness is another often observed side effect in the course of an operation, including knee replacement, which may prevent the patient from having full range of motion despite adequate analgesia. Some patients may require additional surgery for various reasons such as deterioration of prosthetic joints after a long time had been used. This implies that a new generation of active patients have higher risks in requiring revision surgeries given that they are likely to outlive the prosthetic joints operations.

The preliminary costs and benefits of operations are also the more essential factors to consider when deciding on an operation. As a preventive and corrective surgery, joint replacement requires a lot of money for the surgery, administration, post-surgery treatment, and physiotherapy. But in case of the severe joint disease, a steadier advantage is usually achieved over a longer timeframe, thus overcoming the drawbacks of the costs.

Conservative treatments such as medications, injections, and physical therapy are often not effective for patients with chronic pain and stiffness due to osteoarthritis, requiring multiple treatments in the long-term reducing the quality of life and increasing healthcare costs; surgical interventions as a one-time cure yields long-term pain relief and functional improvement. That is why, the decision to continue with the surgery is taken based on the age, general health of the patient and extent of joint pathology. Though the short-term pain relief outweighs the risks for elderly patients, young patients are likely to require secondary surgery later in future.

Conservative and surgical treatments, although increasingly regarded as equal and complementary form of treatment for degenerative joint diseases, are each recognized as carrying their own risk and benefits. One of them is the use of conservative treatment with surgical management at appropriate time. As for patients with early stage of the disease,



there are many methods for the treatment of the symptoms without surgery. However, failure to the conservative interventions or advancement of the disease when the joint function is compromised, then the person requires surgery.

Timing of the surgery is therefore very important in the provision of the best results. Research indicates that patients who are operated on at a loco regional stage that is relatively late—after periods of extended severe pain and debilitation—may do worse than patients who are operated on earlier. On the other hand, postoperative conservative measure also manageable delay surgery until conservative interventions have been trailed completely in order to get maximum benefit from non operating interventions.

However, the most crucial facet in the surgical treatment of these conditions is postoperative rehabilitation. Some of the benefits that patients who undergo the joint replacement surgery but continue with Physical Therapy include A comprehensive strategy shortly before and after operation, as well as in the long-term process after surgery, Such as losing weight and low-intensity exercise can make the surgical effect more sustainable and avoid further joint deterioration [18].

However, there are various hurdles in the management of degenerative joint diseases even with the recent improvement in treatments of the diseases. First of all, these diseases are becoming a

greater concern from the health perspective due to the continued growth in the populations of people in the developed countries and their aging process, as well as the growing rates of obesity among the population. With osteoarthritis and rheumatoid arthritis fast becoming endemic, there is growing pressure on health care systems for both non-operative and operative management. Joint replacement surgeries especially are very expensive and impose a large figure on the entire health system emphasizing the need to deal with the disease in ways that does not break the bank. It is hence important that treatment embraces innovation in order to effectively deal with these challenges. Hormonal therapies, antibodies, TNF inhibitors and IL-6 inhibitors are among the newer classes of medications indicated for the treatment of rheumatoid arthritis aimed at blocking components of the immune system independently. The above treatments may relieve pain and slow down the disease process; they can be the next best thing to conservative management for patients who cannot tolerate NSAIDs or corticosteroids. In the same way, joint conservation procedures including PRP, stem cell treatment, are promising young individuals with early osteoarthritis as definite surgical intervention. The goal of these regenerative therapies is to regenerate ailing cartilage and mend the joint thereby sparing patients a surgical intervention. Most of these techniques are however in their early development



stage, studies however reveal that these techniques may have a long term positive impacts especially where they are used in conjunction with conventional conservative procedures.

These novel methods of treatment should be explored further with upgraded parameters, plus the role of conservative and surgical treatments should be discovered deep down. It is recognized that degenerative joint diseases burden healthcare systems and the community and thus improving the quality of life of patients with such diseases will require a combined effort of rheumatologists, orthopaedic surgeons, physiotherapists and other care givers. Recent innovations in the treatment procedures, specific diagnostic methods and approaches to care coordination also hold much promise for a better approach to degenerative joint diseases that would benefit millions of patients around the world. The modern approach to the treatment of degenerative joint diseases implies the use of both conservative measures supported by pharmacological preparations and surgical intervention that is effective in certain phases of the disease process and for patients with specific requirements. Although, medications and short invasive procedures might be useful during the first stages of the disease, in most severe cases, surgery is inevitable as a long-term therapy. With the increasing pressure to improve outcomes and alternatives being limited to either 'band-aid'-style

changes or expensive biologics, one has to look at the future with some hope knowing that there are always more techniques for preserving joints out there to explore.

Conclusion

Therefore, the conclusion of this review can be summarized as conservative treatment such as NSAIDs, PT, and LMs are useful in management of DJD in the short term especially in early stage DJD. However, as the disease progresses there are total joint replacements for long term advantage in terms of pain control and function particularly in end stage disease. In clinically, the more customized care plans should be made depending on stages of the illness, the patient's overall condition and their stances. Larger scale studies of the potential less invasive procedures and more effective forms of therapy that are still in development, including biologic and regenerative medicine, are also required to benefit the patients. Better identification of the disease at an early stage, more effective, and immediate treatment together with complex care from rheumatologists, orthopedic specialists, and physiotherapists make a big difference in the quality of life of patients with degenerative joint diseases.

References

- [1] M. Akram, "Traditional and modern management strategies for rheumatoid



- arthritis," *Clinica Chimica Acta*, vol. 512, pp. 142-155, 2021.
- [2] J. Ciaffi, "Minimally invasive interventional procedures for osteoarthritis and inflammatory arthritis: A systematic review and meta-analysis," *Seminars in Arthritis and Rheumatism*, vol. 68, p. 152525, 2024.
- [3] A. H. K. BS, "The role of conservative treatment of glenohumeral joint osteoarthritis: a systematic review," *Seminars in Arthroplasty: JSES*, vol. 34, no. 1, pp. 34-43, 2024.
- [4] M. Maqbool, "An up to date on clinical prospects and management of osteoarthritis," *Annals of Medicine and Surgery*, vol. 72, p. 103077, 2021.
- [5] M. S. Kyle Gress BS, "Treatment recommendations for chronic knee osteoarthritis," *Best Practice & Research Clinical Anaesthesiology*, vol. 34, no. 3, pp. 369-382, 2020.
- [6] G. Yeowell, "An exploration of the experiences of people living with painful ankle osteoarthritis and the non-surgical management of this condition," *Physiotherapy*, vol. 110, pp. 70-76, 2021.
- [7] Y. Chen, "Chronic pain for rheumatological disorders: Pathophysiology, therapeutics and evidence," *Joint Bone Spine*, vol. 91, no. 6, p. 105750, 2024.
- [8] R. M. Ferreira, "Non-pharmacological and non-surgical interventions to manage patients with knee osteoarthritis: An umbrella review 5- year update," *Osteoarthritis and Cartilage Open*, vol. 6, no. 3, p. 100497, 2024.
- [9] S. Ferrero, "Impact of anterior cruciate ligament surgery on the development of knee osteoarthritis: A systematic literature review and meta-analysis comparing non-surgical and surgical treatments," *Osteoarthritis and Cartilage Open*, vol. 5, no. 3, p. 100366, 2023.
- [10] N. Nissen, "Clinicians' beliefs and attitudes to physical activity and exercise therapy as treatment for knee and/or hip osteoarthritis: a scoping review," *Osteoarthritis and Cartilage*, vol. 30, no. 2, pp. 260-269, 2022.
- [11] P. L. Teo, "Physiotherapists may improve management of knee osteoarthritis through greater psychosocial focus, being proactive with advice, and offering longer-term reviews: a qualitative study," *Journal of Physiotherapy*, vol. 66, no. 4, pp. 256-265, 2020.
- [12] G. Peat, "Osteoarthritis year in review 2020: epidemiology & therapy," *Osteoarthritis and Cartilage*, vol. 29, no. 1, pp. 180-189, 2021.



- [13] Y. Yao, "Cryotherapy and thermotherapy in the management of osteoarthritis and rheumatoid arthritis: A comprehensive review," *Fundamental Research*, 2024.
- [14] G. O. M. Azzini, "Metabolic syndrome and subchondral bone alterations: The rise of osteoarthritis – A review," *Journal of Clinical Orthopaedics and Trauma*, vol. 11, no. 5, pp. S849-S855, 2020.
- [15] T. Saeedi, "Polymer colloids as drug delivery systems for the treatment of arthritis," *Advances in Colloid and Interface Science*, vol. 285, p. 102273, 2020.
- [16] A. Najm, "Efficacy of intra-articular corticosteroid injections in knee osteoarthritis: A systematic review and meta-analysis of randomized controlled trials," *Joint Bone Spine*, vol. 88, no. 4, p. 105198, 2021.
- [17] S. B. MS, "Arthroscopic Subtalar Arthrodesis as a Treatment Strategy for Subtalar Arthritis: A Systematic Review," *The Journal of Foot and Ankle Surgery*, vol. 60, no. 5, pp. 1023-1028, 2021.
- [18] M. P. Carlos Romero-Morales PhD, "Current advances and novel research on minimal invasive techniques for musculoskeletal disorders," *Disease- a-Month*, vol. 67, no. 10, p. 101210, 2021.