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Treatment of rheumatoid arthritis, review study

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Abstract
Rheumatoid arthritis (RA) is a long-term autoimmune disorder that primarily affects joints. It typically results in warm, swollen, and painful joints. Pain and stiffness often worsen following rest. Most commonly, the wrist and hands are involved, with the same joints typically involved on both sides of the body. Rheumatoid arthritis is an autoimmune condition, which means it's caused by the immune system attacking healthy body tissue. However, it's not yet known what triggers this. So, if a joint is affected in one of your arms or legs, the same joint in the other arm or leg will probably be affected, too. RA is a chronic disease marked by symptoms of inflammation and pain in the joints. These symptoms and signs occur during periods known as flares or exacerbations. Other times are known as periods of remission-this is when symptoms disappear completely. While RA symptoms can affect several organs in the body, the joint symptoms of RA include: joint pain, joint swelling, joint stiffness, loss of joint function and deformities. Symptoms can vary from mild to severe. It's important not to ignore your symptoms, even if they come and go. Diagnosing RA can take time and may require multiple lab tests to confirm clinical examination findings. First, they'll ask about symptoms and medical history. They'll also perform a physical exam of joints.

Keywords: rheumatoid, arthritis, autoimmune

Introduction

Rheumatoid arthritis (RA) is a long-term autoimmune disorder that primarily affects joints. It typically results in warm, swollen, and painful joints. Pain and stiffness often worsen following rest. Most commonly, the wrist and hands are involved, with the same joints typically involved on both sides of the body. Rheumatoid arthritis is an autoimmune condition, which means it's caused by the immune system attacking healthy body tissue. However, it's not yet known what triggers this. So, if a joint is affected in one of your arms or legs, the same joint in the other arm or leg will probably be affected, too. RA is a chronic disease marked by symptoms of inflammation and pain in the joints. These symptoms and signs occur during periods known as flares or exacerbations. Other times are known as periods of remission-this is when symptoms disappear completely. While RA symptoms can affect several organs in the body, the joint symptoms of RA include: joint pain, joint swelling, joint stiffness, loss of joint function and deformities. Symptoms can vary from mild to severe. It's important not to ignore your symptoms, even if they come and go. Diagnosing RA can take time and may require multiple lab tests to confirm clinical examination findings. First, they'll ask about symptoms and medical history. They'll also perform a physical exam of joints. This will include: looking for swelling and redness, examining joint function and range of motion, touching the affected joints to check for warmth and tenderness, testing reflexes and muscle strength, test blood for certain substances like antibodies, or check the level of certain substances like acute phase reactants Trusted Source that are elevated during inflammatory conditions. These can be a sign of RA and help support the diagnosis. They may also request certain imaging tests, such as an ultrasound, X-ray, or MRI. Tests not only show if joint damage has occurred but also how severe the damage is. A complete evaluation and monitoring of other organ systems might be recommended for some people with RA, too. There are several types of blood tests that help in diagnosis of RA. These tests include: Rheumatoid factor test. The RF blood test checks for a protein called rheumatoid factor. High levels of rheumatoid factor are associated with autoimmune diseases, especially RA. Anticitrullinated protein antibody test (anti-CCP). This test looks for an antibody that's associated with RA. People who have this antibody usually have the disease. However, not everyone with RA tests positive for this antibody. The anti-CCP Ab is more specific for RA than the RF test anti-nuclear antibody test. The antinuclear antibody panel tests your immune system to see if it's producing antibodies. Your body may make antibodies as a response to many different types of conditions, including RA. Erythrocyte sedimentation rate. The ESR test helps determine the degree of inflammation in your body. The result tells your doctor whether inflammation is present. However, it doesn't indicate the cause of the inflammation. C-reactive protein test. A severe infection or significant inflammation anywhere in your body can trigger your liver to make C-reactive protein. High levels of this inflammatory marker are associated with RA.

Types of rheumatoid arthritis

Seropositive RA. If have seropositive RA, have a positive rheumatoid factor blood test result. This means have the antibodies that cause immune system to attack joints.
Seronegative RA. If have a negative RF blood test result and a negative anti-CCP result, but still have RA symptoms, may have seronegative RA. May eventually develop antibodies, changing your diagnosis to seropositive RA.
Juvenile idiopathic arthritis (JIA). Juvenile idiopathic art hritis refers to RA in children ages 17 years old and younger. The condition was previously known as juvenile rheumatoid

arthritis (JRA). The symptoms are the same as those of other types of RA, but they may also include eye inflammation and issues with physical development.

Rheumatoid arthritis causes: The exact cause of RA isn't known. However, certain factors seem to play a role in increasing the risk of developing RA or triggering its onset. Factors that may increase your risk for RA include: being a woman**,** having a family history of RA Factors that may trigger onset of RA involve: exposure to certain types of bacteria, such as those associated with periodontal disease**,** having a history of viral infections, such as the Epstein-Barr virus, which causes mononucleosis**,** trauma or injury, such as bone breakage or fracture, dislocation of a joint, and ligament damage**,** smoking cigarettes**,** having obesity, The cause may not be known but there are several risks and triggers.

Complications of Rheumatoid arthritis: Carpal tunnel syndrome

Carpal tunnel syndrome is a common condition in people with rheumatoid arthritis. It's caused by compression of the nerve that controls sensation and movement in the hands (median nerve) and has symptoms such as:

- aching
- numbness
- tingling in your thumb, fingers and part of the hand

Symptoms of carpal tunnel syndrome can sometimes be controlled with wrist splints or steroid injections, although surgery to release the pressure on the median nerve may be needed in severe cases.

Widespread Inflammation

Rheumatoid arthritis is an inflammatory condition which can cause inflammation to develop in other parts of your body, such as the:

- Lungs: inflammation of the lungs or lung lining can lead to pleurisy or pulmonary fibrosis, which can cause chest pain, a persistent cough and shortness of breath
- Heart: inflammation of the tissue around the heart can lead to pericarditis, which causes chest pain
- Eyes: inflammation of the eyes can lead to scleritis or Sjögren's syndrome. Scleritis can cause eye redness and pain, whereas Sjögren's syndrome can cause dry eyes
- Blood Vessels: inflammation of the blood vessels, known as vasculitis, is the thickening, weakening, narrowing and scarring of blood vessel walls. In serious cases, it can affect blood flow to your body's organs and tissues and can be life threatening However, with early treatment, inflammation in other parts of the body from rheumatoid arthritis is less likely.

Joint damage

If rheumatoid arthritis is not treated early or is not well controlled, the inflammation in your joints could lead to significant and permanent damage.

Problems that can affect the joints include:

- damage to nearby bone and cartilage (a tough, flexible material that covers the surface of joints)
- damage to nearby tendons (flexible tissue that attach muscle to bone), which could cause them to break (rupture)
- joint deformities

These problems sometimes need to be treated with surgery to prevent loss of function in the affected joints.

Cardiovascular Disease

(CVD) CVD is a general term that describes conditions affecting the heart or blood vessels, and it includes life-threatening problems such as heart attack and stroke. It's not clear exactly why people with rheumatoid arthritis are at an increased risk of these problems. Can reduce your risk by ensuring arthritis is well controlled and by:

- stopping smoking
- eating a healthy, balanced diet
- exercising regularly

Cervical Myelopathy

If had rheumatoid arthritis for some time, you're at increased risk of developing a problem at the top of spine known as cervical myelopathy. May need a special assessment of your neck before any operation where you're given general anaesthetic. This condition leads to dislocation of joints at the top of the spine, which puts pressure on the spinal cord. Although uncommon, it's a serious condition that can greatly affect your mobility and lead to permanent spinal cord damage if not treated quickly with surgery**.**

Patient and Methods

Review of previous studies.

Discussion

There's no cure for RA, but there are treatments that can help you manage it Rheumatoid arthritis (RA) can keep both patients and physicians on their toes as they figure out the best ways to treat the symptoms and slow the progression of the condition. Recently, advances in treatment strategies have resulted in ever- improving outcomes and quality of life for those with rheumatoid arthritis. Treat to Target Rheumatoid Arthritis is a treatment philosophy that rheumatologists use to effectively manage this disease. The treat-to-target approach has resulted in fewer symptoms and higher remission rates for those with RA. The treatment strategy involves: setting a specific testing goal that signals either remission or low disease state testing acute phase reactants and performing monthly monitoring to assess progress of treatment and management plan switching medication regimen promptly if progress isn't made. Treatments for RA help to manage the pain and control the inflammatory response which can in many cases result in remission. Decreasing the inflammation can also help to prevent further joint and organ damage. Treatments may include: medications, alternative or home remedies, dietary changes, specific types of exercise. For many people, these treatments help them live an active life and reduce the risk of long-term complications.

Rheumatoid arthritis medications

There are many types of medication for RA. Some of these medications help to reduce the pain and inflammation of RA. Some help to reduce flares and limit the damage that RA does to your joints. The following over-the-counter medications help reduce the pain and inflammation during RA flares: non-steroidal anti-inflammatory drugs (NSAIDs)**,** corticosteroids**,** Acetaminophen. The following drugs work to slow the damage that RA can cause to your body: Disease-modifying anti-rheumatic drugs (DMARDs). DMARDs work by

blocking your body's immune system response. This helps to slow down the progression of RA. Biologics. These new generation biologic DMARDs provide a targeted response to inflammation rather than blocking your body's entire immune system response. They may be an effective treatment for people who don't respond to more traditional DMARDs. Janus kinase (JAK) inhibitors. These are a new subcategory of DMARDs that block certain immune responses. These are drugs that your healthcare provider may use to help prevent inflammation and stop damage to joints when DMARDs and biologic DMARDs don't work. Certain home remedies and lifestyle adjustments may help to improve quality of life when living with RA. This includes exercise, rest, and assistive devices.

Exercise

Low-impact exercises can help to improve the range of motion in joints and increase mobility. Exercise can also strengthen muscles, which can help to relieve some of the pressure from joints, gentle yoga which can help regain strength and flexibility.

Get Enough Rest

Rest needed during flare-ups and less during remission. Getting enough sleep will help to reduce inflammation and pain as well as fatigue.

Apply Heat or Cold

Ice packs or cold compresses can help to reduce inflammation and pain. They may also be effective against muscle spasms. Alternate cold with hot treatments such as warm showers and hot compresses. This may help to reduce stiffness.

Try assistive devices

Certain devices such as splints and braces can hold your joints in a resting position. This may help to reduce inflammation. Canes and crutches can help maintain mobility, even during flares. Can also install household devices, such as grab bars and handrails in bathrooms and along staircases. Shop home remedies

Rheumatoid Arthritis Diet

Your healthcare provider or dietitian may recommend an anti-inflammatory diet to help with your symptoms. This type of diet includes foods that have lots of omega-3 fatty acids. Foods high in omega-3 fatty acids include: fatty fish like salmon, tuna, herring, and mackerel, chia seeds, flax seeds, walnuts, Antioxidants, such as vitamins A, C, and E, and selenium, may also help reduce inflammation.

Foods High in Antioxidants Include

berries, such as blueberries, cranberries, goji berries, and strawberries**,** dark chocolate**,** spinach**,** kidney beans**,** pecans**,** artichokes Eating lots of fiber is also important. According to some researchers, fiber may help reduce inflammatory responses which may decrease C-reactive protein levels. Choose whole grain foods, fresh vegetables, and fresh fruit. Strawberries may be particularly beneficial. Foods containing flavonoids can also help to counter inflammation in the body. They include: soy products, such as tofu and miso**,** berries**,** green tea**,** broccoli grapes, avoid trigger foods. These include processed carbohydrates and saturated or Trans fats.

The main indications for surgery are relief of pain and improvement in function [1] Surgery is undertaken when conservative measures have failed.[2] Surgery can include diagnostic, prophylactic or therapeutic arthroscopy or synovectomy, or therapeutic resection arthroplasty, arthrodesis or total joint replacement (TJR) [1] Orthopaedic procedures, including TJRs have resulted in a substantial improvement in the function and quality of life in patients with RA [1] The requirement for surgical treatment in RA is a surrogate marker of destruction of joints [1] and failed medical treatment [3] The outcome of surgery in patients with RA remains poorly studied, mainly due to the large numbers of patients and the length of follow-up that is required to give meaningful answers. Longitudinal observational studies of patients with RA provide an opportunity to study changes in the characteristics of the disease, drug therapies and other forms of treatment over time. They may complement clinical trials that are disadvantaged by their controlled settings, exclusion criteria and shorter follow-up [27]. The large numbers of patients and long follow-up needed to assess the outcome of surgery can only effectively be studied in observational cohorts. When contemplating whether less surgery is being performed in rheumatoid patients, consideration needs also to be given to changes in the age of patients presenting for surgery, changing surgical approaches and prostheses and anaesthetic techniques. Total hip and knee replacement (THR, TKR) are the most frequently undertaken operations involving large joints in patients with RA. Since the 1980s, there has been a substantial increase in the number of these operations undertaken [5] due to the ageing of the population. The most common indication is, however, osteoarthritis. In a retrospective study conducted in Finland[6] over an 18 year period between 1986 and 2003, the age-adjusted incidence rate ratios of joint replacements, increased almost tenfold for the knee and twofold for the hip in patients with osteoarthritis, but was virtually unchanged in patients with RA. The declining or unchanged rates of joint surgery in patients with RA seems to have occurred at the same time, with improved medical management witnessed in recent decades, suggesting a correlation [7, 8] These results are similar to other studies from the United States [9, 10]. Norway [11] Sweden [12] and most recently from the United Kingdom [13] A recent retrospective study from the United States [14] showed no significant difference, related to the overall number of replaced joints, in the number of THRs and TKRs being undertaken in patients with RA in two periods of time, between 1980 and 1994 and between 1995 and 2007. A retrospective analysis (1994 to 2004) of the Norwegian Patient Register [11] reported a statistically significant reduction in the number of arthrodeses of the wrist and hand ($p < 0.001$) being undertaken, although there was an increase in the number of arthrodeses of the ankle and foot ($p < 0.001$). In a recent retrospective review of medical records from Minnesota between 1980 and 2007, Shourt *et al* [14] reported a significant reduction in the number of soft-tissue procedures, including synovectomy, being undertaken in patients with1 RA. Greater insight comes from newly published data from two of the largest (n = 2701), and longest (25 years' follow-up) studies of patients who were recruited initially within two or three years of developing RA in the UK: the Early Rheumatoid Arthritis Study and the Early Rheumatoid Arthritis Network, linked with Hospital Episode Statistics and the National Joint Registry [13] In this study, Nikiphorou *et al* [13] reported 1602 surgical procedures undertaken in 770 patients (29%) over a period of 25 years,

during which the number of operations involving the hand, wrist, foot and ankle decreased significantly ($p < 0.001$) but the rate of TJRs did not significantly change. During this time, more intensive forms of medical management such as dual or triple combinations of disease-modifying drugs at the start of treatment, were used. Although it is possible that the decrease in the numbers of patients undergoing hand and foot surgery could be due to RA presenting to hospital in a milder form in more recent years, it is more likely to be due to the advances in the pharmacological management of the disease. In the case of THR and TKR, secondary osteoarthritis in patients with a primary inflammatory arthropathy could have been the main factor leading to orthopaedic intervention. Differences in what are considered to be 'RA-related' conditions requiring joint replacement is a limiting factor when comparing the findings from different studies. The ability to predict the eventual need for orthopaedic surgery in patients with RA has been shown to be more accurate following treatment for one year than at the time of diagnosis [15] Most early symptoms are reversible with appropriate treatment, and it is postulated that stratifying the forms of treatment required during the first year based on various prognostic factors such as disease activity score and inflammatory indices could improve the chances of avoiding progression of disease and the requirement for surgery up to 25 years later [13] These observations further support the concept that early and intensive pharmacological treatment in the critical first few months of disease, or the 'window of opportunity', could be the reason for the observed reduced rates of orthopaedic surgery rather than a milder expression of disease over time. Most studies are based on longitudinal, observational data and none consider the possible role of a change in the expression of RA to a milder form of disease, changes in patients' expectations and the assessment of outcome, or the pathophysiological progress of an inflammatory to a degenerative condition.

Fig 1: Ra of Hand

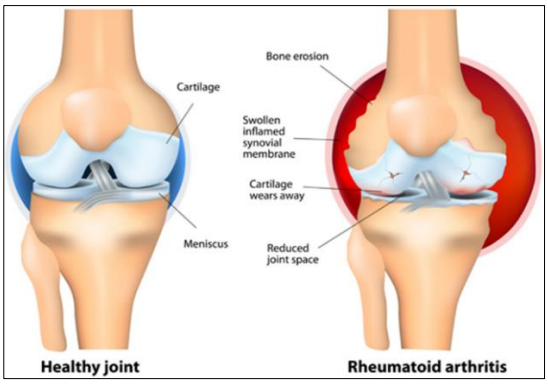

Fig 2: Knee Jont

Fig 3: Rheumatoid Arthritis of Knee Joint

Conclusion

Less surgery is being undertaken for patients with RA, as medical management particularly early in the disease, has improved. However, as most studies are based on longitudinal, observational data, causative links cannot be definitively established.

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