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RHEUMATOID ARTHRITS DISEASE

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ABSTRACT :

Rheumatoid arthritis is a chronic autoimmune condition that mostly affects the joints but can also harm the lungs, heart, and blood vessels. If left untreated, it can cause deformity and impairment as a result of inflammation, discomfort, and swelling in the afflicted joints. Rheumatoid arthritis is assumed to be brought on by a confluence of hereditary, environmental, and behavioural factors, while its precise aetiology is unclear. Inadvertent immune system attack on joint lining results in inflammation and injury.Rheumatoid arthritis does not presently have a known cause or treatment, although medications, physical therapy, and lifestyle modifications can help manage the symptoms and delay the disease's development. early detection and therapy

Keywords : Autoimmune disease, Chronic inflammation, Joint pain, Joint stiffness, Joint swelling, Joint tenderness, Synovial fluid, Joint deformity,Disability,Disease-modifying ant rheumatic drugs (DMARDs),Biologic agents,Nonsteroidal anti-inflammatory drugs (NSAIDs)

INTRODUCTION :

Untreated rheumatoid arthritis can result in joint deformity and disability since it predominantly affects the joints and causes swelling, discomfort, and inflammation. The condition is believed to be brought on by a confluence of genetic, environmental, and behavioural factors, however its precise aetiology is yet unknown. All ages are affected by rheumatoid arthritis, however middle-aged women are most frequently affected by it.The pathophysiology of rheumatoid arthritis, including the autoimmune response's processes and the involvement of cytokines in joint inflammation and destruction, will be discussed in this document. We will also go over the numerous rheumatoid arthritis therapy choices, including both pharmacologic and non-pharmacologic ones, as well as the diagnosis procedure for the condition, which includes physical examination, laboratory testing, and imaging investigations.

RISK AND CAUSES FACTORS

Rheumatoid arthritis is believed to arise from a confluence of genetic, environmental, and behavioural factors; nevertheless, its precise aetiology remains undetermined. Possible causes and risk factors include the following:

Genetic factors: A substantial genetic effect is present in rheumatoid arthritis, with particular genes, especially the HLA-DRB1 gene, increasing the probability of disease onset. However, the presence of these genes does not ensure that an individual will develop rheumatoid arthritis.

Environmental factors: Environmental triggers, such as infections, tobacco use, and exposure to particular pollutants, may have a role in the development of rheumatoid arthritis. Smoking has been shown to increase the risk of developing rheumatoid arthritis and worsen symptoms in those already suffering from the disease.

Hormonal factors: The incidence of rheumatoid arthritis is higher in females than in males, suggesting a possible impact of hormonal factors on the condition. Oestrogen may influence inflammation and immune dysfunction, although the exact mechanisms are not well understood.

Age: Rheumatoid arthritis may occur at any age, however it primarily develops in individuals between 40 and 60 years old.

Obesity: Excessive body weight. Excess weight or obesity correlates with an increased risk of developing rheumatoid arthritis, potentially due to the added stress on the joints.

Other autoimmune diseases: Individuals with other autoimmune conditions, such as lupus or scleroderma, may possess an increased likelihood of acquiring rheumatoid arthritis.

Family history: A genetic predisposition to rheumatoid arthritis or other autoimmune illnesses may increase the risk of disease onset.

It is crucial to acknowledge that having one or more of these risk factors does not ensure the onset of rheumatoid arthritis. However, knowing of these factors may aid individuals in enacting lifestyle changes and taking additional steps to reduce their risk of disease development.

SYMPTOMS AND DIAGNOSIS

Symptoms of rheumatoid arthritis can vary from person to person, but typically include joint pain, swelling, and stiffness, especially in the morning or after periods of inactivity. Other symptoms may include:

- Fatigue
- Weakness
- Fever
- Weight loss
- Loss of appetite
- Joint deformities
- Decreased range of motion

Symptoms of rheumatoid arthritis may vary across individuals but typically include joint pain, swelling, and stiffness, especially in the morning or after periods of inactivity. Additional symptoms may include: fatigue, weakness, fever, weight loss, anorexia, joint abnormalities, and reduced range of motion.
The diagnosis of rheumatoid arthritis often involves a combination of medical history, physical examination, laboratory tests, and imaging methods. The following are few common diagnostic examinations and procedures:
Patient's medical background: The physician will query about the patient's symptoms, medical history, and family history of autoimmune illnesses.
Clinical assessment: The physician will evaluate the joints for edoema, tenderness, and deformities. They may also pursue supplementary markers of inflammation, such as erythema, elevated fever, and limited mobility.

Laboratory tests: Blood tests may be employed to identify markers of inflammation (such as elevated C-reactive protein or erythrocyte sedimentation rate) and the presence of particular antibodies (such as rheumatoid factor or anti-CCP antibodies). Imaging techniques, including X-rays, ultrasounds, and MRIs, can be utilised to evaluate joint deterioration and abnormalities.

Synovial fluid analysis: In specific cases, a sample of synovial fluid, which surrounds the joints, may be obtained and analysed for signs of inflammation and infection.
It is crucial to acknowledge that no one test conclusively detects rheumatoid arthritis; diagnosis may require many tests and additional consultations with a rheumatologist, a physician specialising in arthritis and other rheumatic disorders. A timely diagnosis is essential for commencing treatment and preventing further joint degeneration.

A SHORT SUMMARY OF THE IMMUNE SYSTEM

The immune system is an intricate system of cells, tissues, and organs that collaborate to defend the body against disease and infection. In protecting the body against dangerous germs (such bacteria, viruses, and fungi) and aberrant cells (like cancer cells), it is essential.
The innate immune system and the adaptive immune system are the two basic components of the immune system. The initial line of defence against infections is the innate immune system, which is made up of physical barriers like the skin and mucous membranes and a variety of cells including neutrophils, macrophages, and natural killer cells that may immediately react to and eliminate pathogens.

Contrarily, the adaptive immune system

PHARMACOLOGIC INTERVENTIONS (E.G. NSAIDS, DMARDS, BIOLOGIC AGENTS)

- Pharmacologic interventions for rheumatoid arthritis include several classes of drugs that target different aspects of the immune system and inflammation. These include:
- Nonsteroidal anti-inflammatory drugs (NSAIDs): These drugs, such as ibuprofen and naproxen, can help relieve pain and inflammation in the joints. However, they do not slow down the progression of rheumatoid arthritis or prevent joint damage.
- Disease-modifying antirheumatic drugs (DMARDs): These drugs, such as methotrexate, sulfasalazine, and leflunomide, work by suppressing the immune system and reducing inflammation. They are used to slow down the progression of rheumatoid arthritis and prevent joint damage.
- Biologic agents: These drugs are a type of DMARD that specifically target certain proteins or cells in the immune system that are involved in the development of rheumatoid arthritis. Examples of biologic agents include tumor necrosis factor (TNF) inhibitors (such as adalimumab, etanercept, and infliximab), interleukin-6 (IL-6) inhibitors (such as tocilizumab), and B-cell inhibitors (such as rituximab).
- Janus kinase (JAK) inhibitors: These drugs, such as tofacitinib and baricitinib, block the activity of a group of enzymes called Janus kinases, which are involved in the immune response. They can reduce inflammation and slow down the progression of rheumatoid arthritis.

The choice of medication depends on various factors, such as the severity of the disease, the extent of joint damage, and the patient's medical history and preferences. In many cases, a combination of different medications may be used to achieve the best possible outcomes. It is important to note that these medications may have side effects, and patients should be monitored closely by their healthcare provider.

JOINT DEFORMITIES AND DISABILITY

If left undetected or inadequately managed, rheumatoid arthritis can lead to joint deformities and disability. Persistent inflammation in the joints can lead to deterioration of the cartilage, bone, and other components comprising the joint. This may ultimately lead to joint deterioration, functional disability, and anomalies, including:
Rheumatoid nodules are firm, nonmalignant lumps that can develop subcutaneously, commonly situated around the elbows, fingers, and heels.

Swan-neck deformity: This condition of the fingers is marked by hyperextension of the proximal interphalangeal joint and flexion of the distal phalanx.

Boutonniere deformity: This disorder entails a distortion of the fingers marked by the flexion of the proximal interphalangeal joint and the extension of the distal phalanx.

Ulnar drift: This denotes a deformity of the fingers marked by a progressive departure towards the ulnar aspect of the hand, producing a distinctive "zigzag" appearance.

Joint fusion, or arthrodesis, may be necessary to stabilise a severely damaged joint and relieve pain. This procedure involves the surgical fusing of two or more bones to eradicate independent movement.

These anomalies and impairments can significantly impact an individual's quality of life, obstructing their capacity to perform daily activities, sustain work, and engage in social and recreational pursuits. Therefore, it is essential to seek timely and effective therapy to prevent or reduce joint damage and preserve joint function.

CONCLUSION

In conclusion, rheumatoid arthritis is a chronic autoimmune disease that affects the joints, causing pain, stiffness, and inflammation. It can also affect other parts of the body, such as the skin, eyes, lungs, and heart. The cause of rheumatoid arthritis is not fully understood, but it is believed to be a combination of genetic and environmental factors. There is no cure for rheumatoid arthritis, but early diagnosis and effective treatment can help manage symptoms, slow down disease progression, and prevent joint damage and disability. Treatment options include pharmacologic interventions, such as nonsteroidal anti-inflammatory drugs, disease-modifying ant rheumatic drugs, biologic agents, and Janus kinase inhibitors, as well as non-pharmacologic interventions, such as physical therapy, occupational therapy, and lifestyle modifications. With the right treatment and self-care measures, people with rheumatoid arthritis can lead active and fulfilling lives.

TRIAL REPORT

A 52-year-old lady with rheumatoid arthritis had treatment with methotrexate, sulfasalazine, and hydroxychloroquine, leading to substantial symptom alleviation. The patient experienced challenges in doing everyday activities due to considerable joint pain, stiffness, and edoema before commencing this therapy. The patient reported enhanced mobility, decreased discomfort and stiffness following three months of treatment, and a reduced need on analgesics. Her test results significantly improved, with decreased levels of C-reactive protein and increased levels of haemoglobin. This example highlights the necessity of early diagnosis, suitable treatment, and the possibility of significant improvement in quality of life and symptoms for those with rheumatoid arthritis.

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