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Review Article

Diagnosis of Arthritis & Management Among Middle Aged & Elderly (MA&Es) in Primary Settings

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Abstract

Arthritis is a generic term that refers to an inflammation or degenerative change in a joint, leading to the swelling and tenderness of one or more joints. The common rheumatic diseases among middle aged and elderly individuals are soft tissue rheumatism, neck and back pain, fibromyalgia and unspecified joint pains and osteoarthritis. These diseases are most commonly prevalent among productive age between the 30 and 50 years and elderly, more often in females, in both rural and urban populations, and account for considerable disability in up to 1/5 of individuals leading to loss of livelihood and dependence on others for self-care. Knees, Feet, Hands, Hips, and the lower back are those joints where arthritis is most prevalent. Arthritis and allied bone and muscular conditions are among the most common of all disorders affecting people 65 years of age and over.

The primary health care providers are the gateway for helping arthritis patients worldwide especially in developing countries. In India and other developing countries Arthritis patients seek care from multiple providers after trying some or many home remedies. They include, traditional healers, trained basic graduates of all systems of Medicine, Orthopaedic, and Superspecialists for Robotic surgical interventions without any gatekeeping. It is estimated that 10-12 % of outpatient visits in the preceding fortnight and 5% of hospital admissions in in India during 2023 were due to Rheumatic and Musculoskeletal disease symptoms.

The main goals of arthritis treatments are to reduce symptoms and improve quality of life. However, primary care must involve inter-professionals (Biomarkers & Radio-diagnostics, physiotherapy) coordinated (IPC) care seeking pathways and proper referral system.

Materials and Methods: Treatments of arthritis vary depending on the type of arthritis. This article is based on authors recent involvement in 4 cases of arthritis management by Allopathic medicines, Ayurveda, Homeopathy and traditional therapies, and monitoring Robotic knee replacement, each giving satisfaction to the patients.

Outcomes: Author's spouse aged 70 years, who was on NSAID for rheumatoid arthritis for 5 years switched over to Ayurvedic treatment in May 2024 and finds 50% relief from pain and stiffness in both knees in 6 weeks. A man of 65 years using homeopathy claims relief after 3 months and a lady of 50 years found relief in Cabbage leaf capping therapy. A lady of 67 years who was unable to stand for more than 10 minutes or walk more than 100 steps, after standard medical therapy for 3 years, underwent Robotic knee replacement and is moving around happily after 4 weeks of bilateral knee replacement surgery without any support. There is no fit-all therapeutic approach, and the author observed client satisfaction among all approaches to conclude that seeking care is determined by affordability and access to varieties of therapies

Keywords: RMSK= Rheumatic &musculoskeletal diseases; RA= Rheumatoid arthritis; RF= Rheumatoid factor; OA= Osteoarthritis; joints deformity; NSAIDs & DMARDs; Knee replacement

Introduction

The most common types of arthritis cases seen by primary health care providers both in public and private sector are osteoarthritis and rheumatoid arthritis in adults. In Osteoarthritis cartilage the hard, slippery tissue covering the ends of bones at any joint breaks down. Rheumatoid arthritis is a disease in which the immune system attacks the joints, beginning with the lining of joints. Knees, Feet, Hands, Hips, & the lower back are the joints commonly affected. In adults, Gout, due to uric acid in blood is not uncommon. Occasionally general practitioners encounter cases of psoriasis or lupus [1].

Arthritis is a generic term that refers to an inflammation or degenerative change in a joint, leading to the swelling and tenderness of one or more joints. The common rheumatic diseases in the community are soft tissue

rheumatism, neck and back pain, fibromyalgia and unspecified pains and osteoarthritis. These diseases most commonly affect persons between the third to the fifth decade of life, more often females, are prevalent in both rural and urban populations, and account for considerable disability in up to 1/5 of individuals leading to loss of livelihood and dependence on others even for self-care [1]. Arthritis and allied bone and muscular conditions are among the most common of all disorders affecting people 65 years of age and over. The main symptoms of arthritis are joint pain and stiffness, which typically worsen with age. The main goals of arthritis treatments are to reduce symptoms and improve quality of life, they vary depending on the type of arthritis, access to high tech interventions affordability, and affordability [2].

In India Arthritis patients try all household remedies like oil application, massage, kneecaps etc and then seek care from multiple providers – untrained, trained and specialists without any gatekeeping. However, the primary health centres or private family doctors are the first point of care for maximum patients due to accessibility and affordability. It is estimated that 10-12 % of outpatient visits in the preceding fortnight and 5% of hospital admissions in 2023 were due to RMSK symptoms [2].

The primary health care providers are the gateway for keeping arthritis patients. Hence, there as an urgent need to make available interprofessional (Radiologist, Laboratory Services physiotherapy providers, and proper referral system) coordinated RA trained providers at primary health centre is essential. More specialists and follow-up care are needed at all First Referral units (Taluka Hospitals and Community Health Centres) to prevent complication among RA patients. Community-based national healthcare programs to manage RMSK diseases at the community level are urgently needed. There also remains an unmet need to train more doctors to diagnose and manage rheumatic diseases at the primary, secondary and tertiary levels of care.

This article is based on authors recent involvement in 5 cases of arthritis management by different therapies, each giving satisfaction to the patients. The choice of the treatment depended upon type of arthritis, affordability and possibilities of achieving the main goals of reducing symptoms and improve the quality of life.

Short Review of 4 cases:

1.Satisfaction of moving from Standard Disease-modifying antirheumatic drugs (DMARDs) to Ayurvedic Therapy:

Author's spouse aged 70 years, who was on DMARDs for rheumatoid arthritis for 5 years between 2018 and 2023. Every time she dis-continued the pain used to recur. Since January 2024 she tried using Kneecaps throughout the day and apply TRP (containing Linseed oil, Diclofenac, Methyl Salicylate and Menthol) Gel overnight. In May 2024 hearing a client satisfaction incidence from her friend about a Ayurvedic treatment she consulted switched over to Ayurvedic treatment. The therapy consisted of

a) **Herbal Ortho Pain Tablets**: One 500 mg tablet taken once each night. The composition includes Shallaki, Giloy, Chob Chini, Ginger Haldi, Punamava, Ashwagandha, Suranjan, Trikatu and Kutaki, the proportion of each of these is not specified. It claims to give relief from the pain etc.as shown on the box.in May 2024 and finds 50% relief from pain and stiffness in both knees in 6 weeks.
b) **Lepanam Powder:** Handwritten on the box with no details of the contents. A spoon of this powder made into paste in egg white and applied on both the knees and left overnight, cleaned in the morning.

Having followed the instructions, for 6 weeks now the patient feels 40% relief in stiffness in the joint and pain while walking. In a recent visit last to Goa she was able to walk in the sand of a beach. Her walking and climbing few steps were comfortable even without the kneecaps, inferring the benefit of therapy.

Sridhar Joshi a male aged 68 years, with RA of both knees, seeing the satisfaction by our first case consulted the same Ayurvedic Physician. His therapy included i) Sandhi Sudha Tablet (once a day in the afternoon after meals) ii) he was to consume Rasyana Kwath Churna boiled in water in the morning and iii) Tab Anuloma half tablet in the night for constipation. He is reporting a 20% relief in knee pain.

2.Home remedy of Cabbage Leaf Package:

Based on a research report [6], I tried the cabbage leaf therapy with little modification. I had asked 2 of my patients (First case Right knee only and Second case both knees both from poor families) in May 2024 to try wrap the affected joints with cold cabbage leaf overnight. The changes were measured by the patients themselves using OKS score over 4 weeks' time. The OKS score improved from 15 to 28 in first case and from 20 to 35 in the second case.

3.A case of Standard Allopathic Management:

A 45-year-old married woman visited me, a private practitioner in 2019 with complaints of pain, stiffness, and decreased range of movements in right shoulder joint, right wrist joint, both knee joints, right jaw, both ankles, and swelling in both legs. Additional symptoms and conditions included headache, gastritis, and constipation. Symptoms began with moderate to severe pain associated with swelling, stiffness in multiple joints especially over small joints. Pain and swelling started on the second left toe and left leg. Then she applied ice and after one month swelling started on left feet and her doctor prescribed i) Use of Kneecap and Tab Ibuprofen 400 mg daily in the night which she took for 2 week and the stopped. Two weeks later again pain started on right jaw, both knee joints, both ankle joints, and swelling on both legs associated with walking difficulty. When she cam to me it was her third allopathic consultation after trying local applicant gels. My examination showed clear involvement of multiple joints, and I put her on triple therapy of three medications – methotrexate (30 mg daily once), Iwata (500mg sulfasalazine) in the night, and Hydroxychloroquine Hcqs (200 Mg hydroxychloroquine sulphate) in the night to target arthritis symptoms effectively. After about 6 weeks of treatment her pain reduced to negligible level, and she can do her daily routines with maintenance dose of Remtrex (15mg- Methotrexate) daily once in the night. Orthopaedic surgeon advised Left Knee replacement due to damage, but the patient is yet to make up her mind & mobilize resources.

4.A Case of effective Homeo-therapy:

A 50-year-old married woman from a middle socio-economic status family reported to the outpatient department of government homoeopathic medical college and hospital, Bengaluru on 28th September 2023 with complaints of pain, swelling and stiffness in multiple joints since 1 to 2 years. She had developed pain gradually, swelling and stiffness of joints in upper extremities later in all the joints. Exciting cause could not be elicited. At the time of reporting, she complained of pain in bilateral metacarpophalangeal joints, wrist joints, elbow joints, shoulder joints, knee joints, ankle joints, but had become severe for last 2 months. The pain was les in the night, and early mornings, slowly increased after routine movements and standing for long time. She had used NSAIDs after consulting an Allopathic doctor. The pain was relieved if she took the tablets but recurred within a week after stopping them. Investigations revealed a high RH Factor.

She was put on Rhus Toxicodendron TID for 5days followed by MP 6x TID for 7days. A follow up after 2 weeks indicated a slight (20%) reduction in pain. Then she was asked to continue Rhus tox 200, BD for 3 days. Followed by PL 200, BD for 5days. after 2 months she was put on Pl 200, BD and by end of March 2024 she was fully recovered and continues to have no pain without any medication till end June 2024.

5.Robotic Knee Replacement:

Pushpa as 70-year-old lady had both knee joint pains since 2020, after the standard treatment with DMRDs, for3 years she consulted a local orthopaedic specialist. He diagnosed the case as **'Osteoarthritis'** after an

MRI and felt that the condition had not progressed extensively and was a suitable candidate for robotic knee surgery after ruling out contraindications like severe obesity, bowel obstruction, and an inability to tolerate general anaesthesia. On the advice of orthopaedician she underwent a bilateral knee replacement in tertiary care private hospital in first week of May 2024. She was ambulatory with support in the first week of the surgery and without support about 4 weeks and on 2 June she attended a social function to the surprise of all relatives. This intervention is not in the purview of primary Care Physician but then they have a larger role in referring appropriate cases.

Discussions:

A major update to the GBD published in 2017 reported the prevalence of musculoskeletal complaints as 1,312,131.3 thousand, the annual incidence as 334,744.9 thousand and the disability-adjusted life years (DALYs) lost due to these diseases as 135,881.3 thousand years. DALYs due to musculoskeletal complaints have progressively increased over time, by 38.4% from 1990 to 2017. The major prevalent musculoskeletal disorders were low back pain followed by osteoarthritis (most commonly osteoarthritis of the knee), neck pain (288,718.6 thousand) and others (rheumatoid arthritis [RA], gout, other musculoskeletal disorders. The DALYs attributable to each of these diseases had also increased significantly between 1990 and 2017. In the GBD 2019, overall, contribution of low back pain and other musculoskeletal complaints to the DALYs increased from 1990 to 2019. Low back pain was a leading cause of disability upwards of 10 years of age, maximum at the age group of 25–49 years. Complaints other than low back pain, neck pain, RA, osteoarthritis and gout were a leading cause of disability between 25 and 74 years, maximum between the ages of 25–49 years, inferring musculoskeletal diseases contribute the maximum to disability during the most productive years of life [1].

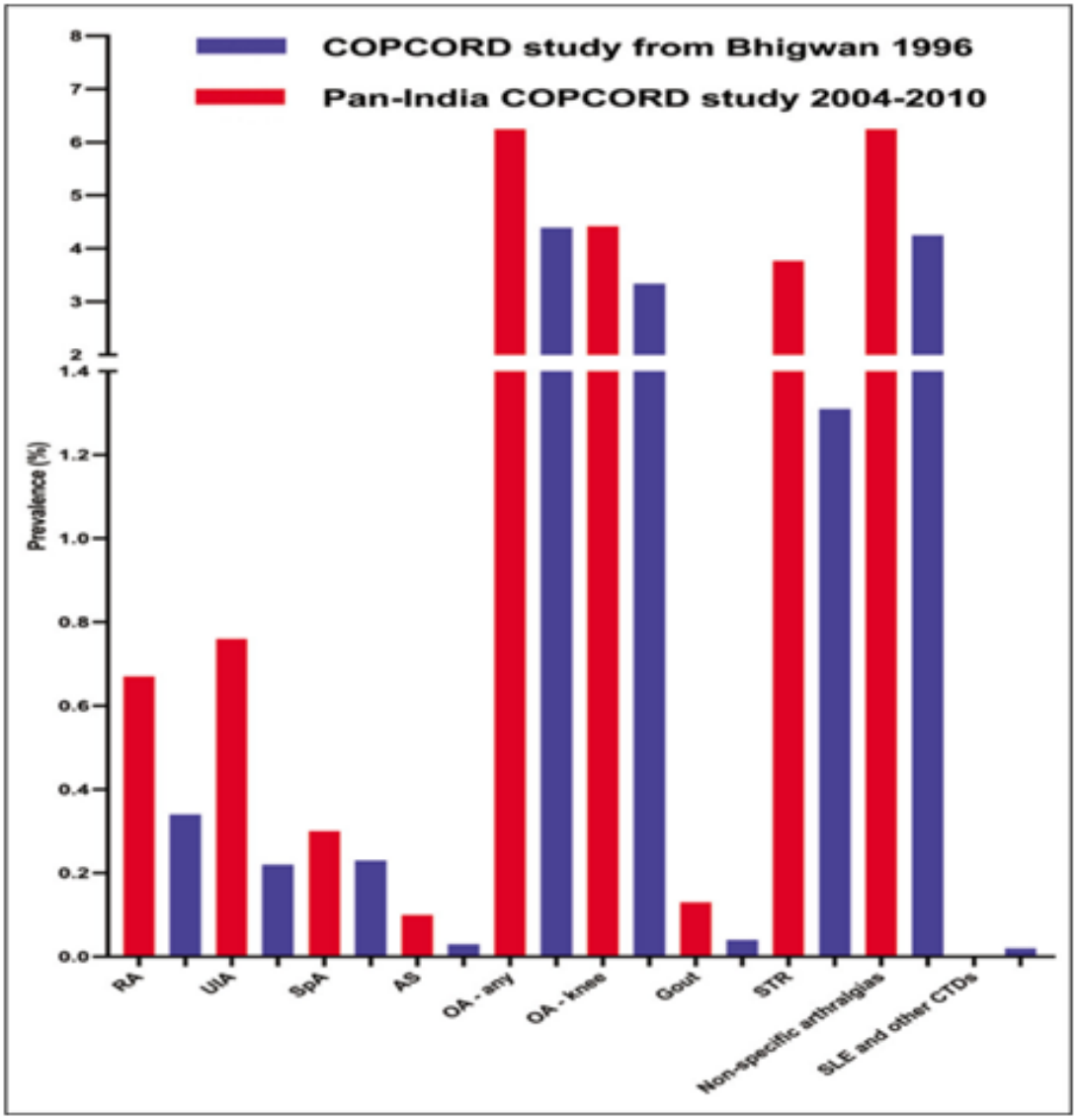


Figure 1: The Prevalence of Different Rheumatic & Musculoskeletal Diseases in India - COPCORD Studies.

Note:

AS= Ankylosing spondylitis CTDs= connective tissue diseases. OA=osteoarthritis; RA= Rheumatoid arthritis; SLE= Systemic lupus erythematosus. SpA= Spondylarthritis; STR= Soft tissue rheumatism UIA= undifferentiated inflammatory arthritis.

COPCORD, Community Oriented Program for Control of Rheumatic Diseases [1]

A community-based survey of 2,535 eligible adults, 2,259 (89%) were surveyed, and 1,247 (55%) reported pain in the back or the extremities and were therefore referred to the specialist clinic. Out of 884 (71%) participants who attended the clinics, 615 (70%) reported pain in the extremities. The point prevalence of soft tissue rheumatism (STR) in the community was 28% (95% confidence interval, CI=26.1-29.8%) while that of arthritis was 12.2% (10.8-13.5). The point prevalence of rheumatoid arthritis was 0.4% (0.1-0.6). Both STR and arthritis were more common in women and in the elderly. This study inferred that soft tissue rheumatism was the commonest rheumatic disorder in the rural community, followed by arthritis. Inflammatory and infectious disorders were rare. Given the high prevalence of STR and arthritis, community health workers and physicians working in rural areas need to be trained, to improve the management of these conditions [3].

Types Of Arthritis [1,2, 4]:

Degenerative Or Mechanical Arthritis: An assortment of illnesses together referred to as degenerative or mechanical arthritis primarily entail harm to the cartilage that surrounds the ends of the bones. This kind of arthritis causes the cartilage with primary function of facilitating easy gliding and motion in the joints to weaken and roughen. The body starts remodelling the bone to restore stability to make up for cartilage loss and changes in joint function. Osteophytes- unwanted bone growths, form as a result or the joint develops a misalignment leading to osteoarthritis. Osteoarthritis may also develop because of joint injuries, such as a fracture, or joint inflammation.

Inflammatory Arthritis: Patients with inflammatory arthritis experience inflammation that is not immediately obvious, like a typical process of inflammation, as a preventative measure against germs and viruses or as a reaction to wounds like burns. The damage caused by this sort of inflammation, results in discomfort, stiffness, and swelling, is counterproductive and harmful to the afflicted joints. Multiple joints may be affected by inflammatory arthritis, and the inflammation can harm both the bone under the skin and the joint's surface. Rheumatoid arthritis, Ankylosing spondylitis, and Psoriatic arthritis are some examples of inflammatory arthritis in MA&E's.

Chronic Connective Tissue Disease (CTD): Supporting, uniting, or dividing other bodily tissues and organs are the functions of connective tissues, like cartilage, tendons, and ligaments. Inflammation and joint discomfort are symptoms of CTD. In addition to the skin, muscles, lungs, and kidneys, inflammation may also develop in other tissues, such as the lungs and muscles. CTD examples include Lupus, or SLE (systemic Lupus Erythematosus), Systemic sclerosis (scleroderma), dermatomyositis and Sjogren's cause sore joints**,** and other signs and symptoms of arthritis.

Infectious Arthritis: Inflammation in joints can occasionally cause by bacteria, viruses, or fungi. Some common organisms causing infective arthritis include Shigella and salmonella, transmitted through tainted or contaminated food, sexually transmitted illnesses - gonorrhoea and chlamydia (STDs), Hepatitis C, a blood-to-blood infection that can be contracted via receiving blood transfusions or using shared needles. If the infection is not treated, arthritis may turn chronic and result in irreparable damage to the joints.

Metabolic Arthritis: When the body breaks down purine-containing compounds, urate is produced as a chemical. Most Uric acid dissolves in the blood and is carried to the kidneys, urine is produced and leaves the body. Some people have high amounts of uric acid because either their bodies naturally make more than required, or because their kidneys cannot remove the uric acid rapidly enough. A buildup of uric acid results in the formation of needle-like crystals in the joint, which can cause rapid spikes in their level of acute joint pain or a gout attack. If the amounts of uric acid are not lowered, Gout can either develop into a chronic condition or occur in episodes**.** The big toe and hands are typical joints that are affected, along with a few other smaller joints.

Septic Arthritis (SA): An infection, either bacterial or fungal, can cause septic arthritis, most often Hip and knee joints are impacted. It normally affects 2–6 people out of a Lakh. A joint may become infected with a microbe directly through an injury or surgery, or it may become infected when bacteria or other disease-causing germs travel to a joint through the blood. Most cases of acute septic arthritis are brought on by bacteria like Streptococcus, Staphylococcus, or Neisseria gonorrhoeae. Chronic septic arthritis is brought on by microbes like Candida albicans and Mycobacterium tuberculosis. Getting septic arthritis is increased in Joint injury or illness currently present, inserts for artificial joints, Infections somewhere else in the body, Bacterial presence in the blood, Chronic sickness or illness such as diabetes, RA, HIV, and sickle cell disease, Drug usage by injection or intravenous (IV), Medicines that lower immune function, recently injured joint or arthroscopy or other surgery on a joint, old age. SA's ability to quickly destroy joints makes it a rheumatologic emergency. It could be fatal.

Osteoporosis: A position statement from the Indian Society of Bone and Mineral Research reported that about 20% of women older than 50 years (8% to 62%) have osteoporosis. In males older than 50 years, the prevalence of osteoporosis ranges from 8.5% to 24.6%. A study of 792 males and 808 females (post-menopausal) older than 50 years from urban New Delhi reported osteoporosis in 35.1% (24.6% males, 42.5% females) and osteopenia in 49.5% (54.3% males, 44.9% females). Another study of females between the ages of 30–60 years from an urban area of Hyderabad of low socioeconomic status reported femoral neck region osteoporosis in 29% of subjects. A study of 250 males older than 50 years from urban Vellore, Tamil Nadu, reported osteoporosis at the spine in 15.2% and at the femoral neck in 10.7%. Osteopenia was prevalent in 47.3% of the spine and 52.7% of the femoral neck.

Rheumatoid arthritis (RA):

RA is an autoimmune disease primarily affecting the synovium, unlike osteoarthritis, which affects the cartilage, and spondyloarthropathies, which involve the tendons. The disease involves T cells & B cells, which interact & produce cytokines, signalling molecules causing inflammation, pain, swelling, & fatigue in RA. Blocking these cytokines can help control the disease. RA is often diagnosed late, leading to severe joint damage by the time patients sought medical help [5,7].

Early diagnosis: Key diagnostic indicators include polyarthritis (involvement of more than four joints), inflammatory arthritis with symptoms worse in the morning and improving with movement, and symptoms persisting for more than six weeks (Chronic).

TYPES OF ARTHRITS

Laboratory tests: If the rheumatoid factor (RF) & anti-cyclic citrullinated peptide (anti-CCP) antibodies are positive, this typically confirms the diagnosis of rheumatoid arthritis (RA). However, in 10% of "seronegative RA" cases, these tests may be negative. called. Of late, visualize of synovial inflammation, by Ultrasound and MRI confirm the diagnosis with ultrasound being cheap.

Source: Arthritis: Symptoms, Causes, Types & Treatment - PSRI Hospital, New Delhi January 2024

Treatment for RA: Methotrexate, is now the gold standard for RA, administered weekly in doses of 15-30 mg and works by reducing inflammation. It is well-tolerated but may cause nausea in few patients, which doctors manage giving folic acid next day. Other include methotrexate, sulfasalazine, hydroxychloroquine, and gold injections.

Hydroxychloroquine, used at 300 mg daily, is safer and used long-term with regular eye tests to monitor for retinopathy. Sulfasalazine, though effective, and given daily and can cause gastrointestinal issues and rarely reduce sperm count. Leflunomide is another daily medication but has a higher risk of liver toxicity, requiring regular blood tests to monitor liver and kidney function. If traditional Disease-modifying antirheumatic drugs (DMARDs) and leflunomide mentioned above fail, biologics tried. Anti- Tumour Necrosis Factor (Anti-TNF) drugs, like infliximab, which target and inhibit (TNF), a cytokine responsible for inflammation. Their adverse effects in rare instances, include Pneumonitis, fungal infections, and lymphoma, although the overall cancer risk is considered low.

When both traditional and biological drugs are ineffective, small molecule drugs, like Janus kinase inhibitors (JAK inhibitors or Jakinib), like tofacitinib and baricitinib taken orally are an alternative. These drugs also work by blocking specific cytokine pathways involved in RA inflammation, by inhibiting JAK1, JAK2, and JAK3 enzymes, crucial in the inflammatory process. They do carry risks, of TB and herpes zoster and thrombotic episodes [7].

Approach to Clinical Assessment by the Primary Care Physicians:

A primary care physician needs to take a detailed history including asking patients if they are taking any supplements, look at them as in many cases they work well for pain relief as they contain glucocorticoids lead to iatrogenic adrenal dysfunction, therefore shouldn't be taking. Then use a simple tool called Oxford Knee Score (OKS- annexure 1) a questionnaire of about a dozen questions or KL grading (Annexure-2) if there is an access to radiological test. This helps assessing the initial condition, guide the therapy course and to monitor the progress.

The Oxford Knee Score (OKS) was developed in 1998 and validated to measure pain and function after total knee replacement. It is a self-completed patient-based outcome score to assess the patient's perspective of the outcome following total knee arthroplasty and other nonsurgical therapies applied to those suffering from issues with the knee. The OKS consists of twelve questions measuring the function and pain associated with the knee (Annexure-1). The questionnaire is short, practical, reliable, valid, and sensitive to clinically important changes over time with 0 being the worst score and 48 being the best score. The patient or an attendant gives a score of 4,3,2,1,0 from the ANSWERS FROM LEFT TORIGHT. Scores of 0–19 are perceived as "poor," 20–29 are perceived as "moderate," 30–40 are perceived as "good," and 40–48 are perceived as "excellent". The Numerical Rating Scale (NRS) score is the measurement of pain intensity in whole number (0–10 integers).

A recently created a clinical meaningful classification of the change scores suggest that four categories can be distinguished when comparing the ΔOKS: i) much better (≥16) ii) a little better (7-15), iii) about the same (1-6), iv) much worse (≤0) [7]

Early detection plays a pivotal role in dictating the course of the disease, ultimately the patient's quality of life. Once diagnosed four key actions involve: i) CONSIDER if a reference is required, using the criteria of a need for treatment beyond medical management including i) Knee support, ii) Home remedies like Local gel application or Cabbage packing and iii) DMRDS and or BRMs and or Triple therapy were tried for 3-6 months and pain not relieved.

The Crucial Role of Early Detection in Arthritis Management:

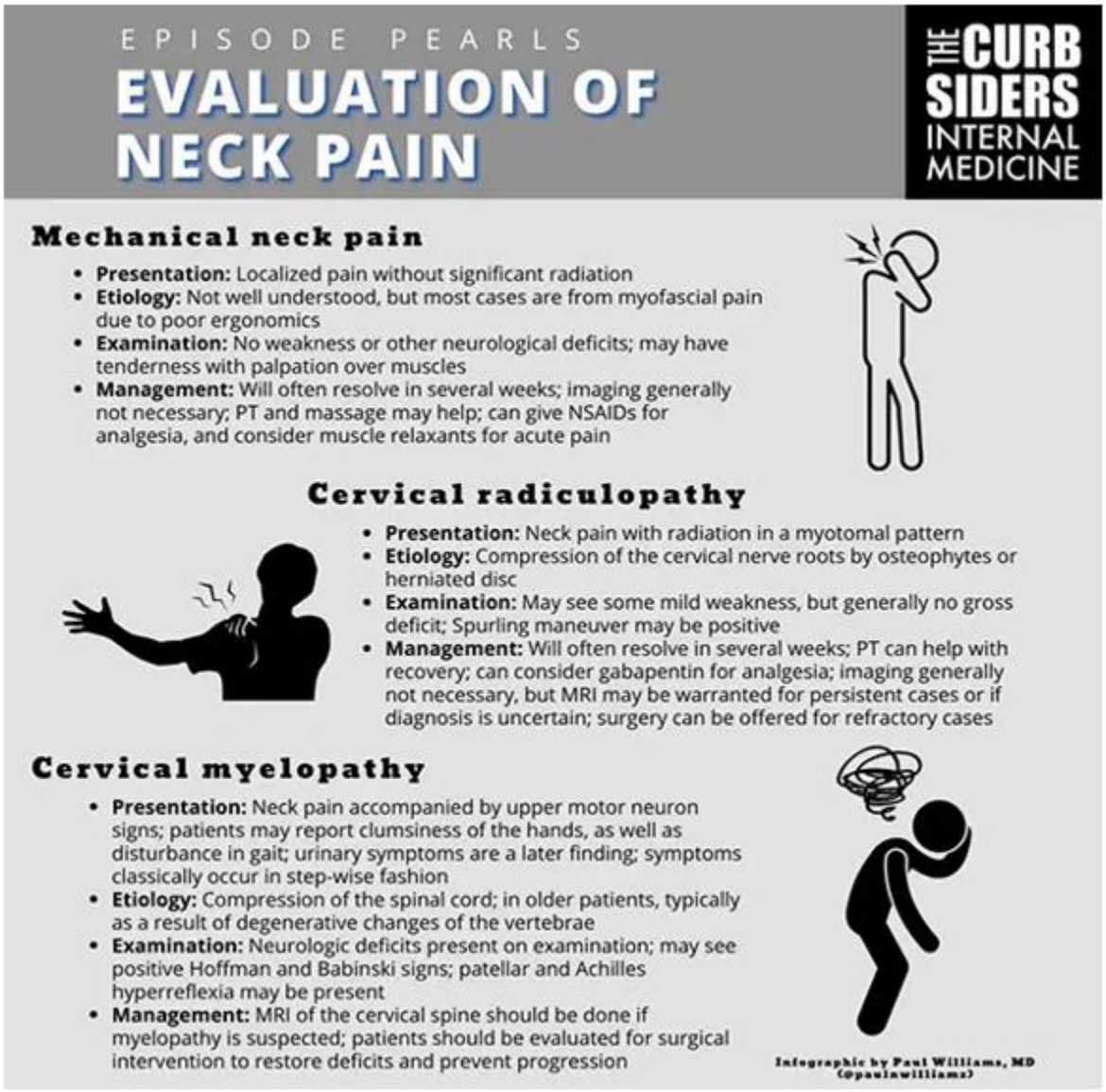
i) Early Medication: Prompt diagnosis allows for immediate initiation of treatment. Medications like Nonsteroidal Anti-Inflammatory Drugs (NSAIDs) and Disease-Modifying Anti-Rheumatic Drugs (DMARDs) are more effective if administered early.

ii) Lifestyle changes: When arthritis is detected early, implementing lifestyle changes like exercise regimes and dietary modifications extremely effective.

These strategies often reduce the need for aggressive medical treatments down the line.

iii) Optimal Management: Early detection sets the stage for active disease monitoring. Regular check-ups and diagnostic tests help in adapting treatment plans as required, ensuring optimal management of the condition.

iv) Psychological Impact: Early diagnosis can also have a positive psychological impact. Knowing what you're up against allows for mental preparation, better stress management, and a more proactive approach to disease management.



Neck Pain: Neck pain among Middle aged and elderly population is extraordinarily common. There are three types of neck pains [8] i) mechanical neck pain- localized neck pain that doesn't radiate anywhere; in the middle of the neck. The aetiology is mostly myofascial & pathophysiology, not well-defined. Not going to have weakness or neurologic deficits or upper motor neuron signs. It will get better with neck exercises over time. Treatment with NSAIDs and physical therapy, will help if it persists. Physical therapy with the ergonomics of the position and movements in a way that does not exacerbate are important. Massage is sometimes helpful. ii) Cervical radiculopathy- Cervical radiculopathy is basically the patient who has neck pain that's going down one arm or the other, usually not both arms. It's a nerve being pinched somewhere, usually more on one side than the other. Patients do not have any motor weakness but just the pain and a little bit of mild sensory symptoms. Just reassurance that patient that this usually goes away. If patient is having trouble in functioning give some NSAID, some muscle relaxants or even gabapentin and refer to physical therapy [8].

Source: Chronic-neck-pain-primary-care-approach-https://www.medscape.com/07/10/2024,

iii) Cervical myelopathy- It's a sort of bony buildup that compresses on the spinal cord itself. It occurs in older patients, who will often have neck pain but not always. It's also associated with impairments in motor function and other neurologic deficits. The patients may report having difficulty buttoning their buttons or managing fine-motor skills or radicular symptoms down their arms. On examination they may show weakness, a positive Hoffmann's test (Flicking the middle finger and look for flexion of the first finger and the thumb). They may have abnormal tandem gait, or patellar or Achilles hyperreflexia. Being an upper motor neuron disease, they may report urinary hesitancy or just a feeling of general unsteadiness of the gait. If you suspect myelopathy only resolution is to keep it from progressing. Get an MRI, if it persists or observe rapid regression, and refer them to neurosurgery [8].

Treatment at Primary Care:

Allopathic treatment recommends 1) Disease-modifying anti-rheumatic drugs (DMARDs). 2) Biologic response modifiers (a type of DMARD) 3) Glucocorticoids 4) Nonsteroidal anti-inflammatory drugs (NSAIDs) and Analgesics (painkillers)

In the past, doctors took a conservative, stepwise approach toward treating rheumatoid arthritis. They started first with NSAIDs such as ibuprofen. Then, they progressed to more potent RA drugs for people who showed signs of joint damage.

DMARDs: Most used drugs are hydroxychloroquine sulphate, leflunomide, methotrexate, tofacitinib, baricitinib and Upadacitinib. Biologic response modifiers are a type of DMARD, target the part of the immune system response that leads to inflammation & joint damage.

Biologic response modifiers (BRMs): BRMs slow the progression of the disease or help put it into remission. These are prescribed along with methotrexate. Biologic response modifiers are given by injection and/or by IV along with methotrexate under a doctor's supervision. They are expensive.

Corticosteroids: In few cases, synthetic steroids called corticosteroids either as pills or injections help relieve RA symptoms and may stop or slow joint damage. They are strong anti-inflammatory drugs and may block other immune responses. Several man-made corticosteroids either as pills or injections are available, that need to be sued as last resort.

Triple therapy (TT): TT has emerged as a potential meaningful change in the management of rheumatoid arthritis. This treatment approach combines three medications – methotrexate, sulfasalazine, and hydroxychloroquine- to target arthritis symptoms effectively. The main types of RA medications in Allopathy, are bisphosphonates, which They slow down or prevent bone loss, strengthening bones by inhibiting osteoclasts which are responsible for breaking down and reabsorbing minerals such as calcium from bone and allow osteoblasts to work more effectively, resulting in improved bone mass. The most benefits happen within the first five years of treatment and long-term use have been associated with atypical femur fractures, osteonecrosis of the jaw and oesophageal cancer. Therefore, experts recommend bisphosphonate treatment for three to five years.

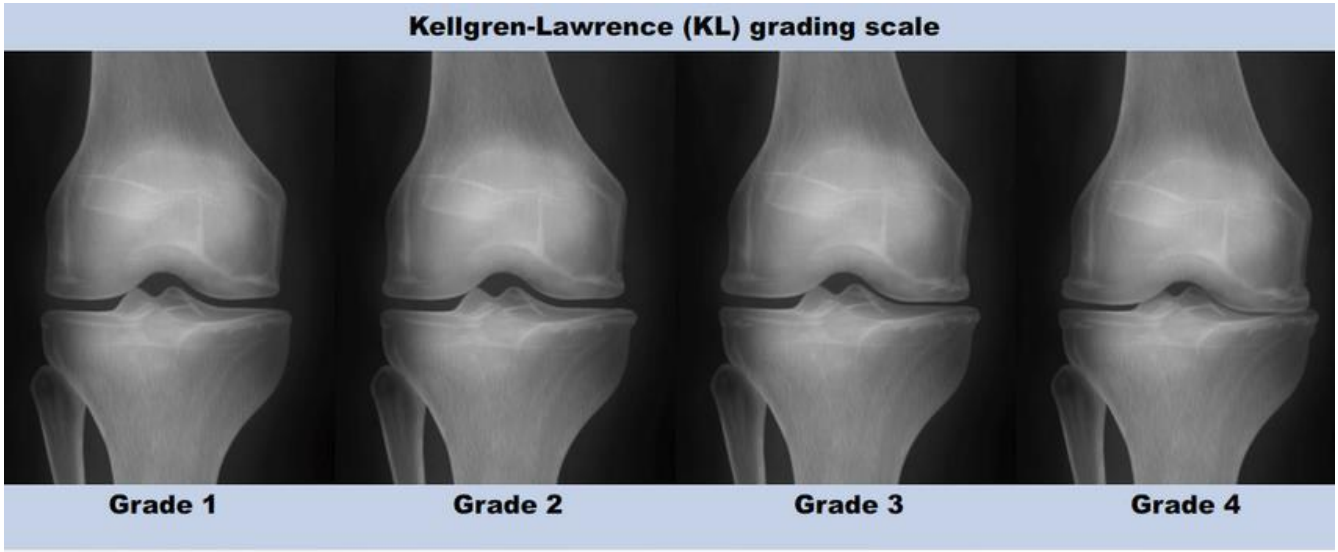
Traditional & ISM Management: Alternative nonoperative treatments for OA include physical therapy, medication, bandages, and applying compresses [9,10,11].

Efficacy of Cabbage Leaf in Patients with Knee Osteoarthritis:

Patients with moderate to severe (grades 3-4) OA by the Kellgren and Lawrence grading system with a poor to good Oxford Knee Score were enrolled and the participants were divided into three intervention groups: i) the cooling gel pad group for 20 minutes duration once a day (n = 20), ii) the diclofenac gel group for 4 times a day (n = 20) as the control group (total n = 40), and iii) the cabbage leaf group for 1-hour duration once a day (n = 20) as the experimental group (total n = 20). All trial participants were trained by the physicians to record their Numerical Rating Scale (NRS) pain score and Oxford Knee Score and were advised to undergo weekly follow-ups and assessment of the outcome at 4 weeks. Data analysed by the paired t-test & analysis of variance (ANOVA).

Kellgren- Lawrence (KL) grading scale.

Annexure-2



CLASSIFICATION	Normal	Doubtful	Mild	Moderate	Severe
DESCRIPTION	No features of OA	Minute osteophyte: doubtful significance	Definite osteophyte: normal joint space	Moderate joint space reduction	Joint space greatly reduced: subchondral sclerosis

Results showed that the cabbage leaf group and cooling gel pad group showed a significant difference in both the Oxford Knee Score ($p < 0.001$ in both groups) and NRS score ($p < 0.001$ in both groups) after the intervention, by using the paired t-test. The study concluded that cabbage leaf application and cooling gel pad application showed similar improvements in reducing OA symptoms in terms of the overall scores by both methods and their therapeutic effectiveness was better than that of diclofenac gel [9].

Ayurvedic Treatment of Arthritis:

Ayurveda treatment is focused on restoring the balance of the doshas, which helps to reduce inflammation and pain [10].

a) *Ayurvedic treatments focus on calming Vata* through warm, nourishing foods like cooked vegetables, soups, and herbal teas. Abhyanga (oil massage) with sesame or mustard oil is included to soothe the pain.

b) *Reducing Pitta Dosha* Inflammation is linked to Pitta dosha. To pacify Pitta, individuals are advised to incorporate cooling foods such as cucumber, mint, coriander, turmeric and ginger into their diet as they have anti-inflammatory properties.

c) *Kapha Dosha Management* Kapha imbalance is believed to lead to stiffness and swelling. A diet rich in spicy and warm foods, regular exercise, and herbs like Guggulu are advised to enhance metabolism and reduce stiffness.

d) *Panchakarma* is a series of detoxification procedures in Ayurveda. It is believed to help remove toxins from the body and balance all the doshas mentioned above.

e) *Oil Massage (Abhyanga*) Regular oil massage, especially with warm sesame oil, is believed to improve circulation, reduce inflammation, provide relief from joint pain.

f) *Herbal Remedies for Arthritis* Ayurveda boasts a plethora of herbal remedies for arthritis. Ashwagandha (Withania somnifera), Shallaki (Boswellia serrate), and Haritki (Terminalia chebula), Vibitaki (Terminalia bellirica), Amlaki (Phyllanthus emblica) are the herbs prescribed for anti-inflammatory and immune-boosting properties.

g) *Dietary Modifications e*mphasize anti-inflammatory foods-fresh fruits, vegetables, whole grains, & nuts. Avoiding or limiting intake of spicy, oily, and processed foods.

h) *Yoga and Exercise* Gentle yoga and exercises that promote flexibility and strength are beneficial and are advised, but patients are asked to avoid strenuous activities during flare-ups. Commonly advised and taught yoga's include Paschimottanasana – Seated forward bend, Virabhadrasana – Warrior pose, Chakravakasana – Cat-Cow stretch, Trikonasana – Triangle pose, Vrikshasana – Tree pose, Bhujangasana – Cobra Pose, Setu Banda Sarvangasana – Bridge Pose, Pavanamuktasana – Wind Releasing Pose and Supta Matsyendrasana – Lumber Stretch

Homeopathic Treatment of Arthritis:

While the causes of rheumatoid arthritis are still unclear, Homeopathy believes that wide variety of factors like genes, environment and hormones are suspected to contribute. In homoeopathy constitutional, miasmatic approach is usually used to manage arthritis. Most Homeopathic practitioners and medical colleges in India use Rhus Toxicodendron TID for 5 days followed by MP 6x TID for 7days. A follow up after 2 -4 weeks if indicates a reduction in pain, then the patient is asked to continue Rhus tox 200, BD for 3 days, followed by PL 200, BD for 5days. After about 2 months Pl 200, BD is continued for another 3 months. Some other medicines used are [11]:

i) *Aconitum napellus* for pain and inflammation that comes on suddenly after exposure to cold wind and weather.

ii) *Arnica for* Chronic arthritis with a feeling of bruised soreness, Pain worsens on touch, that occur in joints injured in the past.

iii) Belladonna is used if there is a sudden flare-up of arthritis, the joints look red and inflamed, the surface feels hot to the touch, with a sensation throbbing pain.

iv) Bryonia is used to joint pain improved by staying immobile and applying pressure.

v) Calcarea Phosphorica is used for Stiffness and soreness of the joints, worse from drafts and cold. Aching in the bones and tiredness that worsen after exertion.

vi) *Ledum Palustre* is used for Arthritis that starts in lower joints and extends to higher ones. For example, if the Pain and inflammation begins in the toes and spread up through the ankles and knees. The joints make cracking sounds and may be very swollen. Cold applications bring relief to both the pain and swelling.

vii) *Pulsatilla* Pain that moves unpredictably from one joint to another. If the hips and knees are affected, and pain may be felt in the heels. Symptoms worsen from warmth, and better from cold applications and open air.

Over-the-Counter Arthritis Supplements Pose Adrenal Danger:

Some patients have been taking over-the-counter arthritis drugs and supplements for prolonged periods. These drugs/ supplements containing undisclosed glucocorticoids can lead to iatrogenic adrenal dysfunction, Cushing syndrome, and/or adrenal insufficiency (AI), with undetectable hormone levels. Sometimes this can cause them to go into signs or symptoms of adrenal insufficiency and become life-threatening occasionally if it's not addressed in an inpatient setting. They must be tapered off slowly because abruptly stopping the supplement can precipitate and replaced with corticosteroids.

In a recent study 12 patients with median age of 52 years were seen during 2022-2023 at an endocrinology consult service in an urban safety net hospital. One third were women. All had started using the supplements for joint pain, with a median of about 6 months of use prior to cessation. Presenting symptoms included nausea/vomiting in 42%, fatigue in 42%, abdominal pain in 33%, and dizziness in 17%. Physical exam findings included moon facies in 66%, central adiposity in 66%, abdominal striae in 50%, dorsocervical fat pad in 33%, and bruising in 33%. Three required intensive care admission. Cortisol testing performed in 11 of the patients was normal (≥ 16 mcg/dL). AI (≤ 3 mcg/dL) was found in three, while the rest had indeterminant results. Of those seven patients, subsequent cosyntropin-stimulation testing suggested AI (cortisol < 16 mcg/dL at 60 minutes post stimulation) in four patients, while the other two showed reduced but normal responses (cortisol 18.2-18.4 mcg/dL).

Ten of the 12 patients were prescribed glucocorticoid tapering replacements to avoid precipitating adrenal crisis, most commonly twice-daily hydrocortisone. Of those ten, eight continued to take the replacement steroids 1-2 years later [12]

Cost of Therapy in India: Medications, including NSAIDs, corticosteroids, DMARDs, and biologics, play pivotal roles. Monthly costs for these medications range from INR 10,000 to 30,000. The average cost medical treatment of RA patients in 2013 was estimated to be INR 2230 ($34)/month in a study of 200 patients in Amrita institute of medical sciences, Kerala.

Economic Burden Resulting from RMSK Diseases

Based on the National Sample Survey data from 2014, 3.5% of hospital admissions in the one year preceding the data collection and 9.9% of outpatient visits in the preceding fortnight were due to RMSK symptoms. Further in-depth analysis of the population in the Korba district of Chhattisgarh revealed that the cost of management of rheumatic diseases was three times higher in the private sector than in the government sector. Out-of-pocket expenditure more than 10% was faced by more than one-half of the households affected with rheumatic diseases. Nearly one-fourth had to resort to borrowing or dispersal of fixed assets to meet the expenses of treatment. The cost of spend is often for delays in referral and the failure of the third-party payees do not recognise rheumatic diseases.

Conclusion:

Arthritis is a common ailment with rare chance of getting cured completely. Its management calls for actions at Individual, Primary Crae Physicians, Specialists and the State at large.

Individual Actions: i) Self-care: Lose weight, 10-15% in 3 months, ii) Switch from high-impact activities- running, to low-impact ones-walking or swimming; iii) Avoid movements of lunges & squats, that worsen the condition iv) Painful arthritis discourages exercising, but, being active helps reduce & prevent pain, as regular exercise improves muscular power, movement and joint mobility. v) Apply ice or heat for pain or take NSAIDs in consultation with PCP.

Primary Care Physicians: i) Take a detailed history, do a thorough physical examination, use Scanning or MRI & Diagnose AEAP ii) Use a simple tool

called Oxford Knee Score, to assess the initial condition, guide the therapy course and to monitor the progress iii) Refer the case urgently if beyond your resources to manage iv) Encourage your patients to stretch often, to help decrease the stiffness in the joints v) Remind the patient to use their strongest joints first and encourage them to sit in chairs with arms so they can push up when rising. Ensure the patient maintains a good balance between rest and activities

State/Governments: i) Train more Doctors, Physiotherapists, Nurses, CHOs and other Para-medicals to diagnose & manage rheumatic diseases at the primary, secondary and tertiary levels of care ii) Launch Community-based national health care programs to manage RMSK diseases at the community level (H&W Centres, PHCs, CHCs & Taluka Hospitals)

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