DHA TELEHEALTH CLINICAL GUIDELINES

FOR VIRTUAL MANAGEMENT

OF OSTEOARTHIRITIS – 28

Version 2

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Health Policies and Standards Department

Health Regulation Sector (2024)

INTRODUCTION

Health Regulation Sector (HRS) forms an integral part of Dubai Health Authority (DHA) and is mandated by DHA Law No. (14) of the year (2021) amending some clauses of law No. (6) of 2018 pertaining to the Dubai Health Authority (DHA), to undertake several functions including but not limited to:

- Developing regulation, policy, standards, guidelines to improve quality and patient safety and promote the growth and development of the health sector;
- Licensure and inspection of health facilities as well as healthcare professionals and ensuring compliance to best practice;
- Managing patient complaints and assuring patient and physician rights are upheld;
- Governing the use of narcotics, controlled and semi-controlled medications;
- Strengthening health tourism and assuring ongoing growth; and
- Assuring management of health informatics, e-health and promoting innovation.

The DHA Telehealth Clinical Guidelines aim to fulfil the following overarching DHA Strategic Priorities (2026):

- Pioneering Human-centered health system to promote trust, safety, quality and care for patients and their families.
- Make Dubai a lighthouse for healthcare governance, integration and regulation.

- Leading global efforts to combat epidemics and infectious diseases and prepare for disasters.
- Pioneering prevention efforts against non-communicable diseases.
- Become a global digital health hub.
- Foster healthcare education, research and innovation.

ACKNOWLEDGMENT

The Health Policy and Standards Department (HPSD) developed this Guideline in collaboration with Subject Matter Experts and would like to acknowledge and thank these health professionals for their dedication toward improving quality and safety of healthcare services in the Emirate of Dubai.

Health Regulation Sector

Dubai Health Authority

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EXECUTIVE SUMMARY

Telehealth is based on Evidence Based Practice (EBP) which is the conscientious, explicit and judicious use of current best evidence in making decisions about the care of the individual patient. It means integrating individual clinical expertise with the best available external clinical evidence and guidelines from systematic research.

EBP is important because it aims to provide the most effective care virtually, with the aim of improving patient outcomes. As health professionals, part of providing a professional service is ensuring that practice is informed by the best available evidence.

This guideline is presented in the format comprising of clinical history/symptoms, differential diagnosis, investigations and management. Identification of 'Red Flags' or serious conditions associated with the disease is an essential part of this telehealth guideline as it aids the physician to manage patients safely and appropriately by referrals, if indicated during virtual telehealth assessment, to ER, family physicians or specialists for a face to face management.

The primary purpose of this Telehealth Guideline is to prove the health physicians, who will be managing patients virtually, with a summary of the best available evidence for the virtual management of this very common condition among adults.

This guideline also identifies key "Red Flags" or serious symptoms associated with Osteoarthritis which warrant a referral to specialist for further face-to-face management.

DEFINITIONS/ABBREVIATIONS

Virtual Clinical Assessment: Is the evaluation of the patient's medical condition virtually via telephone or video call consultations, which may include one or more of the following: patient medical history, physical examination and diagnostic investigations.

Patient: The person who receives the healthcare services or the medical investigation or treatment provided by a DHA licensed healthcare professional.

ABBREVIATIONS

DHA	:	Dubai Health Authority
EBP	:	Evidence Based Practice
ER	:	Emergency Room
KPI	:	Key Performance Indicator

1. BACKGROUND

1.1. Introduction

1.1.1. Osteoarthritis (OA) is one of the most common causes of chronic disability in adults due to pain and altered joint function that is associated with characteristic pathologic changes in the joint tissues. Although most patients present with joint pain and functional limitations, the age of disease onset, sequence of joint involvement, and disease progression vary from person to person. OA ranges from an asymptomatic, incidental finding on clinical or radiologic examination to a progressive disabling disorder eventually culminating in "joint failure."

2. SCOPE

2.1. Telehealth services in DHA licensed Health Facilities.

3. PURPOSE

3.1. To support the implementation of Telehealth services for Osteoarthritis in Dubai Health Authority (DHA) licensed Health Facilities

4. APPLICABILITY

4.1. DHA licensed physicians and health facilities providing Telehealth services.

4.2. Exclusion for Telehealth services are as follows

4.2.1. Emergency cases where immediate intervention or referral is required.

4.2.2. Prescribe Narcotics, Controlled or Semi-Controlled medications.

5. ETIOLOGY

5.1. Osteoarthritis (OA) was formerly considered to be simply a degenerative "wear and tear" process and therefore often misnamed as degenerative joint disease. However, the pathogenesis of OA is much more complex than just wear and tear and the term "osteoarthritis," where "-itis" is indicative of an inflammatory process, is correct.

5.2. Pathological findings in articular cartilage, bone, synovium, and soft tissues are present to varying degrees in all people with OA, suggesting a common response of the joint to a variety of insults.

5.3. Multiple risk factors have been linked to the pathogenesis of OA, including age, joint injury, obesity, genetics, anatomical factors including joint shape and alignment, and gender.

5.4. Proinflammatory factors appear to be driving the production of the proteolytic enzymes responsible for the degradation of the extracellular matrix that results in joint tissue destruction. Although destruction and loss of the articular cartilage is a central component of OA, all joint tissues are affected in some way, indicating that OA is a disease of the whole joint as an organ. While mechanical factors play a key role in OA, excessive or abnormal joint loading also stimulates joint tissue cells to produce proinflammatory factors and proteases that mediate joint tissue destruction.

6. RED FLAGS

6.1. Night sweats

6.2. Appetite loss

6.3. Unintentional weight loss

6.4. Joint swelling/redness and heat

6.5. Early morning stiffness

6.6. Persistent fever of more than 3 weeks

6.7. Night pain

6.8. New onset headaches

6.9. Jaw claudication

6.10. Scalp tenderness

6.11. Significant lethargy

6.12. History of inflammatory bowel disease

6.13. History of recurrent uveitis/iritis

7. CLINICAL MANIFESTATION

7.1. The primary symptoms of osteoarthritis (OA) are joint pain, stiffness, and locomotor restriction. Symptoms usually present in just one or a few joints in a middle-aged or older person. Other manifestations in patients with OA include sequelae such as muscle weakness, poor balance, and comorbidities such as fibromyalgia.

7.2. Symptoms and signs: Symptoms and signs may be asked and/or observed in patients with OA:

7.2.1. Pain – Pain in OA is worse with joint use (usage-related pain) and relieved by rest. It is the most frequent symptom and generally progresses through three stages:

a. Stage 1 – Predictable, sharp pain usually brought on by a mechanical insult that eventually limits high-impact activities with relatively modest effect on function.

b. Stage 2 – Pain becomes more constant and starts to affect daily activities. There may be unpredictable episodes of stiffness.

c. Stage 3 – Constant dull/aching pain punctuated by episodes of often unpredictable, intense, exhausting pain that results in severe limitations in function.

However, not all patients go through such distinct stages, and pain progression may be arrested at any stage.

Pain is generally worse in the late afternoon and early evening but can also be worse in the morning soon after waking up. There may also be night pain in severe OA that can interfere with sleep. In some people, the pain has a burning (neuropathic) quality, is widespread around the joint, and is associated with paresthesia; such features also suggest comorbid

fibromyalgia. Painful periarticular soft-tissue lesions may coexist, especially with large-joint OA. Periarticular soft-tissue lesions cause localized pain away from the joint line, whereas OA-related pain more commonly is most severe over the joint line, except for proximal joints like the hip or the shoulder that may have the maximal pain distal to the originating joint.

7.2.2. Tenderness – Joint-line tenderness suggests articular pathology, while tenderness away from the joint line suggests periarticular soft-tissue pathology.

7.2.3. Limitation of motion – Reduced range of motion (equal for both active and passive movement) mainly results from marginal osteophytes and capsular thickening, but synovial hyperplasia and effusion may also contribute.

7.2.4. Bony swelling – Bony swelling reflects remodeling of the bone and cartilage on either side of the joint and marginal osteophytes, and may be evident in small (e.g., finger interphalangeal, first metatarsophalangeal [MTP]) and large (e.g., knee) joints.

7.2.5. Joint deformity – Deformity is a sign of advanced joint damage. Common examples include squaring and subluxation of the thumb base in first

carpometacarpal (CMC) OA and genu varum in people with advanced tibiofemoral OA.

7.2.6. Instability – Giving way or buckling is a common symptom in knee OA. Occasionally people may stumble and fall, but usually it is a feeling of apprehension and lack of confidence to weight-bear rather than literally "giving way." It is predominantly a sign of muscle weakness with subsequent altered patellar tracking (with lateral patellar subluxation) but may also associate with true joint instability. Similar symptoms are frequently reported by patients with thumb-base OA.

7.3. Joint distribution

Many of the characteristic clinical manifestations of OA are related to the involvement of particular joints. OA can be categorized into localized or generalized forms of the disease.

7.3.1. Single- or multiple-joint osteoarthritis — OA has a predilection for the knees, hips, finger interphalangeal joints, first CMC joints, first MTP joints, and apophyseal (facet) joints of the lower cervical and lower lumbar spine. OA less commonly affects the elbow, wrist, shoulder and ankle. When the elbow, shoulder (especially the acromioclavicular joint), and metacarpophalangeal (MCP) joints are affected, occupations that involve overuse of the upper limbs should be suspected. The symptoms

at these joints are similar to those of OA at other joints; however, joint involvement is more often unilateral.

7.3.2. Generalized osteoarthritis — Generalized OA implies a polyarticular subset of OA typically involving the distal interphalangeal (DIP) joints, thumb bases, first MTP joints, lower cervical and lumbar facet joints, knees, and hips. It is characterized by slow accumulation of multiple joint involvement over several years. Symptoms usually commence in the hands around middle age and subsequently affect the knees and other joints over the next few decades.

7.3.3. The clinical marker for generalized OA is the presence of multiple Heberden nodes, which are posterolateral hard swellings of the DIP joints. Heberden nodes are often accompanied by less well-defined posterolateral swellings of the proximal interphalangeal (PIP) joints referred to as Bouchard nodes . Generalized OA may occur in the absence of nodes, so called non-nodal generalized OA, which is more common in men (compared with nodal generalized OA, which is more common in women). There is no universal definition for the number of joints affected before someone can be classified as having generalized OA, but guidance from the American College of Rheumatology (ACR) and the European League of Rheumatology (EULAR) suggests that generalized OA is

present if there is OA at either the spinal or hand joints, respectively, and in at least two other joint regions.

8. CHARACTERISTICS OF SPECIFIC JOINT INVOLVEMENT

8.1. Many of the characteristic clinical manifestations of osteoarthritis (OA) are related to the involvement of particular joints. As described above, OA has a predilection for the hand, knee, hip, and spine, and less commonly affects the shoulder, elbow, wrist, and ankle.

8.1.1. Hand — Symptoms are usually bilateral, and joint involvement is usually approximately symmetrical. Typical symptoms affect just one or a few joints at a time. Symptoms can be intermittent and target characteristic sites, i.e., distal interphalangeal (DIP) joints, thumb bases, proximal interphalangeal (PIP) joints, and second and third metacarpophalangeal (MCP) joints, in descending order of frequency. Individuals without pain may still report an "aching" or stiffness in the hands.

8.1.2. Nodal osteoarthritis — Heberden and/or Bouchard nodes plus underlying interphalangeal OA constitutes nodal OA. Affected people are frequently women, often with a strong familial predisposition. Symptoms usually start in middle age, typically around menopause, with a stuttering onset of pain, tenderness, and stiffness of one or a few finger interphalangeal joints. At the start, there may be intermittent or

persistent warmth and soft-tissue swelling, but over a period of a few years the involved interphalangeal joints usually become less painful, and signs of inflammation subside, leaving behind firm-hard bony swellings on the posterolateral aspect of the interphalangeal joints, termed Heberden and Bouchard' nodes. Affected interphalangeal joints may show restriction in movement and lateral deviation (radial or ulnar, with most deviations pointing towards the middle finger). Lateral deviation of interphalangeal joints, without instability, is a characteristic feature of nodal OA. Nodes most frequently occur at the index and middle fingers. Fully evolved nodes usually are not painful but may be a cosmetic problem. At the MCP joints, OA mainly targets the second and third MCP joints, most often causing bony enlargement without signs of synovitis. Relatively isolated MCP joint OA sometimes occurs in older men who have had physically demanding occupations ("Missouri metacarpal syndrome")

8.1.3. Erosive osteoarthritis — Erosive OA is an uncommon and particularly aggressive subset of hand OA. It presents with a subacute or insidious onset of pain, stiffness, soft-tissue swelling, and sometimes paresthesia affecting multiple interphalangeal joints (i.e., synchronous polyarticular onset). Compared with nodal hand OA, pain, tenderness, and

inflammation (warmth, soft-tissue swelling, sometimes erythema) are more marked and prolonged, and erosive OA is not associated with generalized OA. Erosive OA targets just interphalangeal joints (the DIP joints more frequently than PIP joints) and usually spares the thumb bases and MCP joints. Erosive OA has worse outcome in terms of symptom persistence and functional impairment than non-erosive hand OA.

8.1.4. Knee — The knee is an important target site for OA and worldwide is the commonest single cause of lower-limb disability in adults over age 50. Knee OA is usually bilateral, although one side may be more severely affected. Pain location may indicate the affected knee compartment. Pain may be anteromedial or more generalized on the medial side in medial-compartment tibiofemoral joint OA or anterior in patellofemoral joint OA. Pain from patellofemoral joint OA is exacerbated by prolonged sitting, standing up from a low chair, and climbing stairs or inclines (coming down often being more painful than going up). More widespread anterior knee pain with distal radiation suggests moderate to severe knee OA, and persistent pain at night that interrupts sleep or rest occurs in advanced OA. Knee OA usually does not cause posterior knee pain unless there is a complicating popliteal (Baker's) cyst. The patients also report

a feeling of "giving way" (especially with patellofemoral joint OA and/or quadriceps weakness) and instability, both of which can associate with falls.

8.1.5. Hip — Hip OA presents with pain, aching, stiffness, and restricted movement. Pain due to hip OA is usually felt deep in the anterior groin but may involve the anteromedial or upper lateral thigh and occasionally the buttocks. Distal radiation is not uncommon, and some individuals present with distal thigh and/or knee pain without any proximal symptoms. However, unlike pain originating from the knee, such hip-referred pain is usually more generalized and may be improved by rubbing the painful area. Pain is exacerbated particularly by rising from a seated position and during the initial phases of ambulation. Unlike knee OA, hip OA is frequently unilateral. Both active and passive hip movements are equally painful. Internal rotation with the hip flexed is frequently the earliest and most affected movement. The typical end-stage deformity of hip OA is external rotation, adduction, and fixed flexion. Wasting of thigh muscles, and shortening of the affected extremity may also be present.

8.1.6. Facet joint — Facet joint OA usually coexists with intervertebral disc degeneration, often loosely termed "spondylosis." It is difficult to isolate

symptoms specifically to facet joint OA. However, lumbar facet joint OA leads to localized lumbar pain, which may radiate unilaterally or bilaterally to the buttocks, groin, and thighs, typically ending above the knees. Symptoms are typically worse in the morning and during periods of activity and are increased by stress, exercise, lumbar spine extension, rotary motions, and when standing or sitting. Similarly, cervical facet joint OA may present with ipsilateral neck pain, which does not radiate beyond the shoulder and is aggravated by neck rotation or lateral flexion. The clinical manifestations of neck and back pain are discussed in detail separately.

8.1.7. First metatarsophalangeal joint — First metatarsophalangeal (MTP) joint OA is usually bilateral, and when symptomatic, leads to localized big-toe pain on standing and during ambulation (especially during the "toe-off" stage of gait). Bony enlargement of the first MTP joint is a common finding. Hallux valgus deformity (when the distal end of big toe points towards the midline of the foot), hallux rigidus (or restricted flexion, and extension at the first MTP joint), and cross-over toes are common deformities. Bony enlargement at the first MTP joint and hallux valgus frequently lead to the development of a complicating bursa with additional fibrous tissue reaction on the medial aspect of the first MTP

joint "bunion". This may get inflamed, for example by rubbing against any footwear. Apart from the first MTP joint, OA also commonly targets the talonavicular joint in the midfoot (aggravated by pes planus) and also the subtalar and tibiotalar joints in the hindfoot.

9. DIAGNOSIS

9.1. Osteoarthritis may be diagnosed without the use of radiography and/or laboratory investigations in the presence of typical symptoms and signs in the at-risk age group.

9.2. Clinical diagnosis — Peripheral joint OA may be diagnosed confidently on clinical grounds alone if the following are present:

9.2.1. Persistent usage-related joint pain in one or few joints

9.2.2. Age ≥45 years

9.2.3. Morning stiffness ≤30 minutes

9.3. The presence of other clinical features of OA add to the diagnostic certainty.

9.4. This approach to a clinical diagnosis is supported by the fact that radiographically assessed structural changes may be present in the absence of symptoms and vice versa.

9.5. Imaging

The diagnosis of OA is a clinical one based on characteristic signs and symptoms described above. When the diagnosis is unclear or important alternative diagnoses

need to be considered, patient should be considered for or referred to have the below imaging modalities but the following should be taken into consideration:

9.5.1. Radiography – this is the most widely used imaging modality in OA and allows for detection of characteristic features of OA including marginal osteophytes, joint space narrowing, subchondral sclerosis, and cysts. Radiographs can also be used to measure joint space narrowing, which is sometimes used as a surrogate measure of cartilage loss. However, radiographic changes in OA are insensitive, particularly with early disease, and often correlate poorly with symptoms. Also, radiographic OA is a common incidental asymptomatic finding in older people.

9.5.2. Magnetic resonance imaging – Magnetic resonance imaging (MRI) is not necessary for most patients with symptoms suggestive of OA and/or typical radiographic features. However, MRI can identify OA at earlier stages of disease before radiographic changes become apparent. These changes include cartilage defects and bone marrow lesions. MRI can also be used to assess pathology in other structures of the joint not visualized by radiography such as effusions, synovium, and ligaments.

9.5.3. Ultrasonography – Ultrasonography is another imaging modality that can identify OA-associated structural changes and is useful for detecting synovial inflammation, effusion, and osteophytosis. Limitations of

ultrasound include that it is operator-dependent and cannot be used to assess deeper articular structures and subchondral bone.

9.6. When to consider additional testing:

9.6.1. Appropriate imaging and laboratory investigations should be carried out in:

a. Younger individuals with joint symptoms/signs of OA.

b. Presence of atypical symptoms and signs such as an unusual site of involvement, symptoms and signs of joint inflammation, marked rest and/or night pain, and rapidly progressive pain

c. Those with knee pain and true "locking," which suggests additional mechanical derangement

9.6.2. Additional laboratory testing may include an erythrocyte sedimentation rate (ESR) or C-reactive protein (CRP). Inflammatory markers are normal in OA and may be useful in excluding other diagnoses. In patients with hand arthralgias and a mix of inflammatory and mechanical joint symptoms, rheumatoid factor (RF) and anti-cyclic citrullinated peptide (CCP) antibodies may be checked to evaluate possible rheumatoid arthritis (RA).

10. DIFFERENTIAL DIAGNOSIS

The differential diagnosis for osteoarthritis (OA) depends largely on the location of the affected site as well as the presence of absence of additional systemic symptoms. The following differential diagnoses should be considered in the appropriate clinical context.

10.1. Rheumatoid arthritis – OA in the middle-aged or older adult patient is most commonly confused with rheumatoid arthritis (RA) when it involves the hand joints. However, the different patterns of clinical involvement will usually lead to the correct diagnosis. The following are examples:

10.1.1. Nodal OA of the hands typically affects the distal interphalangeal (DIP) joints and is frequently associated with the highly characteristic Heberden nodes

a. By contrast, RA typically targets the metacarpophalangeal (MCP) and proximal interphalangeal (PIP) joints, and Heberden nodes are absent. The carpometacarpal (CMC) joint of the thumb is typically involved in OA, rather than the PIP joint in RA. Swelling of the joints is hard and bony in OA; by comparison, soft, warm, and tender joint swelling is typical of RA.

b. Stiffness of the joint is a very common feature of RA, but it is a relatively rare feature of OA. Furthermore, the stiffness of RA is characteristically worse after resting the joint (e.g., morning

stiffness), while the stiffness of OA (if present) is typically worse after any effort and is often described as evening stiffness. Early morning or inactivity-related stiffness lasts for at least 30 minutes in RA, while early morning or inactivity-related stiffness lasts for only a few minutes in people with OA.

c. OA is classically associated with the absence of rheumatoid factor (RF) and antibodies to cyclic citrullinated peptide (CCP). OA is associated with normal levels of acute phase reactants. However, RF may be present, usually in low titer, consistent with the patient's (older) age. In addition, the erythrocyte sedimentation rate (ESR) and serum C-reactive protein (CRP) concentration may be somewhat elevated, usually secondary to a comorbidity.

10.2. Psoriatic arthritis

10.2.1. Psoriatic arthritis targets the DIP joints of the hands, which can be observed in hand OA. However, unlike hand OA, psoriatic arthritis may target just one finger, often as dactylitis, and characteristic nail changes are usually present.

10.3. Crystalline arthritis

10.3.1. Crystalline arthritis (gout and acute calcium pyrophosphate [CPP] crystal arthritis [previously called acute pseudogout]) can become chronic and

even assume a polyarticular distribution involving the fingers, wrists, knees, and other large joints. The diagnosis is established by the finding of urate or CPP crystals, respectively, in synovial fluids. The presence of tophi on physical examination and the characteristic appearance of punched-out juxta-articular gouty erosions are also useful in distinguishing OA from gout .CPP crystal deposition (CPPD) disease can be diagnosed if there is radiographic articular chondrocalcinosis.

10.4. Infectious arthritis

10.4.1. OA of a single joint is usually associated with mild symptoms but can also present as an acutely painful synovitis that may mimic infection. The diagnosis of infectious arthritis is suspected from joint pain that progresses from day to day with inflammatory signs (e.g., effusion, increased warmth, erythema), and is established by culturing the pathogen from the synovial fluid or from the blood. Patients with septic arthritis may or may not appear toxic during assessment, depending upon the stage of their infection, the presence of medications that can mask infection (e.g., glucocorticoids), and other clinical variables.

10.5. Other soft-tissue abnormalities

10.5.1. Other soft-tissue abnormalities around a single joint may mimic OA. As an example, pain from hip OA must be distinguished from labral

impingement and/or tear, avascular necrosis of the femoral head, and developmental hip dysplasia (anterior groin pain); greater trochanter pain syndrome (trochanteric bursitis or tendinitis, enthesitis of gluteus medius, lateral thigh pain); and lumbar radiculopathy, sacroiliac joint dysfunction, and hip extensor or rotator muscle strain (posterior pelvic pain).

11. REFERRAL CRITERIA

11.1. Referral to Emergency Department:

- 11.1.1. Joint swelling/redness and heat
- 11.1.2. Persistent fever of more than 3 weeks
- 11.1.3. New onset headaches
- 11.1.4. Jaw claudication
- 11.1.5. Scalp tenderness
- 11.1.6. History of uveitis/iritis

11.2. Referral to Specialists

- 11.2.1. Night sweats
- 11.2.2. Appetite loss
- 11.2.3. Unintentional weight loss
- 11.2.4. Early morning stiffness
- 11.2.5. Night pain

11.2.6. Significant lethargy

11.2.7. Need to be examined /assessed face to face.

11.2.8. History of inflammatory bowel disease

11.2.9. If NSAIDs are contraindicated and/or patient would benefit from other controlled drugs such as duloxetine.

11.2.10. For intraarticular glucocorticoids (steroid) injection

11.2.11. Not responding to treatments or symptoms are worsening

11.2.12. If patients have severe and disabling symptoms

11.2.13. Requires Imaging such as MRI or CT.

11.2.14. Referral for consideration of joint surgery but take the following points into consideration:

a. Ensure that the person has been offered at least the core (non-surgical) treatment options.

b. Consider referral for joint surgery for people with osteoarthritis who experience joint symptoms (pain, stiffness and reduced function) that have a substantial impact on their quality of life and are refractory to non-surgical treatment.

c. Refer for consideration of joint surgery before there is prolonged and established functional limitation and severe pain.

12. MANAGEMENT

12.1. Refer to APPENDIX 1 for the Virtual Management of Osteoarthritis Algorithm.

12.2. The goals of osteoarthritis (OA) management are to minimize pain, optimize function, and beneficially modify the process of joint damage. The primary aim of clinicians should include targeting modifiable risk factors.

12.3. Management should also be individualized and target modifiable factors contributing to pain, particularly presence of joint malalignment, muscle weakness, overweight and obesity, and concurrent depression. The number of joints involved, presence of articular versus periarticular pain, and the degree of movement restriction and functional impairment should also guide the therapeutic plan.

12.4. Non-pharmacological treatments

Nonpharmacologic interventions are the mainstay of OA management and should be tried first, followed by or in concert with medications to relieve pain when necessary.

12.4.1. Education — Patients should be fully informed about the etiology of OA, risk factors (especially the ones that are modifiable and specific to the patient), and expected prognosis. Clear information about the treatment options along with their benefits, harms, and costs should also be discussed. Providing this information helps to counter common misconceptions and direct the focus of the treatment to the patient,

encouraging an active behavior in the management of their own diseases. Patient education is an essential tool to optimize OA management. A substantial part of the noncompliance with treatment, particularly when it comes to lifestyle changes, may occur due to the limited time that clinicians take to explain the purpose of the interventions and what the patient should expect in terms of pain relief.

a. Exercises have effects of similar magnitude on pain and function compared with NSAIDs. A combination of aerobic and strengthening exercises is usually indicated to address the whole spectrum of disability associated with OA, but optimal prescription should be individualized.
b. Weight loss of at least 10% of body weight through diet and exercises has been associated with a 50% reduction in pain scores in overweight/obese patients with knee OA after 18 months.
c. Walking aids and knee braces for patients with malalignment (tibiofemoral or patellofemoral OA) may improve pain and should be considered as adjunctive treatments. In addition, splints are particularly recommended for the treatment of OA at the base of the thumb

12.4.2. Other alternative therapies — other therapies that have been tried in the treatment of OA include the following:

a. Thermotherapy: The use of local heat or cold should be considered as an adjunct to core treatments.

b. Electrotherapy: The use of TENS as an adjunct to core treatments for pain relief should also be considered.

c. Aids and devices: People with osteoarthritis who have biomechanical joint pain or instability should be considered for assessment for bracing/joint supports/insoles as an adjunct to their core treatments. Assistive devices (for example, walking sticks and tap turners) should be considered as adjuncts to core treatments for people with osteoarthritis who have specific problems with activities of daily living. If needed, seek expert advice in this context (for example, from occupational therapists).

d. Manual therapy: Manipulation and stretching should be considered as an adjunct to core treatments, particularly for osteoarthritis of the hip.

12.4.3. Interventions that should not be offered include:

a. Nutraceuticals: Do not offer glucosamine or chondroitin products for the management of OA.

b. Acupuncture: Do not offer acupuncture for the management of osteoarthritis.

12.5. Pharmacological treatments

12.5.1. Pharmacologic therapy - pharmacologic agents used for patients with symptomatic OA who have not responded adequately to initial non-pharmacologic measures or concomitantly with these interventions for those with more severe symptoms. Pharmacologic therapy should only be used during periods when symptoms are present, since none of the interventions have been shown to be disease-modifying. The main medications used in the pharmacologic management of OA include oral and topical NSAIDs, with topical capsaicin, and intraarticular glucocorticoids being other options depending on the clinical context, as discussed below. The choice of pharmacologic agent used is influenced by the specific joint and number of joints involved, as well as the presence of certain comorbidities. The following describes the general approach to pharmacotherapy:

a. In patients with one or a few joints affected, especially knee and/or hand OA, it is recommended initiating pharmacotherapy with topical NSAIDs due to their similar efficacy compared with oral NSAIDs and their better safety profile. Examples of topical NSAIDs include:

- Ibuprofen Gel, ibuprofen 5%. Dose apply topically up to 3 times daily.
- Ketoprofen Gel, ketoprofen 2.5%. Dose apply 2–4 times daily for up to 7 days (usual max. 15g daily)

b. Oral NSAIDs is recommended in patients with inadequate symptom relief from topical NSAIDs, symptomatic OA in multiple joints, and/or patients with hip OA. It is recommended the use of the lowest dose required to control the patient's symptoms on an as-needed basis. The use of NSAIDs in most patients is limited by the increased risk of serious gastrointestinal, cardiovascular, and renal complications. In patients with comorbidities such as diabetes, hypertension, and advanced age, a cyclooxygenase (COX)-2 selective NSAID or a nonselective NSAID associated with a proton-pump inhibitor should be used, though it is preferred not to use these medications in patients with a high comorbidity risk (e.g., previous gastrointestinal bleeding or chronic renal failure. Examples of NSAID include:

- NSAID (e.g. Ibuprofen , initially 300–400mg 3– 4 times daily; increased if necessary, to max. 2.4g daily; maintenance dose of 0.6–1.2g daily).

c. Topical Capsaicin is a treatment option when one or a few joints are involved and other interventions are ineffective or contraindicated; however, its use may be limited by common local side effects. Dosage instruction is as follow:

   - Capsaicin 0.025% Cream (for symptomatic relief in osteoarthritis), apply sparingly 4 times daily (not more often than every 4 hours). It may need to be used for 1–2 weeks before pain is relieved.

d. Due to safety concerns pertaining to the use of acetaminophen (paracetamol) and increased awareness of its negligible and non-clinically significant effects on pain, this medication is no longer considered the first-line analgesic for the treatment of knee and hip OA by clinical guidelines. However, if NSAID is contraindicated or prescribed for other mild joint pains, then the dosage is as follow:

   - Paracetamol 0.5–1g every 4–6 hours to a max. of 4g daily.

e. It is not routinely recommended nutritional supplements such as glucosamine, chondroitin, vitamin D, diacerein, avocado soybean unsaponifiables (ASU), and fish oil due to lack of clear evidence demonstrating a clinically important benefit from these supplements.

However, a few supplements such as chondroitin, ASU, and fish oil may have small effects on symptoms, and patients with mild disease may benefit more from these therapies.

13. FOLLOW UP FOR MONITORING AND ASSESSMENT

13.1. The management of patients with osteoarthritis (OA) should include a holistic assessment which considers the global needs of the patient. Monitoring of the patient's response to therapy should be done on a regular basis. While a variety of clinical tools have been developed for clinical symptom assessment and monitoring, the evaluation of treatment response is based primarily on the clinical evaluation.

13.2. Periodic monitoring

13.2.1. Periodic clinical assessments should be performed regularly (ideally every three months) to assess the effects of treatment on symptoms, functionality, and status, as well as quantify objective changes in metrics related to interventions such as weight and muscle strength. Assessing the patient periodically enables regular coaching and the reinforcement of the action plan. This also allows for monitoring of treatment effectiveness, side effects, and alterations to the management including referral to specialists if needed.

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APPENDIX 1 – VIRTUAL MANAGEMENT OF OSTEOARTHITIS ALGORITHM