

Pain Management for Osteoarthritis in the Elderly

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Osteoarthritis

- The National Institute on Aging, National Arthritis Foundation, American Academy of Orthopaedic Surgeons, and the National Institute of Arthritis and Musculoskeletal and Skin Diseases in 1994 defined it as a disease process that involves the entire joint-subchondral bone, ligaments, capsule, synovial membrane, and periarticular muscles. Ultimately, the articular cartilage degenerates with fibrillation, fissures, ulceration and full thickness loss of joint surface.

Prevalence of Osteoarthritis

- 50 million people affected
- In 20 years 25% of the population will be affected.
- More than 70% of adults between 55 and 78 suffer from OA
- OA results in 44 million clinician visits and one million hospitalizations each year

Common Sites of OA

- Hand (70%)
- Knee (30%)
- Hip (10%)
- Spine (60%)

Signs and Symptoms of OA

- Gradual onset
- Absence of inflammation (morning stiffness < 30 minutes, minimal heat and swelling)
- Absence of systemic symptoms or signs of an alternative diagnosis
- Joint pain with activity, relieved at rest

Physical Findings of OA

- Painful limitation of movement or at end of range
- Bony crepitus
- Joint effusions
- Joint or bone tenderness with palpation
- Bouchards or Heberdens nodes in the fingers
- Degeneration is generally asymmetric and noninflammatory

Making the Diagnosis of OA

- Radiographic studies to determine extent of joint pathology and to rule out other causes of symptoms
- CT or MRI are used to show more extensive joint detail to rule out tears or tumors.
- Diagnosis can be made solely on signs and symptoms
- Must rule out RA, gout, bursitis, fracture, and pain associated with neurologic and metabolic conditions

Nonpharmacologic Treatments for Osteoarthritis

- Patient EDUCATION is key
- Begin with weight loss
- Good nutrition
- Regular exercise helps reduce pain and improve function because: strong muscles protect joints which will help balance, joint movement will nourish the cartilage, flexible muscles will allow the body to use less painful positions, and exercise helps maintain weight, reduce stress, improve sleep and reduce fatigue.

Nonpharmacologic Treatments

- Recommend walking, swimming, yoga, biking, Pilates or Tai Chi
- Instruct patients that if pain lasts longer than 2 hours after exercise they have done too much
- Apply heat to stiff or painful joints before exercise
- Utilize braces, splints, supports and orthotics to provide rest to the joint

Physical Therapy

- Assess muscle strength, joint stability, and mobility
- Recommends the use of modalities such as heat or ice
- Instructs patients in an exercise program to maintain or improve joint range of motion
- Provides assistive devices such as canes or walkers to improve ambulation

Occupational Therapy

- Instrumental in instructing the patient about proper joint protection and energy conservation
- The use of splints and other assistive devices : jar openers, reachers, key covers.
- Improving joint function
- Assessing and adapting ADL's and IADL's

Nutritional Supplements

- Glucosamine Chondroitin: Recent meta-analysis does not favor their use in OA because they do not delay progression of the disease. Some patients report decrease in pain with use and if so should be considered
- Vitamin D: marketed as helpful in relieving OA pain and repairing structural damage but a recent study by NIH found no such benefits. Is proven beneficial in reducing falls in the elderly

OTC Treatments

- Consider recommending one of the OTC pain relieving gels or creams: Mineral Ice, Icy Hot, Capsaicin, Bengay, Aspercreme, Tylenol Precise
- Pain patches can be useful and last 8 hours: ThermaCare, Icy Hot, Salonpas
- All are for temporary relief of minor aches and pain of muscles and joints
- Contain menthol and salicylate
- Never use heat on top of patches or gels

Nonsteroidal Anti-Inflammatory Drugs (NSAIDS)

- Can provide significant acute relief of pain
- Work by decreasing formation of prostaglandins
- Prostaglandins are produced at sites of injury or inflammation and allow pain receptors to become more sensitive
- By decreasing prostaglandins NSAIDS lessen pain and reduce inflammation

OTC NSAIDS

- Ibuprofen (Advil, Motrin)
- OTC dose is 200mg
- Instruct to take 600mg or 800mg BID to QID with food
- Max dose 2400mg / 24hours
- Appropriate in the elderly for short term use, 1-2 weeks

OTC NSAIDS

- Naproxyn Sodium (Aleve, Naprosyn)
- OTC dose 220mg
- Dosage 1-2 tabs every 8-12 hours
- Max dose 1500mg/ 24 hours
- Appropriate for short term use 1-2 weeks in the elderly

Risk Factors for Upper GI Adverse Events

- Age \geq 65
- Comorbid medical conditions
- Oral glucocorticoids
- History of peptic ulcer disease
- History of upper GI bleed
- Anticoagulants

Side Effects of NSAIDS

- GI upset: consider using PPI or H2 blocker in combination with NSAID
- Fluid retention/edema: Can cause an increase in BP and CHF symptoms
- Renal insufficiency: Monitor creatinine/GFR especially if long term use
- Instruct patients to monitor for S/S of GI bleed: black tarry stools, stomach pains, blood in vomit or stool and notify MD immediately

Analgesic Therapy for OA

- Acetaminophen (tylenol):
- First line treatment especially in the elderly for mild to moderate pain
- Can use up to 3 grams daily in divided doses
- Review different dosages and brands: ES Tylenol, Tylenol Arthritis
- Significantly lower incidence of GI, renal or cardiovascular toxicities

Acetaminophen

- Many OTC products contain Tylenol: actifed plus, anacin, dayquil, robitussin, theraflu, vicks formula 44, sudafed.
- Prescription products that contain Tylenol: endocet, lortab, percocet, tramadol, tylox, vicodin
- Extremely important to go over all meds with elderly residents to make sure tylenol dose does not exceed 3 grams

Acetaminophen

- Liver damage or failure possible with consistent high dosages
- Excessive acetaminophen overloads liver's ability to process the drug safely
- Toxic chemical byproducts build up causing liver damage
- S/S of liver damage present with loss of appetite, nausea, vomiting and are often mistaken for flu symptoms

Prescription NSAIDS

- Naproxen (Naprosyn)
- Dosage 250-500mg po BID or TID
- Max dose 1500mg/24hrs
- Available in tablets, EC tablets, or oral suspension
- Caution long term use in the elderly

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Prescription NSAIDS

- Etodolac (Lodine)
- Dosage 300mg BID or TID or 400-500mg BID
- Max dosage 1200mg/24 hrs
- Available in many different dosages from 200-600mg tab, cap or ER tab

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Prescription NSAIDS

- Diclofenac (Voltaren)
- Dosage 100-150mg in 2-3 divided doses or 100mg ER QD
- Available in topical 1% gel: apply 4grams topically to lower extremities QID or 2grams to upper extremities QID
- Avoid exposure to sunlight and do not apply external heat to gel

Prescription NSAIDS

- Nabumetone (Relafen)
- Dosage 500-750mg BID
- Available in 500 or 750mg tablets

Black Box Warning for NSAIDS

- NSAIDS may cause an increased risk of severe cardiovascular thrombotic events, MI, and stroke which can be fatal.
- NSAIDS can also increase risk of serious GI adverse events especially in the elderly, including bleeding, ulceration, and perforation of the stomach or intestines which can be fatal

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Side Effects of NSAIDS

- GI bleed
- Severe diarrhea
- Hepatotoxicity
- Renal impairment
- Cardiovascular events
- Fluid retention, edema, CHF
- Blood dyscrasias
- Blurred vision

Cox 2 Inhibitors

- Celecoxib (Celebrex)
- Dosage 100mg BID or 200mg QD
- Available in 50mg, 100mg, 200mg and 400mg capsules
- Less GI adverse events
- Same side effects and black box warning as other NSAIDS
- Unable to take if sulfa allergy

Tramadol (Ultram)

- Approved for moderate to severe pain
- Available in 50mg tablets and 100,200,300 mg ER tablets
- Dosage 25-50mg QID
- Also available in Tramadol 37.5/Acetaminophen 325mg (Tramacet)
- Is a centrally-acting opioid analgesic that exerts its effect by binding to mu-opioid receptors and through weak inhibition of norepinephrine and serotonin reuptake

Tramadol

- Common Side Effects: Flushing, pruritis, constipation, nausea, vomiting, dizziness, headache, insomnia
- Serious Side Effects: MI, pancreatitis, anaphylactic reaction, seizure, dyspnea
- Abrupt discontinuation may result in withdrawal symptoms
- Serotonin syndrome may occur with concomitant use of serotonergic drugs

Narcotic analgesics

- Relieve moderate to severe pain by inhibiting release of Substance P in central and peripheral nerves; reducing the perception of pain sensation in brain
- Exact mechanism of action unknown but specific opioid receptors (μ , κ , δ) exist throughout the CNS and play a role in the analgesic effect

Narcotic Analgesics

- Tylenol with codeine
- Approved for mild to moderate pain
- Available in 15/300mg, 30/300mg (#3), and 60/300 (#4)
- Dosage is 300-1000mg tylenol and 15-60mg codeine every 4 hours as needed
- Max dose 360/4000 in 24hrs

Tylenol with Codeine

- Side Effects: nausea, vomiting, constipation, dizziness, lightheadedness, somnolence
- Monitor bowel status closely in elderly, codeine very constipating
- Keep acetaminophen dose to 3000mg in 24 hrs

Narcotic Analgesics

- Hydrocodone/Acetaminophen (Vicodin)
- Approved for moderate to moderately severe pain
- Available in 2.5-10/300-750mg
- Dosage 1-2 tabs every 4-6 hrs as needed
- Keep acetaminophen dose below 3Gms
- Side effects: N/V, constipation, dizziness, lightheadedness, sedation

Narcotic Analgesics

- Oxycodone/acetaminophen (Endocet, Percocet, Roxicet, Tylox)
- Come in many different dosage options from oxycodone 2.5-10mg and acetaminophen 325-650mg
- Indicated for moderate to moderately severe pain
- Dosage usually 1-2 tabs q4h PRN
- Watch acetaminophen max dosage

Narcotic analgesics

- Oxycodone IR
- Dosage 5-15mg every 4-6hrs PRN
- Oxycontin CR
- Dosage: start at 10mg q12hr and increase as tolerated as needed
- Long acting pain medication should be utilized in anyone with chronic pain

Black Box Warning

- Oxycodone hydrochloride is an opioid agonist and scheduled II controlled substance. Abuse potential is high and all patients should be assessed for abuse potential prior to prescribing. All CR preparations should be taken around the clock and not as immediate release. CR preparations should never be crushed.

Narcotic Analgesics

- Side effects of oxycodone: Pruritis, sweating, constipation, nausea, vomiting, dizziness, somnolence, xerostomia, weakness
- Contraindications: bronchial asthma, paralytic ileus, respiratory depression

Narcotic analgesics

- Morphine sulfate
- Dosage 10-30mg q4h PRN
- Extended release morphine (MS contin, Kadian, Avinza, Oramorph)
- Dosage varies greatly based on brand but should always be dosed daily or q12h

Narcotic Analgesics

- Side effects of morphine derivatives: edema, pruritis, sweating, abdominal pain, constipation, nausea, vomiting, loss of appetite, headache, anxiety, depression, urinary retention, fever, hiccoughs

Narcotic Analgesics

- Hydromorphone hydrochloride (Dilaudid)
- Dosage of 2-4 mg every 4-6hrs PRN
- Side effects: flushing, pruritis, constipation, nausea, vomiting, dizziness, headache, somnolence

Narcotic Analgesics

- Fentanyl patch (Duragesic)
- Dosages: 12mcg/hr, 25mcg/hr, 50mcg/hr, 75mcg/hr, and 100mcg/hr
- Effective in elderly, especially 12mcg if chronic pain and unable to swallow long acting preparations
- Change patch q3 days
- Make sure patient has adequate fat stores for application

Adjuncts for Pain Management

- Lidoderm patch: blocks both initiation and conduction of nerve impulses by decreasing ionic flux through the neuronal membrane which results in local anesthesia
- Apply patch to affected area for 12 hrs every 24 hrs
- Not covered by insurance for chronic pain, only PHN

Adjuncts for Pain Management

- Duloxetine HCL (Cymbalta)
- Indicated for the management of chronic musculoskeletal pain and chronic pain due to osteoarthritis
- Cymbalta is a selective serotonin and norepinephrine reuptake inhibitor
- It exerts its pain inhibitory actions by potentiating the serotonergic and noradrenergic activity in the CNS

Adjuncts for Pain Management

- Cymbalta
- Available in 20mg, 30mg, 60mg
- Dosage is 30mg QD for 1 week and then increase to 60mg QD
- Contraindicated for patients with hepatic insufficiency and CrCl <30
- No dosage adjustment for geriatrics

Adjuncts for Pain Management

- Side effects of Cymbalta: diaphoresis, constipation, decrease in appetite, dizziness, diarrhea, nausea, insomnia, somnolence, fatigue, hyponatremia, urinary retention

Viscosupplementation

- Hyaluronic acid therapy involves injecting the joint (knee)
- It is a substance found naturally in joint fluid that helps provide lubrication and cushioning
- Brands include Synvisc, Neovisc, Orthovisc
- Given as injection 1-3 times

Intra-articular steroids

- May help with acute exacerbations of pain for those who have signs of inflammation
- Are useful in elderly for chronic pain relief if surgery not an option
- Can be given every 3 months
- Should be administered by a trained practitioner

Surgery

- Arthroscopic debridement and lavage
- Osteotomy (corrects misalignment by cutting and resecting bone)
- Cartilage transplant (from stem cells or patients own cells)
- Arthroplasty (rebuilding of joint)
- Joint replacement

Joint Replacement

- Indications : Night pain that is unresponsive to anti-inflammatory agents, major inability to perform ADL's, or unacceptable reduction in the ability to walk or work
- 15 year survival of implant is 95%

Treating OA in the Elderly

- Use lowest and least potent medications
- Consider long acting medication when possible
- Monitor closely for adverse events
- Always prescribe laxatives with narcotics
- Utilize rehabilitation
- Consider quality of life

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