North Carolina Department Of Correction
Division Of Prisons

SECTION: Clinical Practice Guidelines

POLICY # CP-1

SUBJECT: Osteoarthritis, Lower extremity

EFFECTIVE DATE: January 2012
SUPERCEDES DATE: June 2007

References

Related ACA Standards **4th Edition Standards for Adult Correctional Institutions 4-4350**

PURPOSE

To assure that DOP inmates with osteoarthritis of the lower extremity are receiving quality Primary Care for their condition.

POLICY

All DOP Primary Care Providers and Chronic Disease Nurses are to follow these guidelines when treating inmates with this chronic disease. Deviations from these guidelines are permissible only on a case by case basis. When deviations are made they must be clearly documented in the medical record along with a clear explanation of the rationale for the deviation.

PROCEDURE

1) **Diagnosis**
   a) Symptoms:
      i) Long standing pain that worsens with weight bearing, climbing stairs, joint motion, and improves with rest
      ii) Insidious onset
      iii) Short lasting stiffness after periods of rest
      iv) Tightness and/or loss of motion of joint(s)
      v) Crepitation on movement
      vi) Effusions that are not warm
      vii) Specific for pain in Hip Arthritis
         (1) Anterior hip and groin is the most common location
         (2) Posterior buttock less common
         (3) Can radiate, often towards the knee
         (4) Difficulty with walking, climbing stairs, getting into and out of vehicle
         (5) Difficulty putting on socks/shoes
   b) Signs
      i) Tenderness of joint particularly along joint line
      ii) Crepitus
      iii) Joint effusions may be present, which typically exhibit a mild pleocytosis, normal viscosity, and modestly elevated protein
      iv) Osteophyte may be palpable as bony enlargements along the periphery of the joint
      v) Pain on range of motion (particularly internal rotation of hip)
      vi) Decreased range of motion (in hip arthritis: Internal rotation < 15 degrees and/or Flexion < 115 degrees)
   c) Diagnostic imaging
      i) Plain radiographs
         (1) **May not be needed if the clinical picture is clear** from the signs and symptoms
         (2) Knee arthritis: Standing AP (weight bearing), lateral, tangential patellar views should be done
         (3) Do not correlate well with the severity of symptoms
      ii) When the diagnosis of osteoarthritis is made **CT and bone scans are not recommended**
      iii) **MRI is usually not indicated** but may be if there is locking or instability of the knee
      iv) Laboratory testing rarely helpful

2) Treatment – Non-pharmacologic: extremely important, is often more effective and should always be tried before or in concert with pharmacologic therapy

a) **Patient Education**
   i) Discuss natural history and expectations
   ii) Joint protection:
      (1) Knee: avoid prolonged standing, squatting, kneeling and stair climbing
      (2) Hip:
         (a) Avoid prolonged standing, squatting, kneeling, bending or twisting at the waist and stair climbing
         (b) Good body mechanics
            (i) Sitting with leg turned out
            (ii) Sleeping on the back with the legs spread apart
            (iii) Sleeping with a pillow between knees
            (iv) Standing with the weight equally distributed between the right and left legs
            (v) Lifting and carrying weight close to the body
            (vi) Positions that cause wide spreading of the legs
      (3) Avoid aggravating activities
         (a) Contact sports
         (b) Stop-and-go sports such as basketball
         (c) Running and jumping

b) **Weight loss**
   i) There is a linear relationship between weight and joint pain
   ii) Even modest loss (10 pounds) can have a significant effect

c) **Stretching** in hip arthritis
   i) Perform daily
   ii) Precede with 10 – 15 minutes in hot shower if possible
   iii) Specific exercises:
      (1) Knee-chest pulls: To perform knee-chest pulls, bend the hip and knee to 90 degrees. Grasp the upper shin and pull the knee onto the chest. Hold this position for 5 seconds and then relax back to 90 degrees. Perform these lying down.
      (2) Figure of four stretch: To perform the figure of four stretch, the foot is placed along side the knee. The leg is gently rocked outward. The higher the foot is raised the greater the stretch.

d) **Exercise**
   i) Low impact aerobics: walking, etc.
      (1) Start with a well tolerated duration that does not significantly worsen pain
      (2) Goal of 30 – 60 minutes per day
   ii) Active range of motion
   iii) Home (unit) exercise, if compliant, works as well as formal physical therapy,
      (1) However a trial of formal physical therapy should be tried before considering surgery
      (2) One or two visits to physical therapy for instruction on a home exercise program may be helpful
   iv) Joint specific exercises:
      (1) Knee: Quadriceps and other muscle strengthening
      (2) Hip:
         (a) *Straight leg raises* (strengthening the hip flexors) are performed while sitting on the edge of a chair or while lying down with the opposite leg bent. The leg is raised 3 to 4 inches off the ground. Sets of 15 to 20 leg raises, each held 5 seconds, are performed daily. With improved strength, these exercises are performed with a 5 to 10 pound weight placed at the ankle
         (b) Leg extensions (strengthening the gluteals) are performed while lying on the stomach or while up on all fours. The leg is raised perfectly straight, 3 to 4 inches off the ground. Sets of 15 to 20 extensions, each held 5 seconds, are performed daily. After 3 to 4 weeks the exercise is performed with a 5 to 10 pound weight added to the ankle. This exercise must be performed flat if there is knee cap irritation or arthriti

e) **Supports**
   i) Light weight knee braces can be prescribed
   ii) Cane in the contralateral hand reduces load on knee
   iii) Lateral or medical heel wedges if there is genu varus or valgus

f) **Heat and cold**
   i) Raise the pain threshold
   ii) Decrease muscle spasm
   iii) Provide analgesia

3) **Treatment – Pharmacologic**

a) **Acetaminophen**
   i) Generally should be the initial analgesic and other analgesics should be added to this.
   ii) Is the safest analgesic
   iii) Studies have shown that it is either **close to or equal to NSAIDs** in analgesia
   iv) If no hepatic disease up to 4.0 grams per day is generally considered safe, however patients with preexisting hepatic disease should limit to $\leq$ 2.0 Grams/day and monitor for additional injury to liver or consider other analgesics.

b) **Nonacetylated salicylate**
   i) Lack the antiplatelet effects or renal toxicity of NSAIDs
   ii) Have ototoxicity and central nervous system toxicity at clinically efficacious doses
   iii) Probably safer then other NSAIDs
   iv) Formulary examples:
      (1) Salsalate 500 – 750 tid or qid
      (2) Diflunisal 250 – 500 bid

c) **NSAIDs**
   i) **Avoid if**
      (1) Age > 65
      (2) Hypertensive
      (3) Diabetic
      (4) Renal disease
      (5) History of GI bleeding
      (6) Patients on aspirin therapy
   ii) **High dosage usually no more effective then low –**

   Recommended dosages:
      (1) Ibuprofen 200 – 400mg tid or qid
      (2) Naproxen 250 – 375mg bid
      (3) Naproxen sodium 220 – 440mg bid – tid
   iii) **Adverse effects**
      (1) GI bleeding
         (a) **PPI and double dose H2 Blockers** (i.e. ranitidine 300 bid) prevent peptic ulcers
         (b) In patients at risk or who have GI symptoms add double dose H2 blocker or PPI if not already taking
      (2) Renal damage
      (3) Elevation of blood pressure
      (4) Fluid retention/peripheral edema
      (5) Interfere with the anti-platelet effects of aspirin
      (6) Possible increased risk of complications from heart disease.

d) **Topical Analgesics**
   i) Studies have been mixed on their effectiveness but they all are a reasonable option and can be used in addition to oral agents

ii) Side effects have primarily been dermatologic and there does not appear to be any serious systemic side effects
iii) Currently available on Formulary: Capsaicin (0.025% and 0.075%) Cream and Analgesic Balm

e) **Tramadol**
i) Provides mild analgesia with little serious risk
ii) Can be used in addition to acetaminophen or NSAIDs
iii) Side effects (nausea, vomiting, dizziness, constipation, tiredness, and headache) are fairly common but are reversible and not life or health threatening
iv) Usual dose: 50-100 mg t.i.d. or q.i.d.
v) Requires UR approval

f) **Intra-articular corticosteroids**
i) Usually provide prompt though short lasting (< four weeks) relief
ii) Are particularly effective if there are signs of acute inflammation
iii) Do not appear to cause any significant joint damage

g) **Viscosupplementation**
i) Relief is comparable to intra-articular corticosteroids or NSAIDs but generally lasts at least six months
ii) Works best on mild to moderate osteoarthritis
iii) **Synvisc and Hyalgan** have the most research supporting their effectiveness
iv) Side effects are rare and usually mild
v) Can and should be prescribed and administered by PCP (procedure is the same as for corticosteroids)
vi) Requires UR approval

h) **Narcotics**
i) **Narcotic therapy is appropriate *as a last resort* for both short term and long-term pain control in selected patients**
ii) Narcotics are generally very effective in controlling pain in osteoarthritis
iii) Should be avoided in patients with a prior history of substance abuse
iv) Common side effects:
(1) Constipation, nausea, daytime drowsiness
(2) Generally are mild and improve with continued therapy and/or can be controlled
v) Dependency
(1) Generally it will occur when high doses are given for more than 30 days
(2) Is to be expected and is not a contraindication to therapy
(3) Dependent patients must be slowly tapered if narcotic therapy is to be discontinued
vi) Addiction
(1) Generally defined as using the drug for purposes other than its primary indication
(2) Patient should be referred for substance abuse counseling and/or treatment if available or mental health evaluation
(3) Rare in appropriately treated patients that do not have a personal or family history of substance abuse
(4) If unsure whether or not a given patient is at risk for addiction, a mental health consultation would be indicated
vii) Serious side effects:
(1) Respiratory depression
(2) Usually can be avoided by starting with low doses and tapering up slowly

4) **Treatment – surgical**
a) Prior to making a surgical referral/consultation the PCP should :
i) Exhaust all above conservative measures
ii) Obtain standing plain x-rays which demonstrate the presence of severe osteoarthritis
iii) Determine that the patient is an appropriate candidate for surgery
iv) Evaluate the surgical risk and find it acceptable
v) Discuss the pros and cons of surgery with the patient and determine that the patient is willing to consider surgery

b) Non joint replacement surgery (generally in knees only)
i) Arthroscopic Debridement
(1) Generally only effective in patients with mechanical symptoms

(2) Has clearly been shown not to be effective in patients whose primary complaint is pain
(3) Most likely to be successful when there is no gross malalignment or instability and there is some remaining cartilage

ii) Osteotomy
(1) There is some evidence that this is an effective treatment for medial compartment arthritis
(2) However, there are no studies that showed that it is superior to other surgical treatments and no studies comparing it to conservative therapy

c) Joint replacement

Because the prosthetic parts can deteriorate over time, it is generally recommend to delay this procedure until it is deemed absolutely necessary. The following criteria must be met for joint replacement:

i) Patient has failed to adequately respond to conservative therapy.
ii) Patients must be a reasonable surgical risk,
iii) Patients must be willing to accept the risks of surgery.
iv) Patient must be unable to perform his daily activities due to significant pain.
v) All conservative measures should have failed.
vi) X-ray demonstrates evidence of advanced damage to the hip.

Paula Y. Smith, M.D. 1/31/12

Paula Y. Smith, MD, Director of Health Services Date

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