

Preconference Form

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Medical Diagnosis/Disease: Osteoarthritis (Surgical Procedure: Total Hip Arthroplasty)

NCLEX IV (8): Physiological Integrity/Physiological Adaptation

Anatomy and Physiology Normal Structures

The hip joint is a ball-and-socket synovial joint formed by the femoral head (ball) and acetabulum (socket).

Articular cartilage covers bone ends to reduce friction and allow smooth movement; synovial fluid lubricates and nourishes the joint cartilage.

Ligaments (iliofemoral, pubofemoral, ischiofemoral) and joint capsule stabilize the joint, while muscles around the hip (glutes, quads, and hamstrings) provide movement, strength, and balance.

Cartilage is avascular*

Blood supply via femoral and obturator arteries nourish the joint.

In normal anatomy, articular cartilage cushions the bones and the synovial fluid lubricates the joint. This allows for smooth movement. In osteoarthritis, this cartilage gradually breaks down, leading to friction, pain, and stiffness.

*After a **total hip arthroplasty (THA)**, prosthetic components replace native bone. This requires precise alignment to prevent dislocation.

As stated above, the normal hip joint functions as a ball-and-socket articulation with cartilage cushioning and synovial fluid reducing friction. In a THA, these damaged structures are replaced with prosthetic components to restore smooth movement and the ability to weight bear.

Pathophysiology of Disease

Osteoarthritis is the most common form of joint disease.

Pathologic changes to note: cartilage softening → fissures → erosion → bone on bone contact*

*Chronic, progressive, noninflammatory

It is a degenerative, noninflammatory joint disease characterized by progressive cartilage breakdown, subchondral bone remodeling, and osteophyte formation.

As the cartilage thins and fissures, the joint space becomes narrow and bone on bone contact increases which causes pain, stiffness, and **limited mobility** (possible nursing problem).

Repetitive mechanical stress, aging, obesity, prior joint injury, and genetic factors all accelerate degeneration.

Over time, adaptive changes like bone spur formation, synovial irritation, and mild secondary inflammation can occur.

When medications, PT, assistive devices and other conservative measures are unsuccessful, THA is indicated to relieve pain and improve functional mobility.

NCLEX IV (7): Reduction of Risk

Anticipated Diagnostics Labs

CBC: to identify infection or possible anemia

BMP: to evaluate renal function and electrolytes

PT/INR, aPTT: to check coagulation status

Type & Screen: prepare for possible

ESR/CRP: detect inflammation

Additional Diagnostics

X-ray: detects narrowing in the joint space, osteophyte formation, and subchondral sclerosis

MRI/CT: looks at cartilage and bone integrity, along with the positioning of the prosthetic

Bone scan

Synovial fluid analysis

NCLEX II (3): Health Promotion and Maintenance

NCLEX IV (7): Reduction of Risk

Contributing Risk Factors

Age (most adults are affected by age 40, but few have symptoms until after age 50).

Female gender (postmenopausal decrease in estrogen)

Obesity (mechanical stress on the body)

Repetitive joint stress from occupation or sport

Prior trauma, fractures, or ligament injuries

Congenital hip dysplasia, leg length discrepancy (cartilage deterioration)

Diabetic neuropathy, muscle weakness

*Preventing OA: avoid smoking, promptly treat joint injury, maintain healthy weight and balanced diet, use safety measures to prevent joint trauma, and exercise regularly for strength and endurance

Signs and Symptoms

Deep, aching joint pain aggravated by activity and relieved by rest

Joint stiffness occurs after periods of rest or inactivity; "gelling" resolves within 30 minutes of movement (this differentiates OA from RA)

Limited joint movement and decreased ability to perform ADLs such as walking, dressing, or climbing stairs

Grating or crackling sounds with joint movement due to friction between cartilage and bone

Joint enlargement, Heberden's nodes (DIP), Bouchard's nodes (PIP), and visible misalignment in advanced stages; hip OA may cause leg length discrepancy or limping

Mild joint effusion may be present; not associated with systemic inflammation (no fever or fatigue).

May occur during chronic pain and sleep disturbance; systemic symptoms (fever, malaise) are not common

*Pain is the primary reason that patients seek care- keep eye out for morning stiffness <30 minutes. OA typically affects **one**

Possible Therapeutic Procedures

Non-surgical

Teach proper use of canes, walkers, and assistive devices to reduce stress on joints

Physical therapy or occupational therapy to encourage movement

Intraarticular corticosteroid injections: provide short term relief with local inflammation

Weight management: reduces stress on weight bearing joints (hips, knees)

Incentive spirometer: the incentive spirometer helps expand the lungs and prevent pneumonia after surgery or periods of immobility. I would instruct them to sit upright, place their lips tightly around the mouthpiece, and inhale slowly and deeply to raise the marker, holding their breath for about 3-5 seconds before exhaling normally. I'd remind them to repeat this 10 times every hour while awake, cough after use to clear secretions, and stop if they feel dizzy or short of breath.

Surgical

Arthroscopic debridement: removal of loose cartilage or bone fragments to improve joint motion

Prevention of Complications

(What are some potential complications associated with this disease process)

OA:

Joint deterioration: Maintain healthy weight, balance rest with activity, and use proper body mechanics to reduce joint stress.

Muscle weakness/ impaired mobility: Encourage daily ROM and low-impact exercise (walking, swimming, yoga) to maintain flexibility and strength.

Pain: Alternate heat (stiffness) and ice (inflammation) and encourage rest

Encourage assistive devices to prevent falls and promote independence.

Emotional: Provide education, coping strategies for OA symptom management

THA:

Infection: Use aseptic technique, monitor temperature and incision site for pain, pallor, erythema, edema, and drainage

Hip dislocation: Use pillow for positioning, do not cross legs

DVT/PE: encourage early ambulation (as ordered by surgeon for THA), encourage leg exercises, apply SCDs/ TEDs, and administer anticoagulants as ordered by provider

Neuromuscular: assess color, temperature, pulses, movement, and sensation

Skin integrity: Assess for pressure injuries, reposition Q2H

Constipation/Urinary retention: encourage mobility, fluids and fiber

Avoid high-impact activity and

side of the body asymmetrically.

Osteotomy: realignment of bone to shift weight-bearing forces

Joint fusion (arthrodesis): fuses joint surfaces

Total Joint Arthroplasty (TJA)/ **Total Hip Arthroplasty (THA):** Replacement of both femoral head and acetabulum with prosthetic components when pain and disability are severe and conservative therapy fails (p. 1700)

reinforce hip precautions to protect against any damage to the prosthetics.

NCLEX IV (6): Pharmacological and Parenteral Therapies

Anticipated Medication Management

Acetaminophen: Analgesic; inhibits prostaglandin synthesis in CNS. Used for mild to moderate pain (max dose 4g daily and assess liver function).

NSAIDs (Ibuprofen, Naproxen): Reduce inflammation and pain by inhibiting COX enzymes which decreases prostaglandin formation.

Topical analgesics (Capsaicin cream): Provide localized pain relief by depleting substance P or reducing inflammation at joint site.

Intraarticular corticosteroid injections: provide short term relief with local inflammation

NCLEX IV (5): Basic Care and Comfort

Non-Pharmacologic Care Measures

Teach the patient to balance rest and activity to reduce the stress on affected joints

Avoid repetitive motions, kneeling, or squatting for long periods

Heat and Ice therapy: heat increases mobility and circulation to improve stiffness; ice is for reducing inflammation

Low impact exercises and ROM exercises to strengthen muscles and increase mobility.

Teach proper use of canes, walkers, and assistive devices to reduce stress on joints

Other low impact therapies like yoga, massages, acupuncture, and fish oils

NCLEX III (4): Psychosocial/Holistic Care Needs

What stressors might a patient with this diagnosis be experiencing?

Physical stressors: chronic joint pain, stiffness, limited ROM, fatigue, and impaired mobility

Functional stressors: Trouble with performing ADLs, fear of falling

Emotional stressors: frustration with diagnosis, depression, anxiety related to chronic pain, loss of mobility, body image changes, and fear of losing independence

Social stressors: not being able to perform at normal level at work, having to pull back from hobbies, and lessen social interactions due to pain level

Financial stressors: Cost of long-term treatments, PT, assistive devices, and medications

Client/Family Education

List 3 potential teaching topics/areas

- importance of adequate rest and activity

NCLEX I (1): Safe and Effective Care Environment

Multidisciplinary Team Involvement

(Which other disciplines do you expect to share in the care of this patient)

- achieve acceptable pain management
- maintaining joint flexibility and muscle strength through joint protection and therapeutic exercise

Managing osteoarthritis requires collaboration among the nurse, provider, PT, OT, pharmacist, dietitian, and social worker to control pain, improve mobility, and help the patient maintain their independence.

After a total hip arthroplasty, the nurse will collaborate with the surgeon, PT, OT, pharmacist, and case manager to ensure safety, pain control, wound healing, and effective rehabilitation.