Preconference Form

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Medical Diagnosis/Disease: MS System/ Osteoarthritis/ THA

NCLEX IV *(8)*: Physiological Integrity/Physiological Adaptation **NCLEX IV *(7)*: Reduction of Risk**

Anatomy and Physiology Normal Structures

Function of Skeletal System: Support, protection of internal organs, voluntary movement, blood cell production & mineral storage

- *Composition*: Bone cells, protein matrix, & mineral deposits
- *Types of Bone Cells*: Osteo-cytes/blasts/ clasts
- *Types of Bones*: Cortical & Cancellous
- *Shapes of Bones*: Long, Short, Flat, Irregular
- Bone is ossified w/ hard crystals of Ca+, Mg, phosphate, & carbonate

Joints: Junction between 2 or more bones

Classified by degree of movement:

- *Synarthroses*: No movement; Bone connected to fibrous tissue or cartilage
- *Amphiarthroses*: Slightly moveable; No joint cavity but cartilage found between bones
- *Diarthroses*: Freely moveable; Consists of articular cavity which is lined with synovium
- *Synovium*: Produces synovial fluid for joint lubrication & cartilage nourishment

Cartilage: Rigid connective tissue w/ a fibrous covering → Avascular & slow to heal

Functions: Support soft tissue, provide articular surfaces for joint movement, & protect underlying tissue

- *Types*: Hyaline, Elastic, & Fibrocartilage

Muscles: Bones cannot move w/o muscle contraction

Types: Smooth, Cardiac, Skeletal (Striated)

Structure: Muscle cell & muscle fiber = structured unit of the muscle

- As thick & thin filaments in sarcomere slide past each other, sarcomeres shorten & muscle contracts
- Energy Source = ATP

Ligaments: Connect bones to bones @ joints

Tendons: Attach muscle to bones

Fascia: Layers of connective tissue that separates one muscle from another

Bursae: Small sacs of connective tissue located wherever pressure is exerted over moving parts

- Cushion between moving parts; Lined w/ synovial membranes & contains synovial fluid

Pathophysiology of Disease

A slowly progressive (degenerative), noninflammatory, non-systemic condition that involves the loss and destruction of articular cartilage with the formation of spurs or osteophytes. It is NOT a normal aging process.

- *Heberden's Nodes:* DIP Joints
- *Bouchard's nodes:* PIP Joints

Characterized by a remodeling of bone due to an active response of chondrocytes in the articular cartilage

Affected cartilage becomes dull, yellow, granular, and softer/ less elastic as condition progresses.

- Cartilage is less able to resist wear

Body's attempts at cartilage repair cannot keep up with the destruction, causing articular surfaces to become cracked and worn

- As central cartilage becomes thinner, cartilage at the joint edges becomes thicker & osteophytes form
- "Bone on bone"

Joint surfaces become uneven, affecting the distribution of stress across the joint, causing ↓ motion

Anticipated Diagnostics Labs

No specific lab tests or biomarkers**

- May be performed before starting Tx's or for screening related conditions

CBC: Overall health status of pt.

Additional Diagnostics

Bone, CT, MRI Scan: Identify early joint changes

XR: Detect joint space narrowing, increased bone density, & osteophytes

Joint Fluid Analysis: Check for inflammation & other causes of pain

H&P/ ROM Assessment

NCLEX II *(3)*: Health Promotion and Maintenance **NCLEX IV *(7)*: Reduction of Risk**

Contributing Risk Factors

Decreased estrogen @ menopause or early menopause

Obesity

Frequent kneeling & stooping (occupational factor)

Smoking

Gender: Women

Frequent joint injuries

Metabolic diseases (DM)

Signs and Symptoms

Most common in ***hips***, knees, finger/ toe joints, & vertebrae

- Often Asymmetric Deformity
- Heberden's & Bouchard's nodes
- Genu Varus/ Valgus

Disability & loss of function

- ***Stiffness*** **

Pain worse w/ activity & in the AM

Mild, localized joint swelling

Crepitation

Possible Therapeutic Procedures

Non-surgical

Drug Therapy: DMOADs, NSAIDs, Topical agents, COX-2 inhibitors, Intraarticular injections

Ice/ Heat therapy

Exercise: ***Gentle ROM*** & Balance exercises

Wt. loss, Bracing, Supplements

Surgical

Hip & knee replacements

Arthrodesis

- Considered for severe loss of function & unmanaged

Prevention of Complications

Cartilage breakdown

- Chondrolysis

Bone Damage: Osteonecrosis

Stress Fx's & ***Risk for falls***

Ligament & tendon damage

Pinched nerves (In the spine)

Bleeding & Infection

Bone spurs

Sleep disruption & increased dependence

Maintain healthy Wt., *exercises regularly, protection of joints*, reducing stress, Vit. D supplements, controlling

Genetics or Bone deformities		pain	blood sugar, healthy dietary habits

NCLEX IV *(6)*: Pharmacological and Psychosocial/Holistic Parenteral Therapies

Anticipated Medication Management
Disease Modifying Osteoarthritic Drugs: Calcitonin, Glucosamine Chondroitin NSAIDs: Ibuprofen/ Salicylates: Aspirin Topical Agents: Aspercreme, Capsaicin COX-2 Inhibitors: Celebrex Corticosteroid intraarticular injections: Depo-Medrol Anti-nerve growth factor antibodies: Tanezumab

NCLEX IV *(5)*: Basic Care and Comfort

Non-Pharmacologic Care Measures
Acupuncture ***Heat/ Cold therapies*** Nutrition Supplements: Fish oil, ginger ***Aerobic/ gentle & ROM exercises*** - Walking! Or PT Rest & joint protection Assistive ambulatory devices

NCLEX III *(4)*: Care Needs

What stressors might a patient with this diagnosis be experiencing?
Pain/ Stiffness ***Inability to independently perform ADLs (Dependency)*** Financial Concerns: loss of income, insurance ***Fear of falling/ r/t injury (Fx)*** ***Fear of complications*** Change in appearance (Swollen joint areas)

Client/Family Education

List 3 potential teaching topics/areas
- ***Proper use of heat/ cold therapy*** @ home for stiffness/ inflammation relief - ***Exercises to perform*** at home: Importance of aerobic, low-impact exercises like walking (Instead of high-impact exercises); PT recommendations - ***Drug Therapy***: What to take, when to take, S/E, how long to take, why to take, etc.

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)
Orthopedic specialist, ***PT/OT***, ***Primary RN,*** Hospitalist, Pharmacist, Dietitian/ Nutritionist, Psychologist/ Psych, Case Manager, Rehabilitation Specialist, Transfer Team, Radiology

Total Hip Arthroplasty

When is this Procedure Recommended?
- Hip pain that limits everyday activities, such as walking or bending
- Hip pain that continues while resting
- Stiffness in a hip that limits mobility
- Inadequate pain relief from anti-inflammatory drugs, PT, or walking supports
- *Purpose*: Pain relief, Improved mobility, and improved function of the hip joint

Pre-Operative Care Considerations:
- Infection should be assessed for & treated prior to surgery
  - ***Prophylactic ABX therapy reduced risk of postoperative wound infection or infection of prosthesis***
- Preoperative education to reduce anxiety & provide realistic expectations of surgery & recovery
- Help pt. remove hearing aids, glasses, or dentures just before transfer to OR

Procedure:
Damaged bone & cartilage is removed & replaced with prosthetic components
- Damaged femoral head is removed & replaced with a metal stem that is placed into the hollow center of the femur
  - Either cemented or "press-fit" into the bone.
- A metal or ceramic ball is placed on the upper part of the stem (This is the replacement of the femoral head).
- The damaged cartilage surface of the socket (acetabulum) is removed & replaced with a metal socket
  - Screws or cement are used to hold the socket in place
- A plastic, ceramic, or metal spacer (AKA- Liner) is inserted between the new ball & the socket to allow for a smooth gliding surface
- *Anterior Versus Posterior*
  - *Anterior*: From the front; Generally leads to faster recovery and less pain
  - **Posterior: Uses curved incision on the side and back of the hip**

Post-Operative Care Considerations
- Assess for infection & VTE/DVT → Frequent NV assessments
- **DO NOT:**
  - ***Flex hip greater than 90-degrees***
  - ***Adduct hip***
  - ***Internally rotate hip***
  - Cross legs at knees or ankles
    - Abducted pillow
  - Put on own shoes for 4-6wks

- Sit on chairs without arms