Care of the Patient with a Musculoskeletal Disorder

Overview of Anatomy and Physiology

- **Functions of the bones**
  - Support
  - Protection
  - Movement
  - Mineral storage
  - Hemopoiesis

- **Functions of the muscles**
  - Motion
  - Maintenance of posture
  - Production of heat
**Rheumatoid arthritis**

**Etiology/pathophysiology**

- **Autoimmune disorder**, but may also be genetic
- **Chronic inflammation of the joints**

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**Rheumatoid arthritis**

**Clinical manifestations**

- Characterized by periods of remission and exacerbation
- Generalized aching
- **Edema and tenderness of joints**
- Limited range of motion (morning stiffness)

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Rheumatoid arthritis of hands.
**Rheumatoid arthritis**
- Laboratory tests
  - Erythrocyte sedimentation rate (ESR)
  - Rheumatoid factor (RF)

**Treatment**
- Medications:
  - Potent antiinflammatory agents
  - Slow-acting antiinflammatory agents
- Exercise: range of motion 2-3 times per day
- Heat: Hot packs, heat lamp, and/or hot paraffin
- Rehabilitation

**Osteoarthritis**
- Degenerative joint disease
  - Non-inflammatory
  - Bones and joints wear out
    - Caused by trauma, infections, previous fractures, rheumatoid arthritis, stress on weight-bearing joints
Osteoarthritis
- Medical management/nursing interventions
  - Heat applications
  - Gait enhancers (canes, walkers, etc.)
  - Medications
    - Salicylates (aspirin), NSAIDs (Motrin), steroids (cortisone)
  - Surgery
    - Joint replacement

Gout
- Etiology/pathophysiology
  - accumulation of uric acid in the blood
  - ineffective metabolism of purines
  - Primary: hereditary factors
  - Affects men more frequently than women
● Less consumption of meat products that have high purine content, such as beef, pork and lamb, as do organs like liver, kidney, and brain, along with gravy enriched with meat extracts.
● Avoid alcohol

● Gout
  ● Clinical manifestations/assessment
    ● Excruciating pain
    ● Edema
    ● Inflammation (most common in the great toe)
    ○ Diagnostic tests
      ● Serum and uric acid level

● Gout
  ● Medical management/nursing interventions
    ● Medications
      • Colchicine, indomethacin (Indocin), corticosteroids, allopurinol (Zyloprim)
Osteoporosis

Etiology/pathophysiology

Reduction of bone mass
Porous and brittle bones

All women are generally at risk for developing osteoporosis due to hormonal changes that occur at menopause. (Hormones control when bone tissue is broken down to access stored calcium.
**Osteoporosis**
- Diagnostic tests
  - Radiography studies
    - Medical management/nursing interventions
      - Calcium supplements, vitamin D
      - Weight-bearing exercises
      - Estrogen, Fosamax
      - Diet: milk and dairy products

**Fibromyalgia syndrome (FMS)**
- Etiology/pathophysiology
  - Chronic Musculoskeletal pain syndrome
  - Unknown etiology
- Clinical manifestations/assessment
  - Widespread pain & tenderness
  - Muscle tension in the shoulders, low back, hips
  - Tension headache

**Fibromyalgia syndrome**
- Diagnostic tests
  - No specific laboratory or radiographic tests diagnose FMS
- Medical management/nursing interventions
  - Patient education and reassurance
  - Tricyclic antidepressants
  - Exercise
  - Relaxation techniques
Surgical Interventions for Total Knee or Total Hip Replacement

- Knee arthroplasty (total knee replacement)
  - Replacement of the knee joint
  - Restore motion of the joint, relieve pain, or correct deformity
- Hip arthroplasty (total hip replacement)
  - Replacement of the hip joint

Figure 44-11

A. Tibial and femoral components of total knee prosthesis. B. Total knee prosthesis in place.


Figure 44-14

Hip arthroplasty (total hip replacement).
Fractures

● Fracture of the hip
  ○ Most common type of fracture
  ○ Clinical manifestations/assessment
    Severe pain at site
    Inability to move the leg voluntarily

Figure 44-16

● Fracture of the hip
  Diagnostic test
    ● Radiographic examination
  Medical management/nursing interventions
    ● Buck’s traction until surgery
    ● Surgical repair
      • Internal fixation
      • Neufeld nail and screws
      • Prosthetic implants
Fracture of the hip

Postoperative interventions
- Maintain leg abduction
- Limit weight-bearing on affected side
- Chairs and commode seats should be raised to prevent flexion of hip beyond 60 degrees

Fracture of the vertebrae

Etiology/pathophysiology
- Diving accidents
- Blows to the head or body
- Osteoporosis
- Metastatic cancer
- Motorcycle and car accidents
Fracture of the vertebrae

Clinical manifestations/assessment
- Pain at site of injury
- Partial or complete loss of mobility or sensation
- Evidence of fracture/fracture dislocation on x-ray

Medical management/nursing interventions
- Stable injuries
  - Pain medication, muscle relaxants
  - Back support, brace, or cast
- Unstable fractures
  - Traction, open reduction

Fracture of the Pelvis

Etiology/pathophysiology
- Falls, automobile accidents, crushing accidents

Clinical manifestations/assessment
- Unable to bear weight without discomfort

Medical management/nursing interventions
- Bedrest—More severe fractures may require surgery and/or spica or body cast

Traumatic Injuries

- Contusion: A blow or blunt force which causes local bleeding under the skin
- Sprains: Wrenching or hyperextension of a joint
- Strains: Microscopic muscle tears as a result of overstretching muscles and tendons
Traumatic Injuries

- Contusions, sprains, whiplash, strains

Medical management/nursing interventions
- Elevate injured area
- Cold compresses for 15-20 minutes intermittently for 12-36 hours
- Warm compresses for 15-30 minutes four times a day after 24 hours

Traumatic Injuries

- Carpal tunnel syndrome

Etiology/pathophysiology
- Compression of the median nerve between the carpal ligament and other structures
- Predisposing factors
  - Occupations involving repetitious motions of the fingers and hands

(From Thompson, J.M., et al. [2002]. Mosby's clinical nursing. 5th ed. St. Louis: Mosby.)

A, Wrist structures involved in carpal tunnel syndrome. B, Decompression of median nerve.
Traumatic Injuries

- Carpal tunnel syndrome
  - Clinical manifestations/assessment
    - Burning pain or tingling in the hands
    - Inability to grasp or hold small objects
    - Edema of the hand, wrist, or fingers

Kyphosis
A rounding of the thoracic spine
Hump-backed appearance

Scoliosis
Lateral curvature of the spine
Lordosis
An increase in the curve at the lumbar region

Normal spine  Lordosis of the spine

Exaggerated lumbar curve