

Osteoarthritis

Risk

- Most common type of arthritis with significant disease burden.
- Globally, affects 9.6% of men and 18% of women ≥ 60 y old and is ranked as top 11th cause of disability (global years lived with disability).
- Common presentations are pain, stiffness, and limitation of movement.
- Most commonly affected joints are the knees (41%), hips (19%), small hand joints (30%), and facet joints in the spine.

Perioperative Risks

- Associated conditions: Obesity, DM, hypothyroidism, hyperparathyroidism, and gout
- Concomitant medication: Acetaminophen, NSAIDs, COX-2 inhibitors, and intraarticular steroid injections
- Airway: Rarely affected (neck or jaw)

Worry About

- Obesity and geriatric population
- Positioning concerns due to joint pain and stiffness
- Possible associated metabolic conditions (DM and hypothyroidism) or sleep apnea
- Adverse effects of medications: NSAIDs: Platelet function; effect on cardiovascular, renal, and GI systems. Steroid injections: HPA and immunity suppression, hyperglycemia, hypertension, myopathy, osteoporosis. Acetaminophen: Liver function. Opioids: Daily analgesic requirements may need to be escalated throughout periop treatment

Overview

- Pathologic features of OA: Focal areas of damage to the articular cartilage, new bone formation at the joint margins (osteophytes), changes in the subchondral bone (subchondral cysts), variable degrees of synovitis, and thickening of the joint capsule

- Radiologic features of OA: Joint-space narrowing, osteophytes, subchondral cysts, intra-articular osseous bodies, and subchondral bone collapse (late finding)
- Risk factors: Age, female sex, obesity, trauma, and high-impact activities/sports

Etiology

- Autosomal dominant in some with co-segregation of OA with a mutation in type II procollagen gene

Usual Treatment

- Conservative therapy: Weight loss; PT; exercise and lifestyle change to maintain function and mobility; analgesics (acetaminophen and NSAIDs)
- Injections: Intra-articular steroid or viscosupplement injections
- Arthroscopic surgery; joint preserving (osteotomy/resurfacing) or replacement surgery

Assessment Points

System	Effect	Assessment by Hx	PE	Test
HEENT	Rare C-spine involvement	Pain	Neck ROM	Usually not needed C-spine x-rays
CV	Age-related changes	Exercise tolerance may be limited by joint changes	HR and tolerance to two-flight stair climb	ECG CXR ECHO
RESP	Sleep apnea	Daytime somnolence and morning headache		Sleep study
GI	Sensitivity to NSAIDs	Gastric upset		
ENDO	Associated diabetes			FBS
CNS	Age-related changes	TIAs or stroke		
MS	Multiple joint involvement	Joint pain	Joint ROM	
RENAL	Age-related changes			Cr

Key References: National Clinical Guideline Centre (UK): *Osteoarthritis: care and management in adults*. Clinical Guideline CG177, United Kingdom, 2014, Commissioned by the National Institute for Health and Care Excellence; Zhang Y, Jordan JM: Epidemiology of osteoarthritis, *Clin Geriatr Med* 26(3):355–369, 2010.

Perioperative Implications

Preoperative Preparation

- Common surgical procedures: Arthroscopy and arthroplasty
- IV access, airway management, and neuraxial anesthesia: May be difficult
- Checking platelet function
- Consideration of regional anesthetic techniques
- Evaluation for periop steroid supplementation in pts who have received multiple steroid injections recently

Monitoring

- Routine

Airway

- Assess neck ROM.

Induction

- Age-related considerations: elderly pts may have slow circulation times, CV disease, and fluctuations in BP.

Maintenance

- Position with consideration of other joint involvement.

Extubation

- No special considerations

Adjuvants

- Elderly pts may be more sensitive to opioids; NSAIDs may be contraindicated.

Postoperative Period

- Consider continuous regional technique with local anesthetic and/or opioids for pain management.

Anticipated Problems/Concerns

- Usually neck and airway normal
- Concomitant risk factors, especially obesity and aging
- Often involving several joints with pain and decreased ROM
- Regional anesthesia preferable over general anesthesia

Osteogenesis Imperfecta

Klaus Morales dos Santos

Risk

- Incidence: OI occurs in 1:10,000-20,000 live births.

Perioperative Risks

- Owing to the fragility of bones, caution is needed in positioning or transporting these pts.
- Excessive neck extension may lead to fracture.
- Scoliosis may cause difficulty with regional anesthesia.
- High risk for difficult intubation.
- Temperature control; tendency toward hyperthermia due to a hypermetabolic state.
- Cardiac events (pts may have cardiac abnormalities).

- Consider advanced monitoring in case of cardiac lesions (valvulopathy).
- Coagulopathy may be present owing to reduced collagen-induced platelet aggregation.

Worry About

- Difficult mask ventilation due to bone deformities
- Difficult intubation
- Temperature regulation
- Positioning and monitoring

Overview

- Inherited disease of connective tissue with tendency to bone fractures

- Brittle teeth (dentinogenesis imperfecta), blue sclerae, progressive deafness
- Bone fragility leading to major complications

Etiology

- There are now 10 types of OI; most are due to a dominant mutation in one of the two genes encoding collagen type 1 (*COL1A1* and *COL1A2*).
- Most cases are genetically heterozygous.
- There are mild and severe forms; type II is incompatible with life.