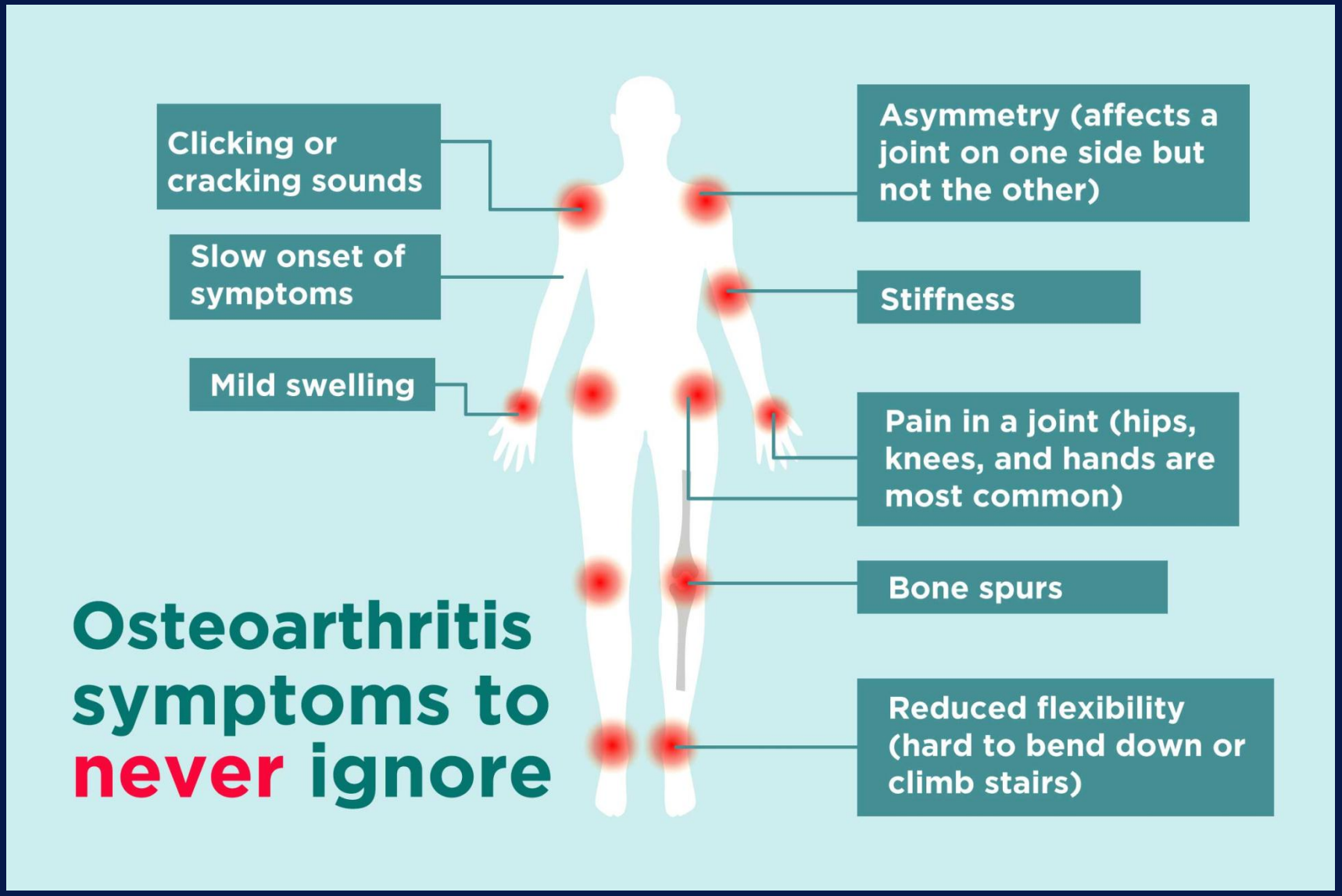
# Pharmacotherapy of osteoarthritis

*Dr. Romany Helmy Thabet, PhD*

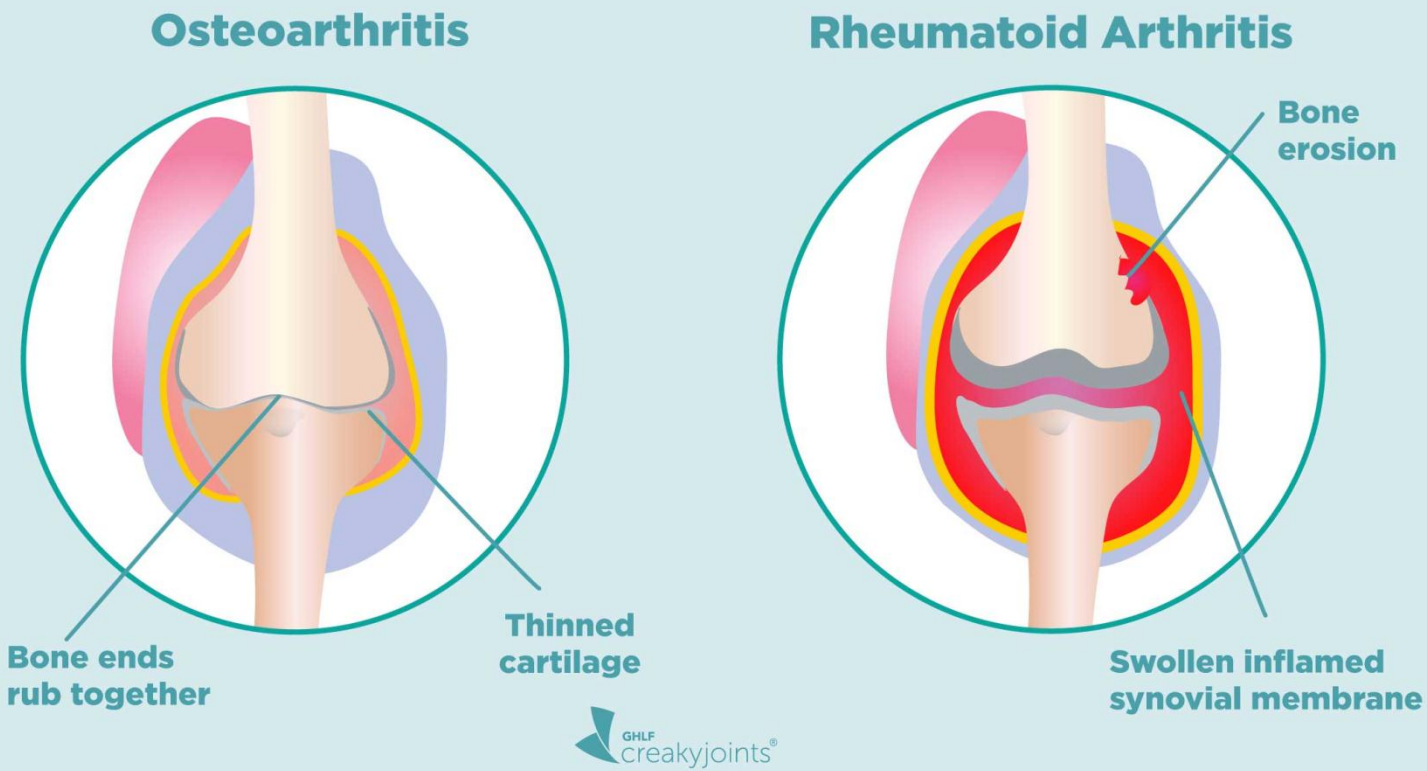

Clicking or cracking sounds
Slow onset of symptoms
Mild swelling
Asymmetry (affects a joint on one side but not the other)
Stiffness
Pain in a joint (hips, knees, and hands are most common)
Bone spurs
Reduced flexibility (hard to bend down or climb stairs)
Osteoarthritis symptoms to never ignore

## Distinction between rheumatoid arthritis and osteoarthritis

| Feature | Rheumatoid arthritis | Osteoarthritis |
|---|---|---|
| Primary joints affected | Metacarpophalangeal | Distal interphalangeal |
| | Proximal interphalangeal | Carpometacarpal |
| Heberden's nodes | Absent | Frequently present |
| Joint characteristics | Soft, warm, and tender | Hard and bony |
| Stiffness | Worse after resting (eg, morning stiffness) | If present, worse after effort, may be described as evening stiffness |
| Laboratory findings | Positive rheumatoid factor | Rheumatoid factor negative |
| | Positive anti-CCP antibody | Anti-CCP antibody negative |
| | Elevated ESR and C reactive protein | Normal ESR and C reactive protein |

CCP: cyclic citrullinated peptide

# Osteoarthritis vs. Rheumatoid Arthritis in the Joint



# Management of OA

- Establish the diagnosis of OA on the basis of history and physical and x-ray examinations
- Decrease pain to increase function
- Prescribe progressive exercise to
  - Increase function
  - Increase endurance and strength
  - Reduce fall risk
- Patient education: Self-Help Course
  - Weight loss
  - Heat/cold modalities

# Pharmacologic Management of OA

- Nonopioid analgesics
- Topical agents
- Intra-articular agents
- Opioid analgesics
- NSAIDs
- Unconventional therapies

# Nonopioid Analgesic Therapy

- First-line—Acetaminophen
  - Pain relief comparable to NSAIDs, less toxicity
  - Beware of toxicity from use of multiple acetaminophen-containing products
  - Maximum safe dose = 4 grams/day

# Nonopioid Analgesic Therapy (cont'd)

- NSAIDs
  - Use generic NSAIDs first
  - If no response to one may respond to another
  - Lower doses may be effective
  - Do not retard disease progression
  - Gastroprotection increases expense
  - Side effects: GI, renal, worsening CHF, edema
  - Antiplatelet effects may be hazardous

# Nonopioid Analgesics in OA

- Cyclooxygenase-2 (COX-2) inhibitors
  - Pain relief equivalent to older NSAIDs
  - Probably less GI toxicity
  - No effect on platelet aggregation or bleeding time
  - Side effects:  Renal, edema
  - Older populations with multiple medical problems not tested
  - Cost similar to generic NSAIDs plus proton pump inhibitor or misoprostol

# Nonopioid Analgesics in OA (cont'd)

- Tramadol
  - Affects opioid and serotonin pathways
  - Nonulcerogenic
  - May be added to NSAIDs, acetaminophen
  - Side effects: Nausea, vomiting, lowered seizure threshold, rash, constipation, drowsiness, dizziness

# Opioid Analgesics for OA

- Codeine, oxycodone
  - Anticipate and prevent constipation
  - Long-acting oxycodone may have fewer CNS side effects
- Propoxyphene
- Morphine and fentanyl patches for severe pain interfering with daily activity and sleep

# Topical Agents for Analgesia in OA

- Local cold or heat: Hot packs, hydrotherapy
- Capsaicin-containing topicals
  - Use well supported by evidence
  - Use daily for up to 2 weeks before benefit
  - Compliance poor without full instruction
  - Avoid contact with eyes
- Liniments = methyl salicylates
  - Temporary benefit

# OA: Intra-articular Therapy

- Intra-articular steroids
  - Good pain relief
  - Most often used in knees, up to q 3 mo
  - With frequent injections, risk infection, worsening diabetes, or CHF
- Joint lavage
  - Significant symptomatic benefit demonstrated
- Hyaluronate injections*
  - Symptomatic relief
  - Improved function
  - Expensive
  - Require series of injections
  - No evidence of long-term benefit
  - Limited to knees

# OA: Unconventional Therapies

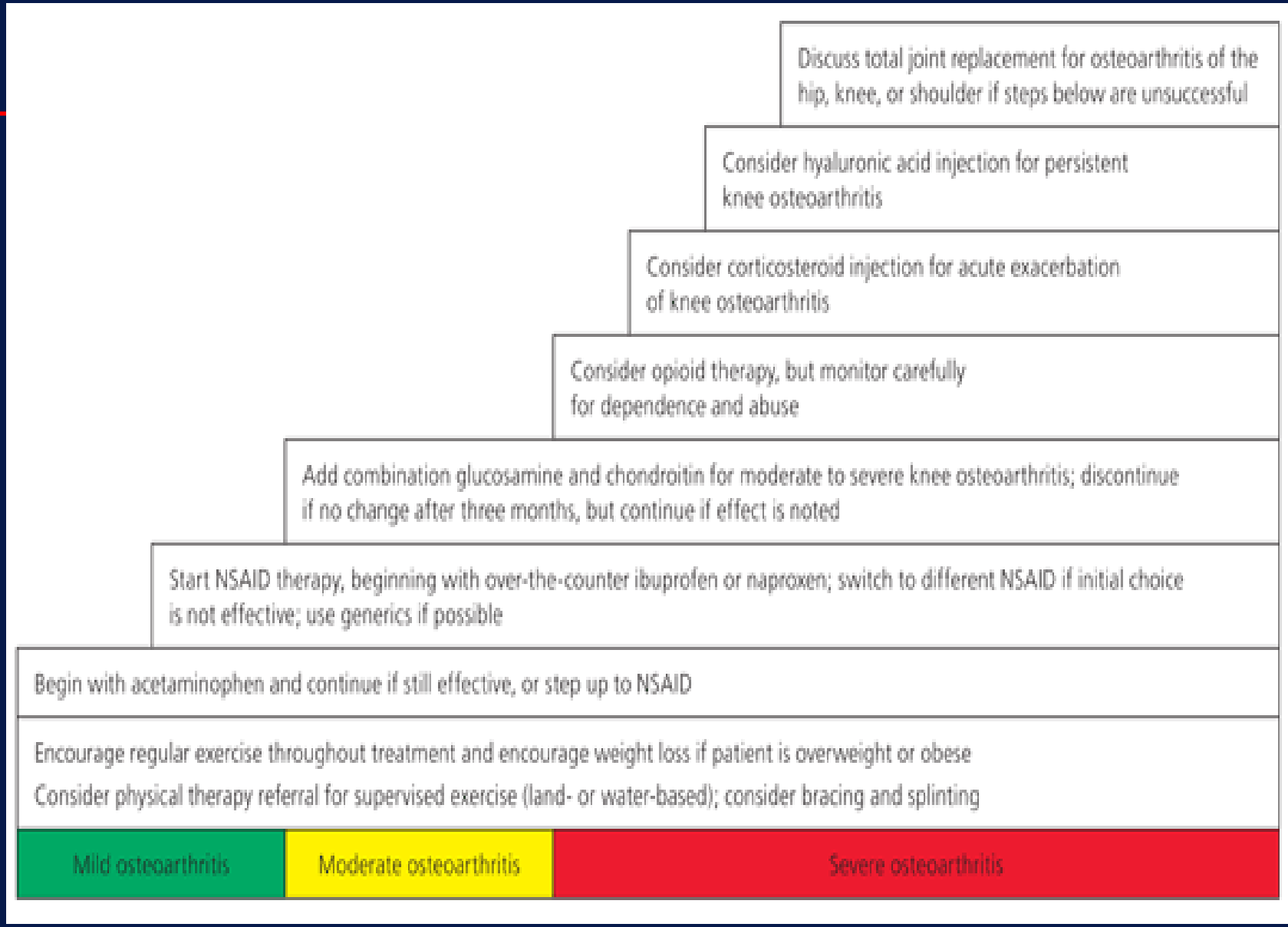
- Polysulfated glycosaminoglycans—nutriceuticals
  - Glucosamine +/- chondroitin sulfate: Symptomatic benefit, no known side effects, long-term controlled trials pending
- Tetracyclines as protease/cytokine inhibitors
  - Under study
  - Have disease-modifying potential

# OA: Management Summary

- First: Be sure the pain is joint related (not a tendonitis or bursitis adjacent to joint)
- Initial treatment
  - Muscle strengthening exercises and reconditioning walking program
  - Weight loss
  - Acetaminophen first
  - Local heat/cold and topical agents

# OA: Management Summary (cont'd)

- Second-line approach
  - NSAIDs if acetaminophen fails
  - Intra-articular agents or lavage
  - Opioids
- Third-line
  - Arthroscopy
  - Osteotomy
  - Total joint replacement


Discuss total joint replacement for osteoarthritis of the hip, knee, or shoulder if steps below are unsuccessful
Consider hyaluronic acid injection for persistent knee osteoarthritis
Consider corticosteroid injection for acute exacerbation of knee osteoarthritis
Consider opioid therapy, but monitor carefully for dependence and abuse
Add combination glucosamine and chondroitin for moderate to severe knee osteoarthritis; discontinue if no change after three months, but continue if effect is noted
Start NSAID therapy, beginning with over-the-counter ibuprofen or naproxen; switch to different NSAID if initial choice is not effective; use generics if possible
Begin with acetaminophen and continue if still effective, or step up to NSAID
Encourage regular exercise throughout treatment and encourage weight loss if patient is overweight or obese
Consider physical therapy referral for supervised exercise (land- or water-based); consider bracing and splinting
Mild osteoarthritis
Moderate osteoarthritis
Severe osteoarthritis


Thank
You