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Article

- AMSSM scientific statement of viscosupplementation
  - **American Medical Society for Sports Medicine, AMSSM** has over 2100 non surgical sports medicine physicians from FM, IM, ER, Peds and PM&R
- Osteoarthritis is one of leading causes of disability
  - Lifetime risk Knee OA estimated to be 44.7%, approximately 1 in 11 of US population is diagnosed with symptomatic knee OA by age of 60

Article Basics

- Used Outcome Measures in Rheumatioid Arthritis Clinical Trials – Osteoarthritis Research Society International (OMERACT-OARSI) criteria
  - Basically a criteria developed 2004 that can help determine the effects of treatments (meds, rehab etc.) on ARTHRITIS
  - The symptomatic variables selected by both the OMERACT and OARSI societies were:
    1. Pain
    2. Functional impairment
    3. Patient's global assessment

OMERACT – OARSI criteria

OMERACT- OARSI set of responder criteria

High improvement in pain or in function ≥50%
and absolute change ≥20

⇙ Yes ⇩ Response

⇘ No ⇩

Improvement in at least 2 of the 3 following:

- pain ≥20% and absolute change ≥10
- function ≥20% and absolute change ≥10
- patient's global assessment ≥20% and absolute change ≥10

⇙ Yes ⇩ Response

⇘ No ⇩ No Response

WOMAC index

- WOMAC index or Western Ontario and McMaster Universities Osteoarthritic Index is used to assess the course of disease or response to treatment in patients with knee or hip osteoarthritis.

- WOMAC measures of three subscales on a scale of 0-4.

  [None – 0, Mild – 1, Moderate – 2, Severe – 3, Extreme – 4]

- It measures total of 24 items and offers 5 responses for each item measured. Recall period for items is 48 hours. Three subscales are
  - Pain severity during various positions or movements, 5 items
  - Severity of joint stiffness , 2 items
  - Difficulty performing daily functional activities, 17 items

WOMAC index

Pain		0	1	2	3	4
	1. Walking	0	1	2	3	4
	2. Stair Climbing	0	1	2	3	4
	3. Nocturnal	0	1	2	3	4
	4. Rest	0	1	2	3	4
	5. Weight bearing	0	1	2	3	4

Stiffness						
	1. Morning stiffness	0	1	2	3	4
	2. Stiffness occurring later in the day	0	1	2	3	4

Physical Function						
	1. Descending stairs	0	1	2	3	4
	2. Ascending stairs	0	1	2	3	4
	3. Rising from sitting	0	1	2	3	4
	4. Standing	0	1	2	3	4
	5. Bending to floor	0	1	2	3	4
	6. Walking on flat surface	0	1	2	3	4
	7. Getting in / out of car	0	1	2	3	4
	8. Going shopping	0	1	2	3	4
	9. Putting on socks	0	1	2	3	4
	10. Lying in bed	0	1	2	3	4
	11. Taking off socks	0	1	2	3	4
	12. Rising from bed	0	1	2	3	4
	13. Getting in/out of bath	0	1	2	3	4
	14. Sitting	0	1	2	3	4
	15. Getting on/off toilet	0	1	2	3	4
	16. Heavy domestic duties	0	1	2	3	4
	17. Light domestic duties	0	1	2	3	4

Study Conclusions

- On NMA, those participants receiving HA were 15% and 11% more likely to respond to treatment by OMERACT-OARSI criteria than those receiving IAS or IAP respectively ($p<0.5$ for both)

- AMSSM ***RECOMMENDS*** the use of HA for the appropriate patients with Knee OA

CONTROVERSY!!??

- American Academy of Orthopedic Surgery, AAOS –

9. We cannot recommend using hyaluronic acid for patients with symptomatic osteoarthritis of the knee.

Strong

Summary of Recommendations: AAOS Clinical Practice Guideline 2014 on the Treatment of Osteoarthritis of the Knee (Non-arthroplasty)

- 1. We **recommend** that patients with symptomatic osteoarthritis of the knee participate in self-management programs, strengthening, low-impact aerobic exercises, and neuromuscular education; and engage in physical activity consistent with national guidelines. ***Strong***

- 2. We suggest weight loss for patients with symptomatic osteoarthritis of the knee and a BMI ≥ 25. ***Moderate***

- 7a. We recommend nonsteroidal anti-inflammatory drugs (NSAIDs; oral or topical) or Tramadol for patients with symptomatic osteoarthritis of the knee. *Strong*

AAOS 2014 – recommendations cont'd

- 3a. We cannot recommend using acupuncture in patients with symptomatic osteoarthritis of the knee. **Strong**
- 3b. We are unable to recommend for or against the use of physical agents (including electrotherapeutic modalities) in patients with symptomatic osteoarthritis of the knee. **Inconclusive**
- 3c. We are unable to recommend for or against manual therapy in patients with symptomatic osteoarthritis of the knee. **Inconclusive**
- 5. We cannot suggest that lateral wedge insoles be used for patients with symptomatic medial compartment osteoarthritis of the knee. **Moderate**

AAOS 2014 recommendations cont'd

- 7b. We are unable to recommend for or against the use of acetaminophen, opioids, or pain patches for patients with symptomatic osteoarthritis of the knee. **Inconclusive**
- 8. We are unable to recommend for or against the use of intraarticular (IA) corticosteroids for patients with symptomatic osteoarthritis of the knee. **Inconclusive**
- 9. We cannot recommend using hyaluronic acid for patients with symptomatic osteoarthritis of the knee. **Strong**
- 10. We are unable to recommend for or against growth factor injections and/or platelet rich plasma for patients with symptomatic osteoarthritis of the knee. **Inconclusive**

CASE SCENARIOS

1. A patient in there 20's presents with acute/chronic knee pain (knee pain of 3-6 months) worse with stairs, sitting vague behind knee cap

2. A patient in their 50's presents with chronic knee pain worse with walking and day to day activities

3. A patient in their 80's presents with chronic knee pain not a good surgical candidate for knee replacement

CASE #1 – Patient in their 20's

- History
  - Anterior knee pain in knee with stairs, prolonged sitting, walking

  → likely patellofemoral syndrome

  - Pain with exercise

  → likely patellofemoral, patella tendonitis or quad tendonitits (depends on area of pain)

- WARNING
  - Any swelling in knee especially after injury
  - Catching/Locking
  - Instability – feel like knee is "loose"
  - Discuss with Au/Jean-Pierre or refer to Orthopedic Surgery

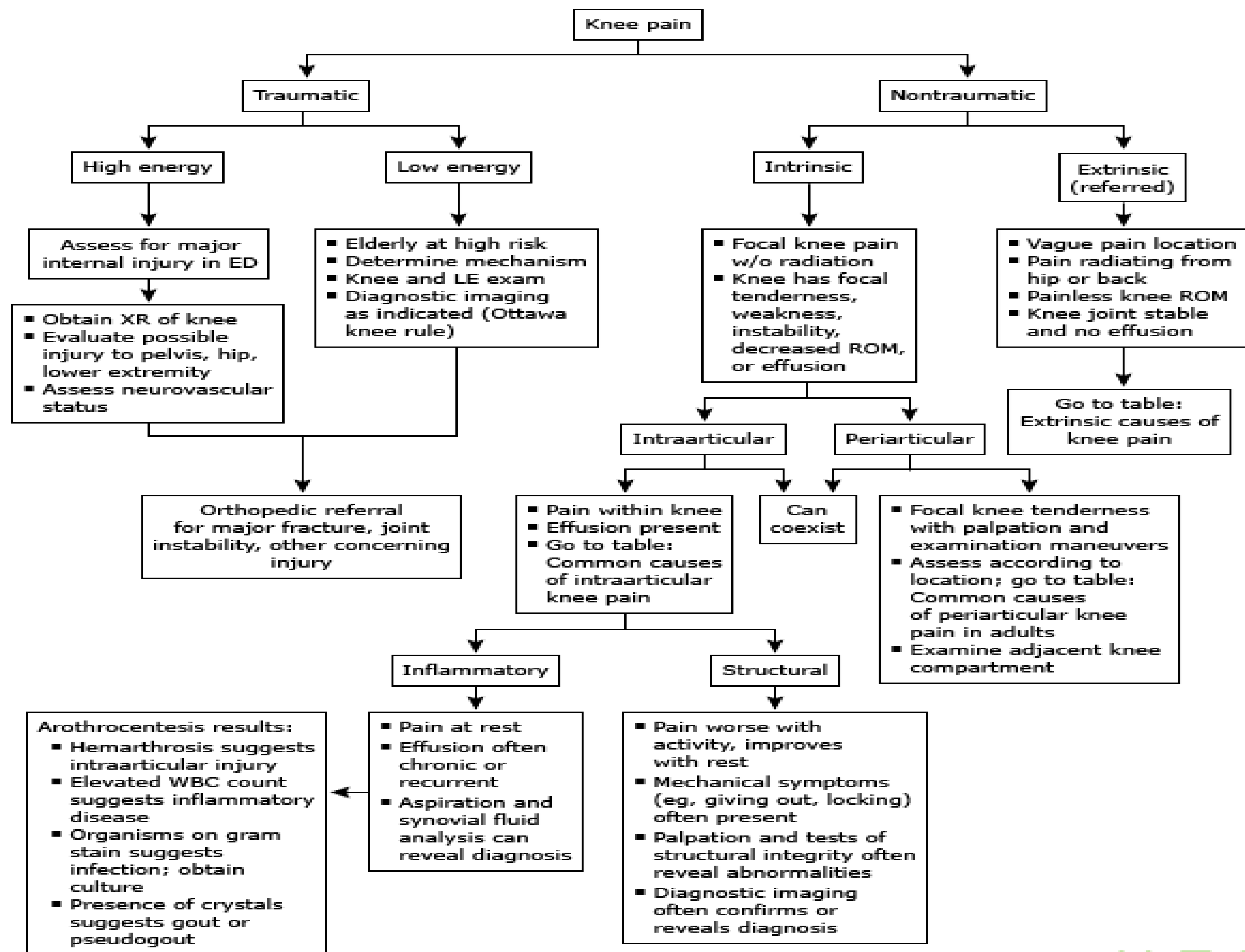
Case #1 – Patient in their 20's

- TREATMENT
  - ICE – Rarely do patients ice, 20 minutes at a time at least twice a day with acute pain
  - NSAIDS – I use Aleve 2 tablets twice a day ALWAYS with food and never on an empty stomach for 3 days (tell them to pick up immediately after office visit and take with breakfast or with dinner) can go up to 5 days if the symptoms are more chronic/knee is very inflamed.
    - After the 3-5 day recommendation I advise patients use it PRN, not just once but usually at least 3 doses q12

Musculoskeletal causes of acute non traumatic knee pain in active adults

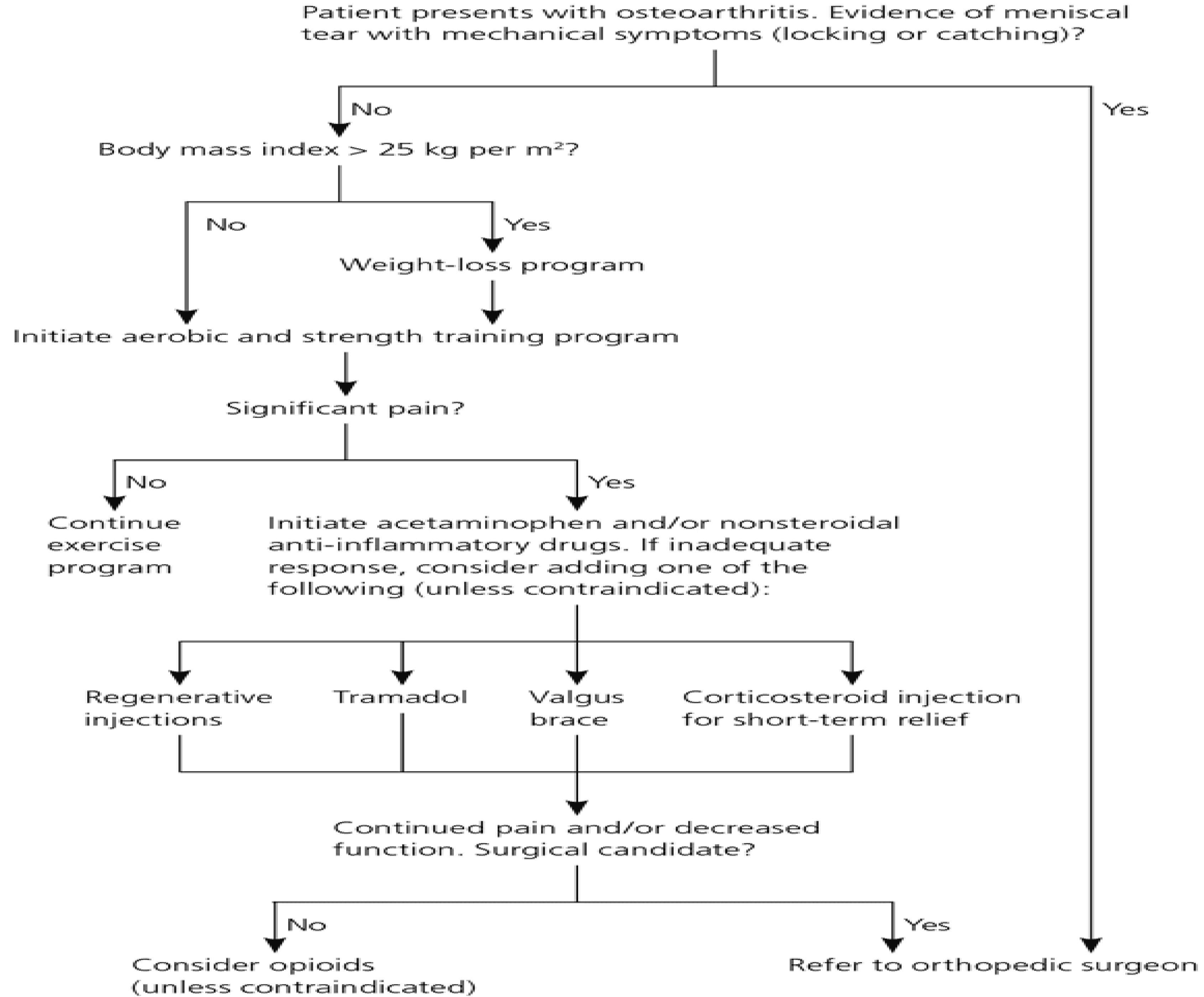
No acute trauma, but abrupt onset or increase in pain
Presence of ligamentous instability strongly suggests traumatic injury and is NOT consistent with the diagnoses listed below
Effusion may be present

Anterior knee pain	Medial knee pain	Generalized knee pain	Lateral knee pain	Posterior knee pain
Patellofemoral pain syndrome	Pes anserine bursitis or tendinopathy	Osteoarthritis flare	Iliotibial band syndrome	Ruptured popliteal (Bakers) cyst
Patellar tendinopathy	Degenerative meniscus	Degenerative meniscus	Degenerative meniscus	Semimembranosus-gastrocnemius bursitis
Quadriceps tendinopathy	Medial hamstring tendinopathy or bursitis		Lateral hamstring (biceps femoris) tendinopathy	
Prepatellar or infrapatellar bursitis	Medial plica syndrome		Popliteus tendinopathy	
Osgood Schlatter or Sinding Larsen Johansson syndrome				

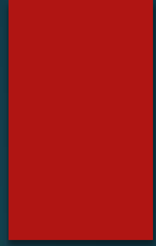

Algorithm for diagnosis of knee pain in adults
Knee pain
Traumatic
Nontraumatic
High energy
Low energy
Intrinsic
Extrinsic (referred)
Assess for major internal injury in ED
Obtain XR of knee
Evaluate possible injury to pelvis, hip, lower extremity
Assess neurovascular status
Elderly at high risk
Determine mechanism
Knee and LE exam
Diagnostic imaging as indicated (Ottawa knee rule)
Focal knee pain w/o radiation
Knee has focal tenderness, weakness, instability, decreased ROM, or effusion
Vague pain location
Pain radiating from hip or back
Painless knee ROM
Knee joint stable and no effusion
Go to table: Extrinsic causes of knee pain
Intraarticular
Periarticular
Orthopedic referral for major fracture, joint instability, other concerning injury
Pain within knee
Effusion present
Go to table: Common causes of intraarticular knee pain
Can coexist
Focal knee tenderness with palpation and examination maneuvers
Assess according to location; go to table: Common causes of periarticular knee pain in adults
Examine adjacent knee compartment
Inflammatory
Structural
Arothrocentesis results:
Hemarthrosis suggests intraarticular injury
Elevated WBC count suggests inflammatory disease
Organisms on gram stain suggests infection; obtain culture
Presence of crystals suggests gout or pseudogout
Pain at rest
Effusion often chronic or recurrent
Aspiration and synovial fluid analysis can reveal diagnosis
Pain worse with activity, improves with rest
Mechanical symptoms (eg, giving out, locking) often present
Palpation and tests of structural integrity often reveal abnormalities
Diagnostic imaging often confirms or reveals diagnosis
UpToDate

CASE #2 – Patient in their 50's

- History
  - Complaints appear to be tendon related than can be a tendinopathy
    - If medical or joint line pain or even behind the patella likely ARTHITIS
  - SHARP pain that's intermittent "hurt for months subsided then returned"
- Examination
  - Gets intermittent swelling/effusion
  - Pain in medial/lateral joint line


Patient presents with osteoarthritis. Evidence of meniscal tear with mechanical symptoms (locking or catching)?
No
Yes
Body mass index > 25 kg per m²?
No
Yes
Weight-loss program
Initiate aerobic and strength training program
Significant pain?
No
Yes
Continue exercise program
Initiate acetaminophen and/or nonsteroidal anti-inflammatory drugs. If inadequate response, consider adding one of the following (unless contraindicated):
Regenerative injections
Tramadol
Valgus brace
Corticosteroid injection for short-term relief
Continued pain and/or decreased function. Surgical candidate?
No
Yes
Consider opioids (unless contraindicated)
Refer to orthopedic surgeon

XRAY images knee arthritis



Acute | OA, 1 grade | OA, 2 grade | OA, 3 grade | OA, 4 grade

Case # 2 – Patients in their 50's

- TREATMENT –
  - Ice – It will still help for athrtiic knee pain
  - NSAIDS – They may help and would definitely consider on patients that are of this age if pain is intermittent
    - Can also consider using Topical NSAIDS as well
  - Knee injection –
    - ACUTE: Would do a steroid if its very severe
    - CHRONIC: Would order viscosupplementation

Case #3 – Patient in their 80s

History

- Severe knee pain unable to ambulate

Treatment –

- Ice
- NSAIDS
- Steroid Injection
- Hylaraunic acid

Consider when end stage or not a surgical candidate

- *Genicular Nerve Block*
- *Iovera*

Steroid Injections – Frequency

- The maximum safe frequency of intraarticular glucocorticoid is uncertain. Our approach is to inject very active large joints affected by rheumatoid arthritis (RA) as often as once per month for up to three months, with a limit of about four injections per year for any given joint. For *joints affected by osteoarthritis (OA), we inject glucocorticoids as often as once every three months*, but only if no other therapy is effective.

- In patients with plans for total joint replacement*, we may increase the frequency of injection to a maximum of one joint injection every four to six weeks* to limit the systemic effects of the glucocorticoids