Teaching can be fun and interesting. Preaching can be obnoxious and irritating.

Cortisone Shots: data driven?
World’s Greatest Religions

- Christians: 35%
- Muslims: 20%
- Hindus: 15%
- Buddhists: 10%
- Cortosone Injections: 5%

Injections
On The Other Hand
what is evidence based medicine?

- Available evidence
- Clinicians experience
- Specific patient
Problems with Learning Injections

- Information is under-taught.
- “First do no harm”
- Uncomfortable with anatomy and risks
What about injections? Do we need to know? (objectives)

Which disorders are safe to inject?
Which are not?
What about injections Do We need to Know?

Which disorders are safe to inject?

What are the complications of injections?
What about injections? Do we need to know?

Which disorders are safe to inject?
What are the complications of injections?

What to say to the patient before? After?
What about injections do we need to know?

Which disorders are safe to inject?
What are the complications of injections?
What to say to the patient before? After?

What do we do, and how do we do it?
What can be treated with cortisone?

- Bursitis: subacromial, hip, elbow, knee.
- Arthritis: knee, shoulder, thumb, hip, ankle.
- Diagnostic: with lidocaine.
- Tendinitis: elbow, wrist, shoulder.
- Nerve compression: carpal tunnel
- Ganglion cysts: wrist, hand, finger, ankle.
- Trigger points: with lidocaine
Mechanism of Action

• Who knows?

• Systemic?

• Turns off inflammatory cascade?
When do you use them?

- Older people, chronic painful conditions
- Initial phase of healing is inflammation so you don’t use in acute injury.
- Appropriate to use if no improvement after 2-3 weeks of appropriate care?
COMPLICATIONS

- Tendon rupture
- Infection
- Arthropathy
- Systemic effects
- Flare reaction
- Hypopigmentation
- Fat atrophy
- Bleeding
COMPLICATIONS

- Tendon rupture!
  - Any weight bearing tendon is at risk
    - (Quadriceps, Achilles, Posterior Tibial)
  - Don’t Inject These!
COMPLICATIONS

• **Infection:**
  – Extremely rare
  – Extremely serious
  – Never inject through “red” skin”
  – Risks are never great enough to avoid giving an injection (except as above).
COMPLICATIONS

• **Systemic effects:**
  
  – Mainly important for IDDM. Sugars will run high for a few days.
COMPLICATIONS

• The “Flare Reaction”
  – More frequent with subacromial, heel spur
  – Vocal anesthesia-tell the patient most have it.
  – Give 6 “Vicodin” as a routine
  – “Rest, Ice, and use with Hx, an NSAID for 24 hours.”
COMPLICATIONS

• **Hypopigmentation:**
  – Common in superficial areas
    • 1st dorsal compartment of the wrist (de Quervain’s)
    • tennis elbow.
  – Temporary. Usually resolves within 1 year.
  – Make sure the needle is at the right depth!
  – Warn patient!
COMPLICATIONS

• Fat atrophy:
  – Subcutaneous and superficial injections:
    • Lateral elbow
    • Pes bursa.
  – Usually doesn’t go away.
  – Don’t give the injection superficially
  – Warn, and record.
SO, WHAT DO I TELL THE PATIENT?
Before the Shot...

• Say “This will hurt for about 30 seconds: Are you OK with that?” Sure?
• Use Vocal Anesthesia
• Spray or anesthetic optional
• Alcohol “better” than orange stain to kill bugs
AFTER THE SHOT.....

– Say “The lidocaine will block pain and it may feel good today, go easy for 24 hours. Don’t hurt yourself by....)
– “It may take several days for the cortisone to begin to take effect.”
– “Most people have a lot of pain the first night. That is normal. Don’t go to E.R.”
– “Here is an Rx for XXXX. Fill and use if needed.” (nsaid dependent on P hx)
HOW MANY CAN YOU GIVE?

- One to 3 a year is community standard.
- One a month is not acceptable.
- Can give another shot after 3-6 weeks if the first only gave partial or no relief.
- The shot should not be a Treatment Plan.
THE SHOT DIDN’T WORK.

• The cortisone not put in the right place
• You have the wrong diagnosis
• The problem is not amenable to cortisone.
Specific Injections
SUBACROMIAL SPACE

• Posterior approach
  – Predictable, easy, painless, safe.
• Soft spot: 1 fingerbreadth below postero-lateral corner of acromion.
• Angle up. Aim for Acromion
• 9cc lidocaine, 1cc steroid
• 23g 1-1/2” needle
Subacromial Injection
Subacromial Injection
A-C Joint

- Superficial joint, very safe!
- “bump” is distal clavicle, A-C just lateral
- Feel crevice and mark with pen
- 1/2cc lidocaine, 1/2 cc cortisone.
- 25g 5/8” needle screwed on tight!
- Resistance isn’t futile
AC Joint Injection
Lateral elbow

- Keep elbow at 90 degrees! Use pen!
- Point of maximal tenderness.
- Go deep to the subcutaneous tissues.
- Angle needle different directions x 2-3.
- 1cc lidocaine, 1/2cc steroid
- 23g, 5/8” needle
Lateral Epicondylitis Injection
DeQuervain’s tenosynovitis

- Try put cortisone into the sheath.
- Active thumb extension shows the tendon.
- Draw tendon over radial styloid
- Angle 45 degrees back towards elbow.
- Go ‘to the bone’ and withdraw slightly. Inject.
- 1cc lidocaine, 1/2cc steroid
- 25g, 5/8” needle
DeQuervains Tenosynovitis
GANGLION CYST

• Aspiration/injection cures ~30-50%.
• **aspirate first**, perforate, +/-inject.
  – Aspirate gel with 18g needle.
  – Change syringe if injecting steroid
Ganglion Cyst
Aspiration/Injection
CARPAL TUNNEL

- Controversial, but helpful diagnostically
- ‘Soft spot’ just proximal to wrist crease and ulnar to palmaris longus or flexor carpi radialis.
- Aim for ring finger, 45 angle to skin.
- 1cc lidocaine, 1/2cc steroid.
- 25g, 1 ½ “ needle
- Painless: no paresthesias!-late numbness ok
Carpal Tunnel Injection
Trigger finger

- “Scariest” injection (for no good reason).
- Inject between proximal finger and MPJs creases. Draw tendon.
- Go into tendon and slowly withdraw. Use pressure and fluid flows as the tendon is exited.
- 1/2cc lidocaine, 1/2cc steroid
- 25g, 5/8” needle
Trigger Finger Injection
Basal Thumb Joint Injection

Basal thumb joint
Basal Joint of Thumb Injection

- Find base of metacarpal mark with pen
- 1/2cc lido, 1/2cc TAC, 25g 5/8” needle
- Pull on thumb, angle slightly toward the thumb tip.
Trochanteric bursa

- Easiest, injection to give. Int. Rot. leg
- Inject "boney" prominence where tender
- Re-direct needle several times.
- 5-10cc lidocaine, 1-2cc steroid
- 22g 1 ½ " needle
- Always add PT for ‘IT band stretching’.
Trochanteric Bursitis Injection
Knee Injection

• Do supine with knee extended.
• Feel under patella medially: mark with pen
• Vocal anesthesia: “this will hurt for a minute. Is that OK?”
• 18g needle if aspirating, change syringe to inject (23g otherwise just to inject)
• Use a clamp to change the syringes
Knee Joint Injection
What NOT to DO!

• Inject Medially Under Patella with Knee Straight
Pes Anserine Bursa Injection

- The pes: inch below medial joint line and one inch medial to the tibial tubercle.
- No mass, just puffy and tender
- Inject “bone” perpendicular, may redirect
- 1cc lidocaine, 1cc steroid
- 23g needle
Pes Anserine Injection
Summary

• Cortisone injections are a valuable option
• Know what to inject, and what not to
• Explain it will hurt – ask if OK?
• Know complications and avoid them
• Give clear instructions before and AFTER!
Plantar fasciitis

- Entry point is at intersection of posterior medial malleolar line and plantar skin.
- Vertical to skin, deep injection, re-direct as needed.
- 1cc lidocaine, 1cc steroid. 25g needle.
- 3 injections before “failed therapy.”
Plantar Fasciitis Injection