EVOLVING TRENDS IN UPPER EXTREMITY THERAPY

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Biography

• Born and raised in New Orleans, LA (Geaux Saints)
• Tulane University undergraduate studies
• Tulane University Medical School
• Orthopedic Residency Tulane University
• Hand/Upper extremity fellowship University of Mississippi Medical School
• Board certified American Board of Orthopedic Surgery
• Subspeciality certification in surgery of the hand
Upper Extremity Therapy

• Distal radius fracture
• Thumb basal joint osteoarthritis
Distal Radius Fracture
Very common injury
600,000 ED visits annually
Optimal treatment strategy?
Optimal rehabilitation strategy?
Distal Radius Fracture

- Recent meta-analysis:
  - Patients without complications benefit equally from a home program and instruction or supervised therapy
  - Anecdotal evidence suggests comorbidities and “more complex patients” require greater supervision to maximize outcome
Distal Radius Fracture

So what is the optimal strategy to optimize outcome in surgically treated DRF’s?
Volar plate fixation
Distal radius fracture

- Surgical treatment has grown in popularity
- Volar plate fixation
  - Orbay, DVR plate. Now Acumed, Synthes, Stryker, etc.
- Indications: dorsal tilt > 10 degrees, radial shortening greater than 3mm, articular displacement of 2mm
- No proven benefit as compared to nonoperative Rx age>65
Distal Radius Fracture

• Volar approach
  • Henry
  • Mobilize FCR tendon
  • Release pronator quadratus
  • Repair PQ?
  • Post op immobilization
Distal Radius Fracture

  - Randomized 50 patients with DRF treated with volar locked plate fixation
  - Group 1: supervised home based therapy
  - Group 2: clinic based therapy
  - Home group: pictorial HEP
  - Clinic group: CHT instructed pictorial HEP, active and passive ROM, joint mobilization, scar massage, prehension training, functional performance activities
Distal Radius Fracture

Results

- All subjects achieved clinical change, however...
  - Patients with co-morbidities and complications often plateaued before full recovery
  - Decreased finger flexion, advanced age, OA, CTS, CRPS
  - Surgeon skill and fracture severity?
Distal Radius Fracture

• My approach in ORIF patients:
  • Immediate digital ROM and forearm rotation
  • Short arm immobilization only
  • Conversion to removable brace 2-3 weeks post-op
  • Therapy referral for patients with significant co-morbidities, decreased digital range of motion/forearm rotation, signs of CRPS
Thumb Basal Joint Arthritis

Trapezial metacarpal osteoarthritis
Carpal metacarpal osteoarthritis
Thumb Basal Joint Arthritis

- Potentially disabling disease
- Affects up to 36% of postmenopausal women
- Causes pain and affects ADL’s
- No cure, multiple operative approaches, none with proven superiority but all with varying degrees of potential complications
- Conservative RX: restore functionality, including pain relief, stability, mobility and strength
- Options: injection, analgesics, patient education in joint protection, strengthening exercises, assistive devices and orthoses
Thumb Basal Joint Arthritis

- Evidence?
- Meta-analysis identifying relevant studies pertaining to the non-operative RX of basal joint OA
- Identified 25 randomized controlled trials out of 1951 articles reviewed
Thumb Basal Joint Arthritis

- **Injection**
  - IA steroid presumably decreases pain and inflammation in OA
  - Hyaluronate improves reduced viscoelasticity of synovial fluid
  - 7 RCT’s evaluating IA steroid, hyaluronate and placebo
  - Moderate evidence to support pain relief by both steroid and hyaluronate, HA seems to have longer lasting effect
Orthoses

- Ten RCT's identified, compared uses of orthoses with a control group, also compared custom with prefab
- Conclusion: orthoses can reduce pain but do not alter function, strength or dexterity
- Evidence not conclusive regarding prefab vs custom, length of the orthosis, or duration of wear
Thumb Basal Joint Arthritis

• Hand Therapy
  • 6 RCT’s identified
  • U/S, joint mobilization, and multimodal treatments (mobilization, neurodynamic techniques, exercise protocol)
  • Conclusion: hand therapy seems to provide some pain relief in patients with symptomatic basal joint OA
  • Low level of evidence supporting any technique over another, few published randomized clinical trials
Thumb Basal Joint Arthritis

• Why such variability in treatment outcomes?
  • TMC OA is a chronic degenerative condition with periods of exacerbations and remissions
  • Interventions when patients are most symptomatic will often result in perceived improvement
  • Same improvement could occur with education and observation
  • Reinforces the idea that conservative treatment or just observation warranted for a considerable period of time before surgical decision
Thumb Basal Joint Arthritis

• Directions for future research
  • Studies with longer followup, more varied population with different grades of OA
  • Evaluate different hand therapy interventions and more specific exercise programs
  • Compare IA steroid, HA, and placebo with followup of at least one year to determine which specific type, dose and frequency is most effective
  • Prefabricated orthosis immobilizing only the TMC joint with one year followup, comparing use at night vs with ADL’s or both
THANK YOU

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