Spine Injury Patient: Timing of Surgical Interventions

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What is Time?

• Duration is undefined and variable
  – Early, Late, Just Right
• Who defines timing?
• Is it the same for all surgery?
  – Fractures
  – Injuries
  – Degenerative disease
Timing

• Spine Surgery:
  – Fracture/Trauma
    • Less than 72 hours (early) may improve outcomes
      – J Trauma Acute Care Surg. 2014 Feb
      – Earlier mobilization decreases complications
      – Earliest surgery possible given other injuries

• Open vs. Closed Injuries:
  – 6 hour window to decrease infection risk
  – Clinically this is being challenged
Timing

• Disc Herniation
  – Early vs later
    • Same for Worker’s comp and non-comp
  – Degenerative exacerbation

• Conservative care:
  – PT
  – ESI
  – Medications
Early MRI

• 20% of worker’s with MRI in first 3 weeks
  – Surgeon > PCP > Chiro
  – Elevated work-fear avoidance
  – Increased injury severity
  – Male

SPINE Sept. 2012, Graves: University of Washington
Early MRI

• May lead to more interventions
• Increased health care costs
• Associated with increased likelihood of disability and longer duration

**Uncomplicated LBP does not need early MRI**

• Warranted in radiculopathy

SPINE Sept. 2012, Graves: University of Washington
Early MRI

• Post-trauma patients
  – Early MRI showed 46% of worker’s had injury

• Neck Disability present in 43%
  – Associated with Depressive Symptoms
  – Worker’s Comp
  – Low Annual income

• RTW not associated with MRI findings

Spine, May 2012, Australia
Psychological

• Most Important:
  – Age
  – Medical Conditions
  – Trauma symptoms
  – Importance of work
  – Work Support
Epidural Steroids

• Transforaminal ESI prevents surgery
  – Canada wait time for ortho 33.7 weeks
  – One TFESI:
    • 56% non-surgical
  – Age, sex, HNP level no effect
  – Only Worker’s comp influenced outcome

Can J Surgery-- April 2013
Epidural Steroids

- Good response in patients with radiculitis related to disc herniation
- Fair response in patients with
  - radiculitis related to spinal stenosis
  - Axial back pain
  - Local anesthetic only
    - Benyamin (Pain Physician 2012)
Cervical Disc Surgery

• Engquist (Spine 2013 Sep 15)
  – Arm and neck pain treated with ACDF/PT or PT alone
  – More rapid improvement with Surgery (87% vs 62%)
  – Both groups improved at 24 months but surgery better off (81% vs 69%)
RTW after ACDF

• Predictors of good ACDF outcomes
  – Pre-operative normal sensation
  – Gainful Employment
  – Greater Age
  – Higher pre-op pain score

• Predictors of poor ACDF outcomes
  – Worker’s Compensation
  – Litigation

Spine, Jan 2009: Wisconsin
Post-op Rehab

• Physical Therapy: Engquist (Spine 2013 Sep 15)
  – 32 ACDF and PT, 31 PT
  – Neck and arm pain better at 12 mos with ACDF
  – Both groups similar at 24 months
Lumbar Disc Surgery

- Lequin (BMJ Open. 2013 May 28)
  - Early surgery vs Mandatory 6 mos conservative care
  - 231 patients
  - 8% of all patients showed no improvement
  - Both groups similar at 5 years
Lumbar Disc Surgery

- 46% of conservative patients elected surgery
  - Due to severe leg pain/disability
- Age (>40), higher McGill pain scores and severity of leg pain (+) predictors of unsatisfactory outcome
Lumbar Disc Surgery

- **Conservative vs Surgery**
  - Review of 5 studies
    - Surgery vs Conservative care
    - Surgery followed by rehab
    - Surgery vs ESI
  - Early surgery 6-12 weeks improved early outcome
  - All patients similar at 1-2 years

Jacobs (Eur Spine J. 2011 Apr)
Post-Op Rehab

• Physical Therapy Cochrane Database Syst Rev. 2014 Mar 14
  – 2500 patients in 22 lumbar HNP surgery trials
  – Immediate
  – 4-6 weeks
  – >12 months
  – “Exercise programs starting four to six weeks post-surgery seem to lead to a faster decrease in pain and disability than no treatment”
Lumbar Disc Surgery L/T

• Long Term F/U

  – 2-5 Year follow-up after lumbar discectomy
  – Patient questionnaire and independent observer
  – 70% good/excellent result 2 and 5 years
Lumbar Surgery L/T

• Primary predictive factors
  – Pre-operative sick leave most clinically important for outcome
    • 50% patient satisfactory for > 3 months
    • 80% patient satisfactory for < 2 months
Lumbar Surgery L/T

– Full working capacity 3x more common among patients with shortest sick leave
– Need for pain meds 2x more likely in longer
– Improved leg pain 97% vs 78%
Lumbar Surgery L/T

• Leg pain < 6 months related more good/excellent outcomes
  – Same results Indian J Orthop. 2014 Mar

• Leg pain > 12 months have less favourable outcome Hurme Spine 1987
Lumbar Surgery L/T

- Long sick leave pre-operatively has less favourable outcome.  Nygard Acta Neurochir 1994

- Age, sex, duration of leg pain, time to surgery, working status and length of sick leave all are predictors of worse outcome  Kitz NeuroChir 2008
Lumbar Surgery

- Active military patients (avg age 27)
- Single level microdiskectomy
- Failed P.T. and ESI
- At 3 years:
  - 84% full-duty
  - 3% re-herniation
  - Better outcomes with radicular sx’s than back pain
  - Poorer outcomes with:
    - Pre-existing restricted duty at surgery
    - Smoking
Compensation and Chronic Pain

- All Back Pain adjusted for:
  - Age
  - Sex
  - Smoking
  - Education Levels
  - Cause
  - Sciatica
  - Low Back Surgery

Journal of Orthop Science, Aug. 2012: Fuji, Japan
Compensation and Chronic Pain

- 3.9% had experienced chronic LBP
  - 33% with worker’s comp
  - 33% with auto insurance claims
- **History of compensation associated with chronic disabling LBP**
Conclusion

- Surgery should be done in profound or worsening neurologic deficits
- Surgery should be done as soon as conservative treatment fails
- Surgery should be done before 6 months
- Post-op rehab is important
Frank and Ernest

Can you give me something that will make me feel better, but not quite good enough to go back to work?
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