Role of Physiatry/Interventional Spine
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Background

- Current Position:
  - Interventional Physiatrist/Spine Specialist at Dickson-Diveley Midwest Orthopaedic Clinic
  - Clinical Associate Professor, University of Kansas SOM
  - Clinical Associate Professor, UMKC-SOM
  - Board Certified: Physical Medicine and Rehabilitation

Background

- Training:
  - Interventional Spine Fellowship: The Orthopaedic Clinic Association: Phoenix, AZ
    - Phoenix Suns
    - Arizona State University Athletic Department
  - Residency: Physical Medicine and Rehabilitation, University of Kansas School of Medicine
Goals
- What is the role of physiatrist?
- What are most common conditions we treat?
- What procedures we have to offer patients
- Role of physiatrist with workers compensation
- Example of patient requiring future medical

Physiatry
- Physiatrists, or rehabilitation physicians, are nerve, muscle, and bone experts who treat injuries or illnesses that affect function.
- Goal of returning function to patient
  - Multidisciplinary approach
    - Physical Therapy
    - Occupational Therapy
    - Speech therapy
    - Ortho/PM&R

Physiatry
- Subspecialties
  - Interventional Spine
  - Chronic Pain Management
  - Sport Medicine
  - Traumatic Brain Injury
  - Spinal Cord Injury
  - Stroke
  - Pediatric Rehabilitation
  - Electrodiagnostics
### Interventional Spine/Physiatry

- Diagnosis and treatment of painful disorders of the spine
  - Neck, Thoracic and Low back pain
  - Cervical/thoracic/lumbar radiculopathies
  - Cervical/Lumbar spondylosis
  - Discogenic pain
  - Vertebral fractures
- MSK/Nerve issues
  - Strains
  - Joint pains
  - Myofascial pain syndrome
  - Peripheral entrapment disorders (CTS, ulnar neuropathy)
  - Peripheral neuropathy

### Fluoroscopically Guided Procedures

- Transforaminal Epidural Steroid Injections, Intervertebral Steroid injections
- Cervical/thoracic/Lumbar z-joint (facet) injection / Medial branch Blocks
- Sacroiliac Joint Injections
- Piriformis Injection
- Iliopsoas Injection
- Vertebroplasty
- Kyphoplasty
- Radiofrequency Ablation/Neurotomy
- Provocative Discography
- Spinal cord stimulator
- Trial or permanent

### Close Relationship with Orthopedics

- General Physiatry
  - Post-fracture care
  - Post arthroplasty rehabilitation needs
  - Post amputee management
  - Debility needs
  - EMGs
- Interventional Physiatrist
  - EBRs
  - Hip injections
  - Non-surgical management
  - EMGs
  - Gatekeeper for spinal surgeon
Low Back Pain

- 2nd most common reason for visiting PCP
- Chronic LBP is 3rd leading cause for disability in the 45-65 age group
- Medical costs are estimated at 30-50 billion dollars
- In 1990, there were approximately 15 million office visits to U.S. physicians for mechanical back pain
  - This did not include visits to allied health professionals
  - Chiropractors, massage therapy etc...

Pain Generators

- Neck and shoulder
- Back and hip
- Carpal tunnel and Radiculopathy
- Strain and Fracture
- Peripheral neuropathy vs neurologic process

Work Comp

- Important to determine what is really the pain generator, and is it work related
- Inquire on where is pain
  - Traumatic?
  - What symptoms at time of injury?
  - Want relevant information of current problem
  - Any prior records are always helpful
  - Any treatment for it
  - PT, medications, injections etc...
History

- Distribution of symptoms
- Upper or lower extremity involvement
- Pain diagram helpful

Acute C6 Fracture

All imaging is helpful

- Bring outside Xrays
- CT Scan
- MRI Scan
- Any outside procedure notes
  - Any prior images to compare to.
Degenerative Changes in the cervical spine are part of the normal aging process and are often asymptomatic.

- Educate patients
  - “I’ve got the disc bulge”

One early study found degenerative changes in 75% of asymptomatic individuals in the seventh decade of life.

Lumbar Strain

- Most will resolves in 1-2 weeks.
- Can be very painful
- 80% cannot recall a specific injury
  - Repetitive injury?
- Treatment
  - Rest
  - NSAIDS
  - PT

Work Related Injuries

- When did injury occur?
- What treatment they’ve had since injury?
- Any updated imaging studies since injury?
- Any history of pain, or treatment prior to injury?
- Any improvement?
- Any current restrictions?
- Does patient feel they can perform work duties?

My Algorithm

- Conservative measures
  - NSAIDs, PT/OT
  - Restrictions if needed
- Do symptoms, injury and imaging studies make sense.
  - NSAIDs, PT/OT
  - Restrictions if needed
- Proceed with further testing/treatment
  - MRI, injections, stronger medications if needed.
- Surgical referral or 2nd opinion
Patient Case

65 year old male

Physician Laboratory Dispatcher

Slipped on rug at work
Acute left groin and low back pain
No history of back or groin pain

Treatment

Occupational health, sent to PT for 2 weeks
X-rays showed no fracture, some spondylosis.

Patient case...

Presented to our clinic 6 weeks post injury

Still working full duty, but required cane because of antalgic gait.

CC: left leg pain greater than left groin and anterior thigh/leg pain, + numbness

Pain: 5-8/10

Medic: Vicodin 2-3/day

Physical Exam:

Weakness with left hip flexion
Full ROM in both hips, with no pain (less likely hip cause).
Reverse straight leg raise +
Otherwise neurologically intact

Patient case...

Treatment: PT with not a good HEP and Vicodin

Diagnosis: left L3/L4 lumbar radiculopathy

Treatment Options:

Conservative to more aggressive
PT/ Meds
MRI to evaluate for nerve root compression
NSAIDS

Plate:

Not interested in injections ("too dangerous") or "any surgery".

Recommended a new PT program with good HEP

Proceed with MRI for further evaluation

Started NSAIDS

Follow up in 3-4 weeks, or sooner if symptoms change.
Patient case...

- Followed up in 3 weeks
  - Fell again, and pain worse.
  - Was doing better with new PT, and not requiring meds until the fall.
- MRI
  - L3-4 disc extrusion
  - Left L3-4 foraminal stenosis
  - Impingement on the descending left L4 nerve root.
- MRI L-spine

Plan:
- Combined Left L3 and L4 TFESI
  - Off Plavix for 7 days
  - 25% improvement
  - Repeat 2nd combined injection 2 weeks later and continue PT.
- Patient declined any work restrictions.

Patient case

- Followed up in 2 weeks, with 90% improvement.
  - No Pain Meds.
  - No longer using cane.
  - Working full duty with no restrictions
  - MMI
Patient case...

- 1 year later similar pain after a fall at work
- Unable to work because of pain
- Failed PT and medication management
- No improvement with ESI
- Repeated MRI
  - Larger herniation at same level
- Dr. Bernhardt recommended surgery.
- Underwent Left L3-4 far lateral discectomy
  - Complete relief of leg pain
  - Intermittent LBP
  - No pain meds
  - Back to Full Duty, with no restrictions.

Future Medical Care

- Tough to determine
- Is it in fact a new injury, or exacerbation of prior injury
- Taking a good history
- Physical examination
- Updated imaging studies.

Diagnostic Testing

- Diagnostic injections to give more information.
  - Injection of 2% Lidocaine to determine if pain truly emanating from that structure
  - Want to see at least 80% improvement for at least 1-2 hours. Reviewed with a pain log
- Diagnostic SI Joint injections
- Diagnostic Selective Nerve Root Injections
  - Helps surgeons determine if a specific nerve root is causing radicular pains
80% of Asymptomatic 50+ Year Olds Have Disc Degeneration on Radiographs

<table>
<thead>
<tr>
<th>Imaging Findings</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>Age (yr)</th>
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<tbody>
<tr>
<td>Disc Bulge</td>
<td>50%</td>
<td>60%</td>
<td>69%</td>
<td>77%</td>
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<tr>
<td>Disc Protrusion</td>
<td>33%</td>
<td>36%</td>
<td>38%</td>
<td>40%</td>
<td></td>
</tr>
<tr>
<td>Facet Degeneration</td>
<td>18%</td>
<td>32%</td>
<td>52%</td>
<td>69%</td>
<td></td>
</tr>
</tbody>
</table>


Electrodiagnostic Testing

- Two parts to the Exam.
  - Nerve conduction studies
    - Assess Motor Nerves
    - Assess Sensory Nerves
    - Assess Mixed Nerves (Motor/Sensory)
  - H-Reflex
  - F-waves
  - Needle EMG
    - Evaluation of the electrical activity of a muscle.
Goal of EMG

- Is there an abnormality/pathology?
- Where is the abnormality?
- Is the lesion acute, subacute or chronic?
- Is there regeneration or ongoing healing at the lesion site?
- EMG is an extension of the physical exam.

In Conclusion

- Treat patient’s symptoms, not MRI/EMG.
  - Work related?
  - Diagnostician
    - Conservative to more aggressive.
  - Do what is best for patient.
    - Act as Advocate for the patient
  - Don’t forget value of diagnostic injections
    - SNRI, MRB, diagnostic piriformis/SI joint injection.
  - Final plan should include
    - patient/therapist/physician/NCM/Adjuster input

Final

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Works Cited

