ACUTE LOW BACK PAIN IN THE WORKPLACE

Background
1. Definition
   o Work-related pain in the lower back lasting < 4-6 weeks which may impact
time spent at work, productivity, and disability
2. General Information
   o Back sprains/strains one of the most common work-related injury/illness
     (1/4 of all work injuries).
   o Low back pain second most frequent cause of absence from work in
     industrial countries.

Pathophysiology
1. Pathology of Disease
   o Vast majority due to “mechanical” causes
     ▪ disc degeneration
     ▪ muscle/ligamentous sprain
2. Incidence, Prevalence
   o Absence due to low back pain-> 1-2% of workers in US/UK annually
3. Risk Factors
   o Smoking
   o Obesity
   o Older age
   o Female
   o Physically strenuous work
   o Sedentary work
   o Psychologically strenuous work
   o Low education
   o Worker’s compensation claim
   o Job dissatisfaction
   o Psych- somatization, anxiety, depression
4. Morbidity / Mortality
   o Pain, depression, decreased sexual activity and exercise, difficulty with
     activities of daily living, time off work/financial strain

Diagnostics
1. History
   o Occupational impact
     ▪ Nature of work incident- date, time, circumstances
     ▪ Workers compensation claim, details of the status
     ▪ Currently working, current work modifications
   o Functional impairment
     ▪ Lifting, sitting, walking
   o Pain
     ▪ Intensity, frequency, location
     ▪ Alleviating or aggravating factors
   o Psychosocial factors associated with persistent pain
     ▪ Recently hired
     ▪ Limited work skills
- Depression
- Substance abuse
- Fear avoidance behaviors/ apprehension for re-injury

2. Physical Examination

- Inspection of back and posture
  - Scoliosis, kyphosis
- Range of motion testing (flexion/ extension)
  - Poor diagnostic test, but helps to establish baseline in assessing therapeutic response
- Palpation of spine
  - Point tenderness worrisome for fracture
- Straight leg raise
  - Positive straight leg raise (Pain in sciatic distribution with passive flexion of hip to 30-70 degrees) indicates radiculopathy
- Peripheral pulses
  - Poor pulses make vascular claudication more likely
- Neuro assessment of L4, L5, S1 nerve roots to evaluate for disc herniation
  - L4 evaluation- quadriceps extension, knee jerk reflex, sensation overlying patella
  - L5 evaluation- dorsiflexion, sensation of medial foot & webspaces between digits 1 and 2
  - S1 evaluation- plantar flexion, ankle reflex, sensation of posterior calf and lateral foot

3. Diagnostic Testing: Majority of acute low back pain (regardless of association with the workplace) does not require imaging or lab evaluation. (AHCPR Clinical Practice Guideline)

- Laboratory evaluation
  - CBC, CRP, ESR if malignancy or infection suspected
- Imaging: In the absence of any red flags, it is not necessary to obtain imaging in the first 4-6 weeks. (AHCPR Clinical Practice Guideline)
  - Plain films (AP and lateral) for the following: (AHCPR Clinical Practice Guideline)
    - Severe/ progressive neuro deficits
    - Suspect serious underlying condition (use ESR as a screen for this)
    - Recent trauma
    - Osteoporosis
    - Age >70
    - Prolonged corticosteroid usage
    - If no improvement in low back pain after 4-6 weeks
  - MRI/ CT (MRI preferred, more sensitive) for the following: (AHCPR Clinical Practice Guideline)
    - Clinical picture suggests an emergent condition
      - Cauda equina
Infection
- Tumor/mass
- Fracture with neurologic impingement
  - Radicular symptoms lasting >4-6 weeks and would consider surgical intervention
  - History of neurogenic claudication, physical exam suggests spinal stenosis, symptoms lasting several months, and would consider surgical intervention

**Differential Diagnosis**

**Key Differential Diagnoses**

**Extensive Differential Diagnoses**

1. Mechanical (97%)
   - Lumbar strain/ sprain (70%)
   - Degenerative disc disease (10%)
     - Herniated disc (4%)
     - Spinal stenosis (3%)
   - Osteoporotic compression fracture
   - Traumatic fracture
   - Spondylolisthesis

2. Nonmechanical (1%)
   - Neoplasia (0.7%)
   - Infection
   - Inflammatory arthritis

3. Visceral (2%)
   - Pelvic inflammatory disease, endometriosis
   - Renal disease (nephrolithiasis, pyelonephritis, perinephric abscess)
   - Abdominal aortic aneurysm
   - GI disease (pancreatitis, cholecystitis)

**Therapeutics**

1. Acute Treatment
   - Pharmacological
     - NSAIDs/ Tylenol
       - First line drug therapy (Recommendation by ACP 2007 Practice guidelines)2
       - Both work equally as well, but NSAIDs with more adverse effects. (Cochrane Review)3
     - Muscle relaxants
       - Muscle relaxants may be used to improve short-term pain relief, overall improvement, and physiologic outcomes but are associated with significant central nervous system side effects. (Cochrane Review)4
   - Opioids
     - Opioid use should be limited in acute low back pain to minimize chronic opioid use, surgery, and length of disability. 5

2. Further Management (beyond 24 hrs)
   - Return to work advice
- Early return to work can be an effective intervention to promote functional restoration. (AMA physician guidelines) 6,7
- Difficult to implement
- Okay to recommend return to work if still having some pain (AMA physician guidelines) 6,7
- Should recommend to remain as active as possible (AMA physician guidelines) 6,7

  o Work Restrictions
    - Most patients with acute low back pain should be encouraged to return to work unrestricted despite still having pain to increase success of returning to full duty. 8
    - Work restrictions are not necessary for most patients and should be limited.
  
  o Lumbar Supports (Cochrane Review)9
    - Lumbar supports not more effective for short term overall improvement and pain reduction than no intervention.
    - Conflicting evidence as to whether lumbar supports can help return to work faster.
    - Lumbar supports may improve short term functional status compared to placebo.
    - Overall recommendation: Lumbar supports should not be used in the treatment of work-related low back pain.
  
  o Physical Therapy
    - Not enough evidence available to suggest optimal timing, length of therapy, or number of visits.
    - Early (within the first 3 weeks of injury) referral to physical therapy does not improve outcomes. (Cochrane Review) 10
    - Exercise therapy (physical therapy and home exercises) in chronic back pain is superior in pain relief and functional status compared to no treatment. (Cochrane Review) 10

  o Ergonomic intervention
    - Mixed evidence exists as to whether ergonomic interventions provide benefit in the treatment of acute low back pain. 11-14

  o Surgery
    - Depends on etiology, duration, response to conservative treatment
    - Surgical outcomes are worse when disability/ workman’s compensation is involved. 15
    - No randomized controlled trials have evaluated surgery compared to conservative treatment in occupational low back pain.

3. Long-Term Care
   - Not enough information

Follow-Up
1. Return to Office
   - Time frame for return visit
   - Not enough information

2. Refer to Specialist
   - Neurosurgery or Orthopedic surgery
- cauda equina syndrome - saddle anesthesia, urinary incontinence, sciatica, weakness (urgent)
- Suspect spinal cord compression (urgent)
- Progressive or severe neuro deficits

3. Neurology or physiatrist
   - Neuromotor deficit (sensation or reflex loss) or sciatica
   - Persistent after 4-6 wks conservative therapy

**Prognosis**
1. Expect most patients with occupational low back pain to improve drastically by 6 wks, but expect little improvement after 3 months. 16
2. Three quarters of patients will have recurrence in one year. 16
3. For patients out of work for 6 mos there is a 50% chance of returning to work and for patients of out work for 2 yrs there is 0% chance of returning to work. 17

**Prevention**
1. Lumbar supports
   - Not effective in preventing low back pain in the workplace. 9

**References**

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