ACUTE LOW BACK PAIN IN THE WORKPLACE

Background

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

Pathophysiology

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

Diagnostics

1. History
    - Occupational impact
        - Nature of work incident- date, time, circumstances
        - Workers compensation claim, details of the status
        - Currently working, current work modifications
    - Functional impairment
        - Lifting, sitting, walking
    - Pain
        - Intensity, frequency, location
        - Alleviating or aggravating factors
    - Psychosocial factors associated with persistent pain
        - Recently hired
        - Limited work skills

        - Depression
        - Substance abuse
        - Fear avoidance behaviors/ apprehension for re-injury
    - Red Flags
        - Significant trauma, unexplained weight loss, unexplained fever, immunosuppression, history of cancer, IV drug use, osteoporosis, age >70, focal neuro deficits.
        - If present, consider urgent/emergent imaging +/- referral
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 & webspace 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)1
    - 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)1
        - Plain films (AP and lateral) for the following: (AHCPR Clinical Practice Guideline)1
            - 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)1
            - 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%)
    - Osteroporotic compression fracture
    - Traumatic fracture
    - Spondylolsthesis
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
    - 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.
    - 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.
    - 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
    - Ergonomic intervention
        - Mixed evidence exists as to whether ergonomic interventions provide benefit in the treatment of acute low back pain. 11-14
    - 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

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