

**BACK PAIN – QUESTIONS
NOVEMBER 2007**

1. What seven causes of back pain would you least want to miss?
2. What are the “red flags” in diagnosis?
3. Most patients with acute low back pain will require at least a month for recovery to occur. True / False
4. Patients with suspected herniated discs should be immediately referred for possible surgery. True / False
5. Most patients with acute, non-specific low back pain should be advised to remain active. True / False
6. Non-steroidal drugs are generally ineffective for acute low back pain, and opioids should be prescribed. True / False
7. Muscle relaxants may help in acute low back pain, but often cause side effects. True / False
8. Patients with suspected spinal stenosis should be referred for consideration of surgery. True / False
9. Patients with chronic low back pain may perceive real pain in the absence of ongoing injury. True / False
10. Select the treatment modalities likely to be effective in the treatment of chronic low back pain.
 - A. Intensive exercise
 - B. Antidepressants, especially tricyclics
 - C. Opioids
 - D. Muscle relaxants
 - E. Epidural steroids
 - F. Facet joint injections
 - G. Acupuncture
 - H. Lumbar supports
 - I. Traction
 - J. Back schools
 - K. Chiropractic therapy
11. What are the important components of the physical exam in patients with back pain?
12. When do you want to image a patient with back pain?
13. What makes you suspect spinal stenosis?

BACK PAIN – ANSWERS
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1. **Osteomyelitis**
Metabolic bone disease
Inflammatory spondylitis
Neoplasm or Neurologic deficit
Other - aortic dissection, abscess
Unstable spine - fracture
Spinal cord disease

2. Several different primary care authors describe different major categories such as: acute, chronic, simple mechanical, radicular, ominous, lumbar disc, subacute, and muscular strain. Another option is to consider grouping patients by risk (for serious disease) and prognosis (good or poor). For example:

Low Risk of Serious Disease – Good Prognosis of Recovery

Age 20-40 and all of the following:

- Acute onset of duration <3 weeks
- Few previous episodes of evaluations
- Relief by bed rest
- No past back surgery or neurological symptoms
- Examination normal or muscle spasm/tenderness only

Low Risk of Serious Diseases – Poor Prognosis for Recovery

>Age 20 and any of the following:

- Patient is seeking or receiving disability compensation
- Chronic or recurrent similar pain of >3 week's duration with evaluations of similar episodes
- Past back surgery
- Non-progressive neurological symptoms or minor physical findings (excludes demonstratable weakness)

High Risk of Serious Disease (Red Flags)

- New onset in patient >50 years old or <20
- Pain in abdomen/flanks/hip/perineum/upper back
- Onset follows direct blow to back, fall on buttocks, or car accident
- Progressive pain or neurological symptoms unrelieved by bed rest
- Crossed straight leg raising sign or exquisite pain on heel drop

3. False. Recovery from non-specific back pain is generally rapid. 90% of patients seen within 3 days of onset will recover within 2 weeks. The prognosis is less favorable in cross-sectional studies which over-sample patients with multiple visits. Carey studied 1,580 patients with acute low back pain and found that chiropractors and orthopedic surgeons were much more likely to obtain radiography, but at 6 months, 95% of patients could perform their usual daily activities as well as they could before the back pain episode. Recurrences are common - 40% within 6 months. Back pain is often a chronic, intermittent problem.
4. False. In the absence of cauda equina syndrome or progressive neurologic deficit, patients should be treated medically for at least a month. Only 10% of patients with herniated discs will require surgery, and partial or complete resolution will be seen on MRI after 6 months in about 2/3 of patients. Those who undergo surgery do not return to work earlier, although they may have better symptomatic and functional outcomes.
5. True. For acute non-specific low back pain, two systematic reviews and one randomized controlled trial found that advice to stay active increased the rate of recovery, reduced pain, reduced disability, and reduced time spent off work compared with advice to rest in bed or bed rest.
6. False. One systematic review and one RCT found that non-steroidal anti-inflammatory drugs increased overall improvement after one week and reduced the need for other analgesics when compared to placebo. No particular non-steroidal or, for that matter, acetaminophen, opioids, or muscle relaxant was superior in this regard.
7. True. Muscle relaxants improve symptoms, but may cause dizziness, drowsiness, or dependency.
8. True. Cohort studies suggest that surgery results in better pain relief and functional recovery at least for a few years, although symptoms recur in about 30% and 10% undergo re-operation. Avoidance of alcohol and sedatives and leg strengthening may reduce the risk of falls.
9. True. Recent evidence of neuroplasticity suggests that neuronal hyperactivity, changes in membrane excitability, and expression of new genes may perpetuate the perception of pain in the absence of ongoing injury. Intensive exercise reduces pain and improves function in patients with chronic low back pain. Antidepressants, especially tricyclics, may be effective in treating patients with chronic low back pain even in the 2/3s of patients who are not clinically depressed. Opioids may improve pain and mood, but they do not improve activity levels, and 1/3 of subjects evidenced drowsiness, headache, constipation, or nausea. Their use is not advocated. One RCT found no difference between non-steroidals and opioids. Muscle relaxants may help but cause dizziness and drowsiness.

10. Epidural steroid injections, local injections, and facet joint injections, acupuncture, massage, lumbar supports, and traction are not helpful and may be harmful. Back schools, exercise, and chiropractic therapy may reduce pain and increase return to work.
- A. Intensive exercise (+)
 - B. Antidepressants, especially tricyclics (+)
 - C. Opioids (+/-)
 - D. Muscle relaxants (+/-)
 - E. Epidural steroids (-)
 - F. Facet joint injections (-)
 - G. Acupuncture (-)
 - H. Lumbar supports (-)
 - I. Traction (-)
 - J. Back schools (+)
 - K. Chiropractic therapy (+)
11. What are the important components of the physical exam in patients with back pain?
- A. Vertebral tenderness, fever - spinal infection
 - B. Soft tissue tenderness is not reproducible from one examiner to another.
 - C. Limited spinal motion is not strongly associated with any specific diagnosis.
 - D. With sciatica, a pseudoclaudication, the straight-leg raising test (hold leg straight and cup heel in your hand) to 60% (30-60 degrees). A positive test reproducing sciatica with pain radiating below the knee, not merely back or hamstring pain, is 80% sensitive, not specific. The crossed straight leg is 90% specific, not sensitive.

The remainder of the neurologic exam:

The S1 nerve root is compressed by the L5 S1 disc.

Predicting Location of Lesion by Exam

| <u>Nerve Root</u> | <u>Sensory</u> | <u>Motor</u> | <u>DTR</u> |
|-------------------|----------------|----------------------|------------|
| L3 | Anterior thigh | Quadriceps | +/- |
| L4 | Medial foot | Quadriceps | Knee |
| L5 | Great toe web | Extensor hallucis | +/- |
| S1 | Lateral foot | Toe stands | Ankle |

However, the accuracy of these findings with positive SLR is still only 70%.

12. Plain radiography should be limited to patients with clinical findings suggestive of systemic disease or trauma. Guidelines recommend plain radiography for patients with fever, unexplained weight loss, a history of cancer, neurologic deficits, alcohol or injection-drug abuse, an age of more than 50 years, or trauma. Strict adherence to these criteria might increase the use of plain radiographs, and some observers therefore argue for further refinement of the criteria. Failure of the pain to improve from four to six weeks should prompt radiography, because improvement occurs in most patients in the absence of infection, cancer, or inflammatory disease. Plain radiography is not highly sensitive for early cancer or infection, and therefore, ancillary tests, such as measurement

of the erythrocyte sedimentation rate, a complete blood count, ESR, and CRP may help rule out systemic diseases.

13. Spinal stenosis due to hypertrophic degenerative processes and degenerative spondylolisthesis is more common in older than in younger adults. Pseudoclaudication is the classic symptom of central-canal stenosis. The symptoms of stenosis are often diffuse, because the disease usually is bilateral and involves several vertebrae. Pain, numbness, and tingling may occur in one or both legs. The symptoms are usually relieved by spinal flexion, so that patients report less pain when they are sitting or pushing a grocery cart. Pain is often increased by extension of the lumbar spine. The diagnosis can usually be made on the basis of CT or MRI, although electromyography or measurement of somatosensory evoked potentials may help define the extent of neurologic involvement, and differentiate this condition from peripheral neuropathy.