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Causes and treatment of low back pain

Volume 7 Issue 3 - 2017

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Received: February 15, 2017 | **Published:** February 21, 2017

Introduction

There are many important facts about low back pain to consider. Firstly, there is no definite etiology in 85% of the cases. 90% of patients with a single episode of low back pain return to work within 6 weeks, most patients get better with time. Low back pain is the second most common cause of work absenteeism. A history of low back pain is the single most important factor predicting future occupational low back pain. In addition, persistent back pain, for more than 6 months, constitutes 4% of the cases and disability is closely linked to compensation and litigation.

Etiology

There are many different physical factors that can attribute to low back pain including lack of fitness, heaving lifting of objects, operating motor vehicles, prolonged sitting, operating vibrating tools, and history of cigarette smoking. In addition virtually any structure in the spine can hurt. These structures include facet joints, intervertebral discs, spinal canal, sacroiliac joint, muscles, ligaments, nerves Holding loads close to the body is important to help reduce compression forces on the lumbar spine. The least amount of pressure is measured with the patient lying supine. The highest disc pressure is measured while sitting and leaning forward 20° with a 20 kg load in their arms. By keeping the weight of the load close to the body, this reduces the compressive forces placed on the lumbar spine and reduces the pain caused by herniated intervertebral discks. Smokers have a higher risk of low back pain because nicotine can cause an increased rate of intervertebral disc degeneration. Sporting activities may also play a large role in people developing low back pain. Golf can cause pain as a result of twisting, bad forward bending and overarching the spine during the swing. After the age of 40, you lose about 50% of your rotational movement of the spine. It is important to perform stretching and warm ups before starting the game to reduce the stress on the lumbar spine.

Although most causes of low back pain are benign, there are several red flags that a healthcare provider should consider. These red flags can be indicative of conditions such as cancer or infection of the lumbar spine. Red flags for cancer of the lumbar spine include patients over 50 years of age, pain at rest and/or at night, unexplained weight loss and other constitutional symptoms, and a history of cancer which have a known propensity to metastasize to the lumbar spine. Infection of the lumbar spine is also a serious condition that must be ruled out in a patient. Common red flags for lumbar spine infection include fever, rapidly deteriorating neurological function presenting as conditions such as cauda equina or conus medullaris syndromes, a history of diabetes mellitus, intravenous drug abuse, urinary tract infections, and previous lumbar spins surgery.

Physical examination and diagnostic approach

During the assessment, the physician will initially focus on the red flags (fractures, tumor, infection, or cauda equine/conus medullaris syndromes). The signs and symptoms of cauda equina include back pain, bowel or bladder disturbances, radicular leg pain and weakness, and saddle or perianal anesthesia (rectal and genital area sensory changes). In the absence of red flags, imaging studies are usually not helpful in the first 4-6 weeks. Intensive work up may not be necessary in the early stages of routine low back pain. If any concern for conditions such as fractures, cancer or infections of the lumbar spine is present initial working can include Xray, CT scan and/or MRI of the lumbar spine.

Common Xray finding in patients with low back pain include a loss of intervertebral disk height, anterolithesis or retrolithesis of the vertebral bodies, spondylosis, and fractures of the vertebral body, spinous processes and pars interarticularis. In the setting of cancer of the spine and physician may see a loss of the pedicle bone. This is commonly known as the wink sign. a The physician may see an x-ray that looks like ankylosing spondylitis. They will need to check the SI joint because ankylosing spondylitis begins at the SI joint. The may get an HLA-B27 screen and will find that there are marginal syndesmophytes with diffuse ossification of the disc space without large osteophyte formation. Ankylosing spondylitis is different from Diffuse Idiopathic Skeletal Hyperostosis (DISH), which occurs commonly in diabetics; in this case the physician will get an HbA1c. Syndesmophytes are non-marginal and have larger osteophytes. It is the DISH which will have flowing ossification along the anterolateral aspect of at least four continuous vertebras. Be cafeful not to confuse the two; DISH is NOT ankylosing spondylitis.

An MRI of the spine will be obtained at a certain point; however, x-rays may be needed first. MRI results may be a problem! There are abnormal MRIs in asymptomatic patients (these are false positives). Approximately 35% of these false positives are seen in patients less than 40 years of age. 90% of positive MRIs in asymptomatic patients occur in patients over 60 years of age. The second issue is the MRIs with gadolinium dye. Gadolinium will differentiate a disc from a scar in a patient with prior lumbar discectomy. Both granulation tissue and the recurrent disc could look alike on a routine MRI. However if contrast is used, there will be contrast enhancement when there is granulation tissue because it is vascular. However, when there is a recurrent disc herniation, the dye will not enhance because the disc is a dead piece of tissue (avascular). When the doctor tries to differentiate

between a recurrent disc and a scar, they will inject the dye and get the MRI. If there is a vascular enhancement, then it is granulation tissue and the patient will not need surgical intervention. If there is no enhancement, then it is a recurrent disc and it is avascular, which is why it does not enhance. If the recurrent disc is causing a lot of pain or symptoms to the patient, then the physician may need to discuss a repeated surgery with this patient.

Treatment

In general, when the patient has low back pain, it is necessary to treat the patient conservatively. The doctor does not need to get x-rays in the first 4-6 weeks unless there are "red flags" including: the patient is older, the patient has a metastatic tumor or history of cancer, infection is suspected, the patient has trauma or there is an osteoporotic fracture possibly related to steroid use or advancing age. Bed rest is controversial and should not exceed 2-3 days. Pain control is used in different methods including NSAIDS, steroids in the form of Medrol dose pack and muscle relaxants. Watch for NSAIDs toxicity presenting as gastritis, visceral bleeding, platelet dysfunction, and renal dysfunction. Physical therapy should be utilized as soon as pain control is achieved. A soft brace or a corset may be used, but it usually does not help a lot, even with a thigh extension. A thigh extension will only restrict about 50-65% of the normal gross body motion. An epidural injection can be used and has up to a 50% success rate. However, this improvement is oftentimes short lived, requiring possible repeat injections. Patients sustaining chronic disabling occupational low back pain without any intensive rehabilitation will have different expectations about returning to work. 50% of people who are out of work for 6 months will return to work. If the person if off of work for 1 year, only 20% will return to work. Lastly, almost none of the people that are off of work for over 2 years will return to work. The best treatment for acute low back pain is to continue with ordinary daily activities within the limits permitted by the pain. Therefore, it seems that the best treatment for low back pain is for the patient to return to work.

Acknowledgments

None.

Conflicts of Internet

None.