Dynamic Chiropractic

When Is an MRI Necessary?

REVIEWING IMAGING GUIDELINES FOR BACK AND NECK PAIN

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Patients often ask for specialized imaging to determine the extent or cause of neck and low back pain. Some patients come in touting MRIs with proof of disc bulges and/or herniations. Others have back pain and want to be imaged right away. Unfortunately, images alone do not provide the entire picture, of course, because several factors contribute to back pain. For example, state of mind, social background, other health conditions, family history, inflammation, and muscular instability may play a causative role. Moreover, some people have structural defects on MRI that are non-problematic; in other words, some structural abnormalities may not cause pain or dysfunction.

While MRI provides useful information in specific circumstances, it is often overutilized for mechanical causes of back pain. This is an important point because MRI is an expensive test; performing one adds to health care costs without necessarily improving patient care. In short, getting an MRI may not change how a practitioner helps a patient's pain. It begs the question, "When is an MRI necessary?" Fortunately, recommendations offered by the American College of Radiology (ACR) and literature reviews help shed light on this important question.

False Negatives, False Positives

Pain by itself is insufficient to substantiate the need for an MRI. Even when performed to verify specific and reproducible complaints, MRI provides meager results. Two reasons explain this phenomenon. First, while MRI detects many significant lesions, it often misses soft-tissue injuries, even after trauma. A negative MRI doesn't mean you are in the clear; numerous reports have documented low rates of undiagnosed spine injuries that required later repair or worsening symptoms.[1] Second, MRI detects many clinically insignificant lesions. Although MRI detect many lesions, it is not clear how many of those lesions identified on MRI are clinically significant.[1] That means MRI often generates many false-positive examinations.

Specifically, imaging may not match the patient's history or complaint and sometimes produces no complaints at all. In addition, to date, there are no established criteria for distinguishing significant from inconsequential abnormalities seen on MRI. Overall, these results imply that soft-tissue injuries are quite common after significant trauma and that many of these lesions do not lead to mechanical instability, despite the presence of pain.[1]

Guidelines for Advanced Imaging

For the above reasons, the ACR has deemed MRI of the neck least appropriate when there is low risk of injury; suspected but unconfirmed injury following acute trauma; or on follow-up after previous CT scan showed no evidence of instability, even when a neck collar may have been used prophylactically. For mid- and low-back injuries, the ACR gives MRI an appropriateness rating of 5 out of 9, which

leaves the decision in the hands of the doctor.[1] Faced with this decision, many will turn to current literature for guidance.

So, when is MRI recommended? The ACR guidelines suggest MRI for people with possible spinal cord injury and clinical concern for cord compression, in those suspected of having ligamentous instability or suspected arterial injury. As a note, cord injury is not the same as nerve root injury. The former is more severe and can have lasting consequences if not handled appropriately. On the other hand, nerve root injury, while very common and often painful and disrupting, is not generally life-threatening. Moreover, nerve root injury can usually be treated conservatively with good results.

As mentioned earlier, the ACR guideline on MRI for low back pain is somewhat ambiguous. Fortunately, sufficient research exists to help guide the need for advanced imaging. As a general rule, scientific evidence advises against imaging patients with nonspecific low back pain within the first six weeks unless severe or progressive neurologic symptoms are present, or serious underlying conditions are suspected.[2-6] Nevertheless, about two-thirds of MRI occur within the first month of pain onset, despite clinical guidelines that recommend waiting to see if patients recover on their own or with conservative care, as many do.

In fact, imaging (X-ray, MRI, or CT scan) for low-back pain without indications of serious underlying conditions does not improve patient results in the short term (less than three months) or long term (six months to one year). Therefore, the literature recommends that doctors refrain from routine, immediate imaging in patients with acute or subacute low back pain unless they suspect a more serious underlying condition.[5]

By the way, surgery is not warranted within the first three months to a year of nonspecific low back pain because there is no evidence that the patient will experience better results.[2-4] In fact, the initial benefits of surgery are lost in the long term and compare to nonsurgical outcomes.

Worse still, some studies report surgery for nonspecific low back pain within the first year despite evidence to the contrary.[2] Let me be clear that in cases of cord compression with severe or rapid neurologic deficit, or in cases of severe instability, surgery is often the best option for patients. However, this is not the case with nonspecific low back pain.

The results are similar for neck pain. No evidence supports specific MRI findings with associated neck pain, cervicogenic headache, or whiplash exposure. In the absence of serious injury, a good clinical examination is better at ruling out structural lesions causing neurological symptoms.[3] Nevertheless, people worry when they experience new symptoms or their pain continues for a long time because they feel something is wrong. This worry reinforces their desire for advanced imaging, as they believe it will help address their symptoms. This idea can ring true for many things, but not so much with back pain.

Guidelines for Treating Low Back Pain

The American College of Physicians and the American Pain Society, in their joint clinical practice guideline, offer the following recommendations for evaluating and treating low back pain:[6]

1. Doctors should conduct a focused history and physical exam to categorize patients with low back

pain into one of three broad categories: nonspecific low back pain, back pain potentially associated with radiculopathy or spinal stenosis, or back pain potentially associated with another specific spinal cause. The history should include assessment of psychosocial risk factors that predict risk for chronic, disabling back pain. (Some researchers have taken this recommendation a step further by categorizing cases into one of the four most common sources of back pain, which helps select a more precise strategy for addressing the patient's pain.)[7-8]

2. Doctors should not routinely obtain imaging or other diagnostic tests in patients with low back pain.

3. Doctors should request diagnostic imaging and testing for patients with low back pain when severe or progressive neurologic deficits are present or when serious underlying conditions are suspected on the basis of history and physical examination.

4. Doctors should evaluate patients with persistent low back pain and signs or symptoms of radiculopathy or spinal stenosis preferably with magnetic resonance imaging *only when* they are potential candidates for surgery or invasive procedures, i.e., epidural steroid injections.

5. Doctors should (a) provide patients with evidence-based information on their expected course of low back pain; (b) advise patients to remain active; and (c) provide information about effective self-care options like stretching, strengthening, ergonomics, etc.

6. Doctors should consider the use of medications with proven benefits in conjunction with back care information and self-care when necessary. For many patients, acetaminophen or over-the-counter nonsteroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen, provide an effective first line of relief. Doctors who combine this approach with conservative treatment or alternative options will likely provide the best care and results for patients suffering from back pain.

Back pain is a huge health issue in the United States. That is why it has been studied extensively. Scientific evidence provides better information every day. For now, a diagnosis-based protocol should follow current recommendations and direct treatment toward addressing primary pain generators and other factors that perpetuate back pain.[7-8] As nonsurgical spine specialists poised to direct back care, we can handle the initial emergency, advise patients how to avoid future episodes of debilitating pain, and provide guidance on lifestyle modifications to help create a true model of wellness.

References

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