

## Guidelines for diagnostic imaging of the spine

**A**s physicians, we are driven to relieve our patients' pain. To do so, we first attempt to determine the cause of their pain. With disabling back pain, the temptation is to order an MRI or CT scan. But is this always a good idea?

### Effectiveness of imaging

A significant portion of the general population will experience at least one episode of nonspecific low back pain during their lifetime. However, the presence of back pain correlates poorly with abnormalities found on imaging.

A landmark study by Jensen and colleagues, published in 1994, found that only 36% of asymptomatic volunteers had normal MRIs of the lumbar spine.<sup>1</sup> At least one disc bulge was found in 52%, 27% had disc protrusions, 14% had annular tears, and 1% had frank disc extrusions.

### Risks of imaging

Imaging of the spine is not without risk. Average radiation exposure from lumbar radiography is 75 times higher than for chest radiography.<sup>2</sup> Learning that imaging showed an abnormality in the spine might also be harmful to some patients.

A 2001 trial published in the *British Medical Journal* found that patients who had routine radiography of the spine reported longer duration of pain, more severe pain, and poorer functioning than similar patients who did not undergo imaging.<sup>3</sup> Interestingly though, patients who had radiography also reported a higher level of satisfaction with the care they received at follow-up after 9 months. This suggests the importance of addressing patients'

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expectations with respect to imaging.

Another potential risk of imaging for low back pain is unnecessary interventions, including epidural injections inappropriately prescribed for mechanical low back pain, or even unnecessary surgery.

### Value of imaging

Neurosurgeons and orthopaedic surgeons make decisions regarding surgery based on the objective clinical findings in their patients, rather than MRI findings. Even an imaging finding of a disc herniation will not necessarily lead to surgery if there are few objective clinical findings of radiculopathy. Treating the patient, not the scan, is important.

In 2007, the Therapeutics and Technology Assessment Subcommittee of the American Academy of Neurology found no role for the use of epidural injections in the treatment of mechanical back pain.<sup>4</sup> Epidurals are indicated only for the treatment of radicular findings.

Attacks of low back pain usually have a benign natural history. Most patients with low back pain, in the absence of conditions such as vertebral fractures or malignancy, will improve substantially after about 4 weeks, regardless of the presence or absence of radicular features.<sup>5,6</sup>

### Guidelines for imaging of the spine

The American College of Physicians recommends diagnostic imaging for patients with low back pain only if they have severe progressive neurological deficits or signs and symptoms that suggest a serious or specific underlying condition.<sup>7</sup> The Clinical Practice Guideline, published by R. Chou and colleagues in 2007,<sup>8</sup> recommends that clinicians:

- Should not routinely obtain imaging or other diagnostic tests in patients with nonspecific low back pain.
- Should perform 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, based on history and physical examination.
- Should evaluate using magnetic resonance imaging (preferred) or computed tomography only if patients with persistent low back pain and signs or symptoms of radiculopathy or spinal stenosis are potential candidates for surgery or epidural steroid injection (for suspected radiculopathy).

### Learn more

For more information on diagnostic imaging of the spine for your worker patients, please contact a medical advisor in your nearest WorkSafeBC office.

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### References

References are available on request by e-mailing [charlene.kotze@worksafebc.com](mailto:charlene.kotze@worksafebc.com), calling 250 751-8033, or going online at [bcmj.org](http://bcmj.org).

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