Diagnostic imaging

This page only includes articles published in the last 5 years.

Current recommendations

The most current evidence-based diagnostic imaging practice guidelines for chiropractors[1] and primary care physicians[2, 3] do not recommend the routine use of imaging for patients seeking an evaluation of their low back pain (LBP). Even though management approaches are different between the professions, the imaging guidelines are comparable.

For chiropractors, current guidelines maintain that x-rays are not initially indicated for non-specific acute, subacute or persistent back and neck pain in the absence of red flags.[1] Also, radiographs are not useful for screening for contraindications or for analyzing biomechanical changes. The guidelines do recommend:

- A history and physical exam to detect red flags (underlying serious pathologies), signs of nerve compression and/or injuries (fracture, dislocation, etc.).
- A consideration of x-rays if the patient experienced blunt trauma OR if there is no response to treatment after 4-6 weeks of conservative care.
- Urgent specialized imaging for back and neck pain with critical qualities: sphincter or gait disturbance, saddle anesthesia, severe or progressive neurologic deficit, systemic illness (cancer, infection), vascular causes (suspected abdominal/thoracic aorta aneurysm), or cervical artery dissection.

In order to maximize the benefit-to-risk ratio, clinical guidelines are developed based on the best current scientific evidence. Risks are involved with radiography including ionizing radiation, unnecessary diagnoses that lead to inferior patient outcomes or the potential for needless investigation or treatment and higher costs.[4] A recent survey of Australian chiropractors reported only 49.6% were aware of current imaging guidelines for LBP.[5] The authors stated: “Poor adherence to clinical guidelines results in an increased risk to the patient as there is a decreased likelihood of clinical benefit but the same inherent risks associated with radiography. Furthermore, a lack of adherence to evidence-based clinical guidelines reflects poorly across the chiropractic profession as primary contact healthcare practitioners.”

A meta-analysis was conducted to determine whether immediate, routine lumbar imaging for patients without a serious underlying condition was more effective than usual clinical care without immediate imaging. The analysis showed that immediate imaging did not improve clinical outcomes.[4]

Improving adherence

A 2015 review was performed to assess the effectiveness of interventions aimed at reducing imaging rates and found:[6]

- Clinical decision support that involved a modified referral form allowing only 3 indications from guidelines for appropriate imaging reduced the imaging rate by 36.8%.
- Targeted reminders involving educational messages that promoted appropriate imaging practices were sent with lumbar spine imaging reports to primary care doctors and reduced the rate by 22.5%.

A 2014 clinical study reported:[7]

- Web-based imaging guideline distribution was associated with an immediate reduction in spine x-ray imaging claims in the U.S.
- Dissemination of the guidelines appears to be cost effective and "resulted in less patient ionizing radiation exposure and possibly reduced inefficient and potentially inappropriate invasive diagnosis and subsequent treatment."
- This study was not randomized and valuable patient information was not available (red flags, diagnosis, disease severity), therefore "no conclusions about the guideline's effect on improving the appropriate use of diagnostic imaging among U.S. chiropractors" can be made.

Diagnostic accuracy

A 2015 diagnostic accuracy study was performed to investigate the intra- and interobserver agreement and validity of lumbosacral spine MRI interpretation by medical radiologists, chiropractic radiologists and chiropractors.[8] Results showed that "agreement of the medical radiologists and chiropractic radiologists was higher than that of chiropractors, but overall, the agreement was moderate." Validity was reasonable, however, a considerable number of MRIs were misclassified. The authors concluded that they support the clinical guidelines to limit use of imaging based on the fact that, along with poor correlation between imaging findings and physical examination, only modest agreement and validity within and between the professions occurred.

References

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