Choosing Wisely: imaging recommendations

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Chiropractic has an Image Problem

SO I HEAR YOU’RE A DOCTOR?!?!

I KNEW IT! I’M ALLERGIC TO EGG WHITES NOW!

MY CHIROPRACTOR TOLD ME SO

COLLEGE DROPOUT

I DON’T KNOW HOW I’M STILL ALIVE!

GETS IMMEDIATELY ACCEPTED TO CHIROPRACTIC SCHOOL

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Chiropractic has an Image Problem

Policy makers

• Reservations about quality, consistency
• Do not know how to include chiropractic
• Do not think about including chiropractic
Joining the Choosing Wisely campaign is an important way to address these barriers.
Choosing Wisely

**NOT** intended to prohibit any particular treatment in all scenarios

**NOT** intended to dictate care decisions

**NOT** to be used to establish coverage decisions or exclusions
Choosing Wisely Encourages

• Conversation
• Shared decision making
• Informed consent
• Empowered patients
• Welfare of patient comes first
ACA Committee on Quality Assurance and Accountability

Criteria for topics
   a) Common to the practice of chiropractic
   b) Use should be questioned and discussed

Recommendations
   1) Supported by clinical research
   2) High-value, cost-effective, improved patient outcomes

*CMS Performance Measures
Choosing Wisely

Five Things Physicians and Patients Should Question

1. Do not obtain spinal imaging for patients with acute low-back pain during the six (6) weeks after onset in the absence of red flags.
   In the absence of red flags, evidence-based guidelines do not support the routine use of spinal imaging for patients with acute back pain of less than six weeks duration. Red flags include history of cancer, fracture or suspected fracture based on clinical history, progressive neurologic symptoms and infection, as well as conditions that potentially preclude a dynamic thrust to the spine, such as osteopenia, osteoporosis, axial spondyloarthritis and tumors. Unnecessary imaging incurs monetary cost, exposes the patient to ionizing radiation and can result in labeling patients with conditions that are not clinically meaningful, creating a false sense of vulnerability and disability. Indeed, several studies have shown that the routine use of radiographs in the care of low-back pain may result in worse outcomes than without their use.

2. Do not perform repeat imaging to monitor patients’ progress.
   With few exceptions (e.g., the long-term management of idiopathic scoliosis) radiographic findings should not be used as outcome measures for low-back pain. There is currently no data available to support a relationship between changes in alignment or other structural characteristics and patient improvement. This practice increases costs, exposes patients unnecessarily to ionizing radiation and may distract from more meaningful outcomes. Furthermore, there is no known correlation between performing routine or repeat imaging studies to monitor a patient’s condition and improved clinical outcomes or meaningful changes in patient management. Repeat imaging is appropriate only if strong clinical indications exist, such as a major change in diagnosis, documented worsening of symptoms or significant progression of disease. Failure to respond to treatment is not an indication for repeat imaging.
1. Do not obtain spinal imaging for patients with acute low-back pain during the six (6) weeks after onset in the absence of red flags.

- History of cancer
- Suspected fracture
- Progressive neurologic symptoms
- Infection
- Contraindication to SMT (e.g. osteoporosis, axial spondyloarthritis, tumors)
EXAMINE YOUR ASSUMPTIONS!
Routine Imaging to Identify Pathology?

Back pain presenting to primary care:
• 0.7% primary metastatic cancer
• 0.01% spinal infection
• 0.04% cauda equine syndrome
• 4% vertebral compression fracture
• <5% inflammatory back disease
*almost all have identifiable risk factors

Table 5. Subsequent Serious Diagnoses in Early Imaging Groups Matched Controls

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Imaging, No. (%) [95% CI]</th>
<th>Matched Control</th>
<th>Early Imaging</th>
<th>P Valuea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cancer diagnosis</td>
<td>26 (2.2) [1.5 to 3.2]</td>
<td>20 (1.7) [1.1 to 2.6]</td>
<td>.37</td>
<td></td>
</tr>
<tr>
<td>Inflammatory spondyloarthropathies</td>
<td>2 (0.2) [0.05 to 0.6]</td>
<td>6 (0.5) [0.2 to 1.1]</td>
<td>.16</td>
<td></td>
</tr>
<tr>
<td>Fractures of spine</td>
<td>7 (0.6) [0.3 to 1.2]</td>
<td>23 (2.0) [1.3 to 2.9]</td>
<td>.004</td>
<td></td>
</tr>
<tr>
<td>Osteomyelitis, No.</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Matched Control vs Early Radiography (n = 1174 per group)

- Cancer diagnosis: Matched Control 26 (2.2) [1.5 to 3.2], Early Imaging 20 (1.7) [1.1 to 2.6], P Value .37
- Inflammatory spondyloarthropathies: Matched Control 2 (0.2) [0.05 to 0.6], Early Imaging 6 (0.5) [0.2 to 1.1], P Value .16
- Fractures of spine: Matched Control 7 (0.6) [0.3 to 1.2], Early Imaging 23 (2.0) [1.3 to 2.9], P Value .004
- Osteomyelitis, No.: Matched Control 0, Early Imaging 0

Matched Control vs Early MRI/CT (n = 349 per group)

- Cancer diagnosis: Matched Control 7 (2.0) [0.1 to 4.1], Early Imaging 7 (2.0) [0.1 to 4.1], P Value .99
- Inflammatory spondyloarthropathies: Matched Control 1 (0.3) [0.01 to 1.6], Early Imaging 4 (1.2) [0.5 to 2.9], P Value .18
- Fractures of spine: Matched Control 0, Early Imaging 3 (0.9) [0.3 to 2.5]
- Osteomyelitis, No.: Matched Control 0, Early Imaging 0

Identify spinal abnormalities?

<table>
<thead>
<tr>
<th>Imaging Finding</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disk degeneration</td>
<td>37%</td>
<td>52%</td>
<td>68%</td>
<td>80%</td>
<td>88%</td>
<td>93%</td>
<td>96%</td>
</tr>
<tr>
<td>Disk signal loss</td>
<td>17%</td>
<td>33%</td>
<td>54%</td>
<td>73%</td>
<td>86%</td>
<td>94%</td>
<td>97%</td>
</tr>
<tr>
<td>Disk height loss</td>
<td>24%</td>
<td>34%</td>
<td>45%</td>
<td>56%</td>
<td>67%</td>
<td>76%</td>
<td>84%</td>
</tr>
<tr>
<td>Disk bulge</td>
<td>30%</td>
<td>40%</td>
<td>50%</td>
<td>60%</td>
<td>69%</td>
<td>77%</td>
<td>84%</td>
</tr>
<tr>
<td>Disk protrusion</td>
<td>29%</td>
<td>31%</td>
<td>33%</td>
<td>36%</td>
<td>38%</td>
<td>40%</td>
<td>43%</td>
</tr>
<tr>
<td>Annular fissure</td>
<td>19%</td>
<td>20%</td>
<td>22%</td>
<td>23%</td>
<td>25%</td>
<td>27%</td>
<td>29%</td>
</tr>
<tr>
<td>Facet degeneration</td>
<td>4%</td>
<td>9%</td>
<td>18%</td>
<td>32%</td>
<td>50%</td>
<td>69%</td>
<td>83%</td>
</tr>
<tr>
<td>Spondylolisthesis</td>
<td>3%</td>
<td>5%</td>
<td>8%</td>
<td>14%</td>
<td>23%</td>
<td>35%</td>
<td>50%</td>
</tr>
</tbody>
</table>

1. Do not obtain spinal imaging for patients with acute low-back pain during the six (6) weeks after onset in the absence of red flags.

*Instead*

- Render imaging on a case-by-case basis
- Consider in the presence of red flags, or if improvement does not occur after 6-weeks of care
2. Do not perform repeat imaging to monitor patients’ progress.

- No established relationship between changes in alignment/structural characteristics and outcome
- Increases harm (e.g. cost, ionizing radiation, dependency)
EXAMINE YOUR ASSUMPTIONS!
<table>
<thead>
<tr>
<th>Outcome</th>
<th>Short Term (&lt;3 Months)</th>
<th></th>
<th>Long Term (&gt;6 Months to ≤1 Year)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Results, by Specific Scale</td>
<td>Analysis (95% CI)</td>
<td>Results, by Specific Scale</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pain</td>
<td>SF-36 bodily pain (0 to 100 scale): 3.0 (-2.0 to 8.0), 2 trials; VAS (0 to 10 scale): 1.0 (0.46 to 1.54), 1 trial</td>
<td>Pooled SMD: 0.19 (-0.01 to 0.39); 3 trials</td>
<td>SF-36 bodily pain: -2.1 (-5.1 to 0.80), 3 trials; VAS: 0.08 (-0.02 to 0.18), 1 trial</td>
</tr>
<tr>
<td>Function</td>
<td>RDQ (0 to 24 scale): 0.48 (-1.4 to 2.3), 3 trials</td>
<td>Pooled SMD: 0.11 (-0.29 to 0.50); 3 trials</td>
<td>RDQ: 0.34 (-0.65 to 1.3), 3 trials; Aberdeen low back score (0 to 100 scale): -3.1 (-4.2 to -2.0), 1 trial</td>
</tr>
<tr>
<td>Quality of life</td>
<td>EQ-5D (0 to 1 scale): -0.10 (-0.17 to -0.03), 1 trial; EuroQoL subjective score (0 to 100 scale): 2.0 (-1.5 to 5.5), 1 trial</td>
<td>Pooled SMD: -0.10 (-0.53 to 0.34); 2 trials</td>
<td>EQ-5D: -0.005 (-0.06 to 0.05), 2 trials; EuroQoL subjective score: -7.0 (-10 to -3.7), 1 trial</td>
</tr>
<tr>
<td>Mental health</td>
<td>SF-36 mental health (0 to 100 scale): 2.3 (-6.3 to 11), 2 trials</td>
<td>Pooled SMD: 0.12 (-0.37 to 0.62); 2 trials</td>
<td>SF-36 mental health: 0.61 (-4.4 to 5.6), 3 trials</td>
</tr>
<tr>
<td>Overall improvement†</td>
<td>Risk difference: -7.8% (-14% to -1.3%)</td>
<td>Relative risk: 0.83 (0.65 to 1.06); 4 trials</td>
<td>Risk difference: -7.8% (-17% to 1.8%)</td>
</tr>
</tbody>
</table>

EQ-5D = European Quality of Life—5 Dimensions; EuroQoL = European Quality of Life; RDQ = Roland Disability Questionnaire; SF-36 = Short Form-36; SMD = standardized mean difference; VAS = visual analogue scale.

* From reference 6. Negative results favor routine imaging for pain and function, whereas positive results favor routine imaging for quality of life and mental health.
† Dichotomous outcome, defined as back pain resolved, normal activities resumed, and patient rating of “symptoms much improved” or at least “very pleased.”
Nominal Risk of X-rays?

- Accumulated average radiation exposure
  - Lumbar x-rays=6th highest contributor to radiation exposure
  - Annual dose lumbar x-rays 75X chest xray
  - Highest risk for women, esp. gonad exposure
- Cost
- Additional procedures (each with their own risk)
  - Advanced imaging increases risk of surgery

Empower Patients with a Diagnosis?

- Unintended harms related to labeling
  - Smaller improvement to general health
  - More pain/worse overall health status at 3 months
- Why?
  - Catastrophizing
  - Fear-avoidance behavior
  - Maladaptive strategies


2. Do not perform repeat imaging to monitor patients’ progress.

**Instead**

- Consider when symptoms change notably, disease progression occurs, or patients do not respond to care
- Current evidence supports repeat imaging to monitor idiopathic scoliosis
ACA and the Choosing Wisely program believe that decisions about care should be made based upon best available evidence, clinical judgment of the doctor, and preferences and goals of the patient.

This is how evidenced-based care works.
Providers are Under Pressure

- Patient expectations affect clinical decisions
- Patients more satisfied when imaging received
- Believe it is necessary, despite clinical benefit
- Defensive medicine

Conversation is key!

“IT AIN’T WHAT YOU DON’T KNOW THAT GETS YOU INTO TROUBLE. IT’S WHAT YOU KNOW FOR SURE THAT JUST AIN’T SO."

MARK TWAIN

© Lifehack Quotes