Dynamic Chiropractic

Risks vs. Benefits: The Ethics of Radiography

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B.J. Palmer had anointed Joy Loban, DC, as his successor to teach his beloved class in chiropractic philosophy. However, in 1910, Loban led a group of 50 students and faculty who walked out of the Palmer School of Chiropractic. They moved down the block and started the Universal College of Chiropractic (UCC). What sparked this defection was B.J.'s introduction of the radiograph that year. The defectors left because they thought B.J. had betrayed chiropractic with the introduction of radiographs to find subluxations. To these mutineers, the radiograph was antithetical to chiropractic philosophy. One should only use one's hands to find subluxations. The great irony of this story is that eventually, UCC would move to Pittsburgh, and the faculty there would perfect the method for doing split-screen, full-spine radiography.

To some extent, we believe Loban's original idea was correct. Somewhere along the way, some in our profession have lost their way with regard to plain-film radiography. With any health care intervention, the benefits of the intervention must be greater than the risks secondary to the ethical principle of nonmaleficence, or in Latin, *primum none nocere* (first, do no harm).

What Are the Potential Harms?

The most obvious risk is exposure to ionizing radiation and the potential for tissue damage. There also is the unreasonable belief in their diagnostic value, potentially delaying or preventing the use of more appropriate procedures. The diagnostic yield is relatively low when applied across large populations. If the purpose were to find occult disease, one would really want to radiograph a patient daily. This is unreasonable, of course, but it sort of makes sense because early detection of a random pathology is more likely if one is looking for it all the time. When it finally appears, it will be observed. The final problem with diagnostic imaging that has a low probability of finding something important is the lost opportunity cost (time and money) for the unneeded test.

What Are the Potential Benefits?

Possibly the greatest benefit is the detection of pathology in select cases. However, as we noted above, lacking a good probability that such a pathology exists, there is a low probability of finding anything. Without the red flags indicating a pathology might exist, the ubiquitous use of radiographs is similar to searching for a needle in the haystack. What is the usefulness of intersegmental spinal-alignment analysis? Proponents of case management based upon an analysis of vertebral alignment have yet to demonstrate any clinically meaningful benefit over chiropractic care that does not analyze a patient's spinal alignment. Using radiographs for spinal curve analysis is similar to intersegmental spinal analysis. Likewise, proponents of case management based upon an analysis of spinal curve magnitude/direction have yet to provide any clinically meaningful benefit over chiropractic care that does not analyze a patient's spinal curves.

While the debate within the health care profession concerning the routine use of radiography in most or all patients presenting to physicians' offices lingers on, much work has been done in the research arena regarding such a paradigm. For example, the Canadian C-Spine Rule and the National Emergency X-Radiograph Utilization Study (NEXUS) investigation demonstrated very high

sensitivity and negative predictive value for significant injury when using specific criteria for patients with cervical spine trauma.[1,2] These results were particularly impressive when compared to unguided clinician judgment. In the lumbar spine, the routine use of radiography also has been repeatedly demonstrated to have a poor diagnostic yield and does not have an impact on patients' clinical outcomes.[3-5]

Many authors have devised clinical guidelines for the use of spinal radiography including indications and contraindications for radiography.[6] These appear to be significantly underutilized. Two new guidelines[7,8] have been attacked by some in the profession as too restrictive. Since a preponderance of the evidence Bussieres and colleagues found shows a limited role of radiographs is best, the onus is on those who believe a more expansive role is appropriate to show their patient-centered clinical outcomes are better than outcomes not reliant on radiographs. Complaining that those who search the evidence are not seeing patients is similar to saying a reporter can't write about a murder without being murdered or murdering someone.

The routine use of radiography in a majority of patients is by no means a problem unique to the chiropractic profession. However, in this age of rising health care costs and evidence-based health care, we find it particularly important that the chiropractic profession take the lead in health care containment strategies. Reduction in the use of radiography is one important area in which we can have an impact.

While specialty chiropractic practices such as sports medicine might require more routine use of plain-film radiography, we can find no compelling reasons at present for the routine use of radiography in all or most of the patients who present to a chiropractic general practice. Some chiropractic regulatory agencies such as the General Chiropractic Council (the regulatory board for chiropractic in the U.K.) have suspended the licenses of chiropractors who have taken radiographs for inappropriate reasons. Dare we suggest this is a less appropriate road to take than to follow already-established guidelines? Thus, it appears when one does not follow already-established guidelines, the harm, a violation of our duty of nonmaleficence, exceeds the benefits.

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