

Cost-Benefit Analysis: a Chiropractic Blind Spot

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Several years ago I saw a patient who complained of minor pain at the lumbothoracic junctional area. This was a patient I had seen every couple of years, about 2-3 visits per episode, for similar bouts of mechanical back pain neck, low back, shoulder area. Although I had never previously x-rayed this patient, for some reason I decided to obtain a routine lumbopelvic series this time. Given that this patient was quite tall, I instructed the x-ray tech to raise the tube so that the radiograph would necessarily include the symptomatic L/T junctional area.

So what does he do? He gets it backwards and lowers the tube, aiming the central ray through the sacral apex. Although the radiograph had missed the area of chief complaint, I had serendipitously obtained an image of the proximal femurs. And what an image it was! There was a radiolucent area in the left femur, that tailed off gradually to the limit of the caudad edge of the film, appearing to blend gradually into the surrounding normal bone. There were calcific flecks in the radiolucent area. Both I and the other chiropractor with me that day agreed that it was probably a malignant bone tumor.

We went back to the patient, who was wondering what was taking so long, to explain that we needed some more radiographs to further investigate something that had unexpectedly turned up on the routine lumbopelvic series. We didn't let him know how concerned we were about this "something," but he could tell from our demeanor that we were disturbed. When it became clear that all the views showed told the same story apparent bone malignancy I dismissed the patient for the day, explaining that I would call him the next day after reviewing the films with a radiologist.

Indeed, the next morning I showed up at 8:00 AM at the office of a DACBR whose practice is limited to reading x-rays. I hung all the films for inspection. After wordlessly reviewing the films for about a minute, his expressionless face revealing not a scintilla of information as to his clinical impression, he wordlessly walked a few steps over to his book shelf. He looked up something in the index of a pre-Yochum textbook of diagnostic radiology (Paul and Juhl's) and opened the book to a certain page. Without even looking at the illustration, he handed the book (wordlessly, of course) over to me.

Fibrous dysplasia. Benign, even if pre-malignant. The DACBR did recommend some lab work and monitoring of the patient over the coming months, but was quite sure there was no malignancy. Having treated this patient on and off for some 10 years following this diagnosis, during which time he most certainly has not expired, I can attest to the correctness of the DACBR's radiographic impression.

From a case management point of view, the accidental discovery of fibrous dysplasia led to the following:

- I advised the patient never to ignore any pain that might develop in his left thigh area.
- I also told him that his "hip" was weaker than it should be, and easily could fracture one of these

days while he was skiing or playing field hockey, his favorite two recreational pursuits.

- I resolved to not perform any more of those "knee-in-the-V" (i.e., "motorcycle kick") type of side posture adjustments on this patient. You know, the kind of adjustment where the doctor's knee applies distractive force to the patient's lower extremity to apply pre-stress during a lumbopelvic adjustive procedure.

[I never want to see a day when I have to tell the patient: "Well, Pat, uh, the adjustment worked just fine, I got a real nice deep set of the disk ... and, uh, well, they shouldn't have that much trouble reattaching your leg to your hip with crazy glue."]

Although I felt lucky I had become aware of fibrous dysplasia in this patient's femur, I did not conclude that it was indicated to obtain radiographs of the femur in every patient whom I intended to adjust in side posture. Moreover, I don't know any chiropractor, nor can I even imagine one, who would argue that the benefits of obtaining such femoral views would exceed the costs involved. This includes both the patient's exposure to ionizing radiation, and the unnecessary expense of the diagnostic procedure.

Unfortunately, not a week goes by without me hearing it said or reading somewhere that a chiropractor must x-ray every bone that potentially serves as a segmental contact point. (The chiropractic college I attended took this position.) After all, so the argument goes, there are all sorts of clinical entities, often asymptomatic, that are only radiographically detectable that would contraindicate high velocity, low amplitude thrusting: agenesis of the dens, bone tumors, facet tropism, maybe even ... fibrous dysplasia!

Actually, there is good reason to believe that the incidence of such radiographic contraindications to HVLA thrusting is low enough so that the benefits of "routine radiography" to rule out pathology do not outweigh the costs.^{1,2} (For a contrary opinion, see Plaughner,³ who cites Rowe.⁴) Taking radiographs for the sole purpose of generating listings, a practice which would be worth an entire column to criticize, is an even tougher sell these days. According to Marchiori,⁵ "The number of seemingly negative studies needs to be reduced, limiting patient radiation exposure and cost." He goes on to ask: "Is it possible to predict from patient histories and clinical examinations which patients will demonstrate useful information on their radiographic studies?"

Some chiropractors neglect cost-benefit analysis when it comes to subluxation detection, whereas they have no problem applying such a calculus in other situations. No chiropractor would ever instruct a young asymptomatic female patient to go in for a routine mammogram, knowing full well that in this type of patient the clinical risk of causing a tumor exceeds the benefit of possibly detecting one. Furthermore, a societal dollar spent on an unnecessary diagnostic procedure is a dollar no longer available for potentially higher yield diagnostic procedures, like blood chemistry or perhaps spinal palpation. The cost of a procedure is not simply what it costs to perform, but its opportunity cost: the alternative procedures that must be sacrificed to purchase the given procedure in an environment where health care like ours is rationed.

There is a similar double standard afoot when it comes to the alleged possible vascular complications of cervical manipulation. With chiropractic in the goldfish bowl these days, some of my colleagues have become hypersensitive about in this area. Is an incidence rate of one serious complication per

million cervical manipulations acceptable or unacceptable? If, as many of my colleagues suggest, this is unacceptable, than I must insist that these individuals apply the same standard to routine radiography. The ionizing radiation that patients receive in chiropractic offices certainly kills more or them than upper cervical adjustments.

A friend of mine does not accept my analysis. He argues that whereas there are safe alternatives to the types of adjustments that have been implicated (rightly or wrongly) in the vascular accident cases, he says there is no alternative to the radiograph for identifying certain components of the subluxation complex. I always answer that there is no proof that obtaining radiographic subluxation listings produces a better clinical outcome than, let us say, obtaining listings primarily through palpation, leg checks, etc. If a given doctor prefers "safer alternatives" to certain types of adjustments, then this same doctor must prefer "safer diagnostic procedures" than ionizing radiation.

I really don't know why this profession shoots itself in the foot when it comes to the alleged risks of cervical adjusting, while it blithely vaunts the necessity of demonstrably dangerous analytic x-rays; nor why it prefers routine radiography to routine mammography. This incoherence is itself a liability, as society tries to decide whether chiropractors are capable of cost-benefit analysis in a managed care environment. All doctors must realize that the indications for various procedures must be patient-specific; what predicts a good clinical outcome is not only what procedure is used, but what type of patient receives the procedure.

There must be some explanation why there are so many double standards in chiropractic. It's partly a question of professional patriotism: chiropractic routine spinography is good, medical mammography is bad. (Other examples could be given.) In other cases it's probably more a question of timing: the adverse vascular complication following manipulation is immediate, whereas the malignancy that follows a radiograph is often decades down the road. There's also the question of patient identity. The stroke victim is your patient in the here and now, whereas the cancer victim is a faceless statistical unfortunate who looms ahead in the distant future.

It is hard for a doctor to viscerally appreciate the biological hazard of ionizing radiation when the victims are random and their identities unknown. For the patient, getting x-rayed is like playing Russian roulette with a gun of a thousand barrels, where the bullet will not be fired for many years after the trigger is pulled, long after the doctor will have left the picture. When and if a bullet does strike, it will be uncertain from whose gun it was fired, or even what weapon was used, given the number of carcinogens out there. Tough one.

ABS Meeting in December

The American Back Society (ABS), whose conferences I have covered for several years, will host its Fall meeting in San Francisco, December 12-14. This meeting will present the most current results of outcome studies from both the United States and Canada on the diagnosis and treatment of back pain. For further information, you may contact the American Back Society at 2647 E. 14th St., Suite 401, Oakland CA 94601, Tel (510) 536-9929, Fax (510) 536-1812.

References

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