Dynamic Chiropractic – January 1, 2002, Vol. 20, Issue 01

Trash Talking in Science

By Anthony Rosner, PhD

"Your momma thinks square roots are vegetables."

"Oh, yeah? Your momma thinks polygons turn into frogs."

"Well, your momma couldn't integrate a nested trig function even if you let her use a computer."

So began the trash-talking between two precocious science whiz-kids psyching themselves up for a test in Miss O'Malley's class in a recent *Fox Trot* comic strip.[1]

From your loyal scribe's viewpoint, the dialogue within the clinical research community has often descended to these terms - or even lower. Despite the common perception that scientific dialogue is necessarily carried out on some lofty, Olympian plane, it sometimes falls short for a variety of all-too-human reasons.

My favorite example, which I may have quoted too many times, comes from the Cherkin low back pain study published in the *New England Journal of Medicine*, now some three years old. Despite whatever quality of evidence may have been present, the discussion section of this particular paper contained what can only be described as a blantantly political (if not outright false) statement: "Given the limited benefits and high costs, it seems unwise to refer patients with low back pain for chiropractic or McKenzie therapy."[2] In a peer-reviewed scientific journal that accepts only 10 percent of submitted papers for publication and has been considered by some to be the most prestigious journal of them all, a statement of this import is totally and inexcusably out of order.

A second example in a presumably definitive source shown to be tainted by human bias is a report for the Australian Medical Health and Research Council by Nikolai Bogduk, which I have critiqued elsewhere.[3] Among its many transgressions is its reference to providers other than medical physicians, including chiropractors, as mere "craft groups." There is no way that such a term could be justifiably applied to a

profession which is fully licensed to diagnose and perform complete physical examinations in every one of the 50 states; has been awarded primary care gatekeeper status by at least three of the nation's managed care companies (HMO Illinois,[4] Family Health Plan Cooperative[5] and the Texas Back Institute[5]); and recently recognized as possessing primary care skills to the level of evaluation and diagnoses in 49 out of 53 common primary care activities.[6] Given the testosterone-charged statement elsewhere in Bogduk's guidelines that they have been developed "transparently and unashamedly...with the medical practitioner in mind,[3]" one can easily surmise that human bias has given rise to arbitrary and capricious statements in what is presumably a scientific document.

Then of course we have the numerous studies of Edzard Ernst, which border on the surreal. These I have addressed at exasperating length both in the scientific literature[7] and in this space.[8]

Finally comes the mind-numbingly restrictive statement from the Mayo Clinic that attempts to define the role of chiropractic in managing low back pain thusly: "What has been studied extensively is manipulation, which is often used synonymously with chiropractic treatment. Not all chiropractors perform manipulation of the spine. *Other health care professionals trained in manipulation techniques, such as a physical therapist or physicians, can provide this type of treatment* (italics mine)."[9] If this isn't trying to deliberately lead the public away from chiropractic management to the benefit of other providers, I can't imagine what is. With no less than 94 percent of manipulations being delivered by chiropractors nationwide,[10] this seems a little like trying to argue that AT & T or Verizon don't necessarily provide telephone service.

What leads to all this scientific hooliganism? Most likely, it's the smell of money. Turf issues have long been explored in medicine with outcomes that rival those in any good film noir.[11] But researchers in the other sciences are prone to the same weaknesses, as described recently by Daniel Greenberg's new book, *Science, Money, and Politics.* He describes several examples in which scientists in their quest for funding often foresake those very tenets that they are renowned to embrace, such as respect for data or the critical assessment of data, methodology, or arguments. He offers a prime example, a chilling story of an individual, a university president and a National Science Board member, who tried to influence a member of Congress to cancel a hearing to investigate a presumed shortfall of scientists. Another example Greenburg gives is the numerous "pious declarations" of various members of the National Academy supporting peer review, while the agency itself exists primarily on noncompetitive government grants and contracts. The ultimate result, he argues, is that money, rather than political or ethical issues, becomes the overriding concern.[12]

How does the smell of money affect randomized clinical trials? To a great extent, if one believes the results of Johansen and Gotzsche, who reviewed a meta-analysis comparing the effectiveness of fluconazole and amphotericin B, two antifungal agents. Here they found that in three large trials comparing 43 percent of the patients identified for meta-analysis, the results from amphotericin B were inexplicably combined with the results for nystatin, known to be an ineffective drug for fungal infections. Worse, 79 percent of the patients in these trials were randomized to receive amphotericin orally-perplexing and disturbing, since amphotericin B is known to be poorly absorbed and is normally administered intravenously.

When questioned more closely about the sources of their data, 12 of the 15 authors were less than fully compliant - one suggested that the trial was "old" and that the primary data resided with the drug manufacturer; another claimed that sufficient time was lacking to respond; and a third professed the lack of access to the database because of a change of affiliation. In other words, they provided the classic "My dog ate it" excuse we remember from grade school. The final surprise that undercuts the validity of this entire undertaking was the fact that Pfizer, the manufacturer of the superior drug, provided employment to 12 of the 15 authors in studies involving 92 percent of the patients evaluated. It would appear that the intention all along was to manipulate the trials to favor the successful pharmaceutical product.[13]

What does a larger perspective of money and randomized clinical trials tell us? A sobering picture, if you follow the arguments of Djulbegovic and his colleagues published in the *Lancet.* In a recent review of 136 research projects addressing a malignant blood disease, the authors reported a disparity of positive results depending upon where the research funding came from, reporting that 74 percent of the trials reviewed favored a new treatment when they were supported by a for-profit source; that figure was reduced to only 47 percent when funding was provided from nonprofit resources. Furthermore, inferior controls appeared in 60 percent of the occasions when a particular trial was supported by a for-profit entity, but only 21 percent of the time when a nonprofit source supplied the funding. From these observations the authors were forced to conclude that a major principle for conducting clinical trials (the uncertainty principle known as clinical equipoise) appears to have been violated, generating a bias in research.[14]

From the perspective of a chiropractic research director, I can only point out that our entire effort in providing documentation of the theory and practice of chiropractic care has gone amazingly well on a fraction of the funding (less than the rounding error) disbursed by the NIH or pharmaceutical companies for medical research, for example. Yet the quality of chiropractic research is astoundingly high, receiving recognition for its quality by a variety of published systematic literature reviews[15-17] and by such

multidisciplinary entities as the AHCPR (AHRQ),[18] the Clinical Studies Advisory Group,[19] and Duke University.[20] For the most part, this higher standard reflects exceedingly well upon the chiropractic research community and FCER. It is only with your input and support, however, that we may be able to continue this effort to support what I believe is a more equitable and cost-effective health care alternative to the American public. If there is trash-talking to be done, let us hear it in the early phases of our efforts rather than at a more advanced stage. It was, after all, Mark Twain who once remarked:

"Lies go halfway around the world before truth puts on its boots."

References

1. Amend B. Fox Trot. Syndicated in the *Boston Globe*, October 18, 2001.
2. Cherkin DC, Deyo RA, Battie M, Street J, Barlow W. Comparison of physical therapy, chiropractic manipulation, and provision of an educational booklet for the treatment of patients with low back pain. *New England Journal of Medicine* 1998;339(14):1021-1029.
3. Rosner A. Evidence-based clinical guidelines for the management of acute low-back pain: Response to the guidelines prepared for the Australian Medical Health and Research Council. *Journal of Manipulative and Physiological Therapeutics* 2001;24(3):214-220.
4. Merrifield R. Insurance carrier covers the primary care chiropractor (National College of Chiropractic news release, January 14, 1999). *The Week in Chiropractic* 1999;5:1-2.
5. Horwitz AD, Hosek R, Boyle J, Cianciulli A, Glass J, Codario R. A new gatekeeper for back pain. *American Journal of Managed Care* 1998;4:576-579.
6. Gaumer GL, Walker A, Su S. Chiropractic and a new taxonomy of primary care activities. *Journal of Manipulative and Physiological Therapeutics* 2001;24(4):239-259.
7. Morley J, Rosner AL, Redwood D. A case study of misrepresentation of the scientific literature: Recent reviews of chiropractic. *Journal of Alternative and Complementary Medicine* 2001;7(1): 65-78.
8. Rosner A. FCER Forum: Gone fishin' for whoppers. *Dynamic Chiropractic* October 8, 2001:19(21).
9. Interview with Randy Shelerud, M.D. Mayo Clinic office visit: Taking care of your back. Supplement to the *Mayo Clinic Women's Healthsource*, November 2001.
10. Shekelle PG, Adams AH, Chassin MR, Hurwitz EL, Brook RH. Spinal manipulation for low-back pain. *Annals of Internal Medicine* 1992; 117(7):590-598.

11. Carter JP. *Racketeering in Medicine: The Suppression of Alternatives.* Norfolk, VA: Hampton Roads Publishing Company, 1992.
12. Greenberg DS. *Science, Money, and Politics.* Chicago, IL: University of Chicago Press, 2001 as reviewed by Sarewitz D. Politics is hell. Science 2001; 294(5541):311-312.
13. Johansen HK, Gotzsche PC. Problems in the design and reporting of trials of antifungal agents encountered during meta-analysis. *Journal of the American Medical Association* 1999; 282(18):1752-1759.
14. Djulbegovic B, Lacevic M, Cantor A, Fields K, Bennett CL, Adams JR, Kuderer NM, Lyman GH. The uncertainty principle and industry-sponsored research. *Lancet* 2000;356:635-638.
15. Hurwitz EL, Aker PD, Adams AH, Meeker WC, Shekelle PG. Manipulation and mobilization of the cervical spine: A systematic review of the literature. *Spine* 21(15):746-1760.
16. Kjellman GV, Skagren EI, Oberg BE. A critical analysis of randomised clinical trials on neck pain and treatment efficacy: A review of the literature. *Scandinavian Journal of Rehabilitative Medicine* 1999;31:139-152.
17. Bronfort G, Assendelft WJJ, Evans R, Haas M, Bouter L. Efficacy of spinal manipulation for chronic headache: A systematic review. *Journal of Manipulative and Physiological Therapeutics* 2001;24(7):457-466.
18. Bigos S, Bowyer O, Braen G, et al. *Acute Low Back Pain in Adults. Clinical Practice Guideline No. 14.* AHCPR Publication No. 95-0642. Rockville, MD: Agency for Health Care Policy and Research, Public Health Service, U.S. Department of Health and Human Services. December 1994.
19. Rosen M. Back pain. Report of a clinical standards advisory group committee on back pain. May 1994, London: HMSO.
20. McCrory DC, Penzien DB, Hasselblad V, Gray RN. *Evidence Report: Behavioral and Physical Treatments for Tension-Type and Cervicogenic Headache.* Des Moines, IA: Foundation for Chiropractic Education and Research, 2001.

Anthony Rosner,PhD
Brookline, Massachusetts
rosnerfcer@ aol.com

Dr. Anthony L. Rosner is the director of research initiatives at Parker College of Chiropractic. A 1972 graduate of Harvard University (PhD in biological chemistry/medical sciences), he is the former director of research and education for the Foundation for Chiropractic Education and Research (FCER).

■