Dr Khan justifies using relative risk reductions (RRRs) in her article on osteoporosis management by referring to a book on clinical epidemiology by Sackett and colleagues. Although Sackett et al say that the RRR is a quick and useful measure of clinical significance, in their second edition (the one that Dr Khan seems to be citing) they go on to say that it is also “an insufficient measure of clinical significance.” They endorse the number needed to treat (NNT) as “a fine approach to assessing the clinical significance of a positive trial reporting those events that do or do not happen.”

Physicians’ enthusiasm for a treatment depends on how the results are presented; specifically, the inclination to use a particular drug therapy is greatest when results are given as an RRR and least when they are given as an NNT. This is probably the reason, until recent changes to the code of the Pharmaceutical Advertising Advisory Board were made, journal advertisements reported results almost exclusively as RRRs.

In presenting results as RRRs, Dr Khan is encouraging treatment that might not be justified by clinical outcomes.

—Joel Lexchin, MD, CCFP(EM), DABEM
Toronto, Ont
by e-mail

References


Response
I thank Dr Lexchin for his comments. I agree that number needed to treat (NNT) and absolute risk reduction (ARR) are of value in evaluating clinical trial results. I believe, however, that both relative risk reduction (RRR) and NNT are useful measures for assessing clinical significance. In my paper, the RRR data were presented with references to clinical trials for those wishing to obtain additional data on NNT and ARR. Most of the prospective trial data evaluating fracture reduction are published as RRR in populations at high absolute risk of fracture. In these clinical trials, providing the ARR or NNT would not, therefore, have added to the antifracture evidence presented, as these studies were completed in populations at high risk of fracture.

Dr Lexchin quotes statements made by Sackett et al regarding RRR as “an insufficient measure of clinical significance.” This comment was made in the context of low event rates. In other words, when the event rate is low, eg, 1%, even a clinically significant RRR of 50% can lead to an NNT of 200 patients.

It is important to remember that NNT can be misleading if fracture risk at baseline differs between study populations. For this reason, NNT cannot be used to compare drug efficacy in the absence of a head-to-head trial. For a disease with a very low event rate, the NNT will be large even when treatment is very effective. For example, in a disease with a 5% event rate in the placebo group and 1% event rate in the treatment group, the NNT is 1/(0.05-0.01)=25. In contrast, a disease with a 20% event rate in the placebo group and a 10% event rate in the treatment arm, the NNT is 1/(0.20-0.1)=10. Therefore, we have to be careful when using NNT in evaluating drug efficacy. This number is applicable only in populations similar to that of the clinical trial. In fact, NNTs might be more a reflection of the design of the clinical trial than the actual efficacy of drug therapy. If applied to an individual, NNTs need to be adjusted for baseline risk. Caution must be exercised in using NNTs in evaluating drug efficacy. The NNTs varied considerably for both alendronate and risedronate in the different clinical trials.

Due to these limitations and also for the sake of brevity, NNTs were not included in my paper. My article was intended to provide a useful practical summary and to complement the evidence-based guidelines that we have previously published and that were fully referenced in the article.

—Aliya Khan, MD, FRCP, FACP

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Acupuncture and adverse effects

The recent article1 by Chung et al entitled “Adverse effects of acupuncture. Which are clinically significant?” makes for confusing reading. While the title of the paper implies that the intent is to alert readers to clinically significant adverse events, the paper itself gives considerable prominence to minor effects, such as bleeding at the site of needle insertion, nausea, fainting, and drowsiness. This begs the question as to what exactly constitutes an adverse effect.

Drowsiness is a known consequence of eating lunch. Bleeding, nausea, and fainting are common events when blood is drawn for laboratory testing and accepted as “normal” by patients and health care practitioners alike. Many over-the-counter drugs have known adverse effects. The antulcer drug ranitidine (Zantac), available at any corner store, lists headache; abdominal discomfort or pain; nausea and vomiting; constipation; diarrhea; and occasional cases of gynecomastia, impotence, and loss of libido as possible side effects.2 But these adverse events are rare or considered acceptable when risks are weighed against benefits.

The inclusion of psychiatric disturbance as a common adverse effect in Table 1 should be questioned. Are readers of the paper to conclude that not only physical but also psychological scarring is a frequent outcome of acupuncture treatment? This statement is not supported by my reading of the research literature. The authors should have been required to substantiate their claim with appropriate references and to define what exactly constitutes a psychiatric disturbance.

While it is important to alert the medical community to adverse effects of any treatment, no intervention can be expected to have no adverse effects. Safety issues, therefore, need to be considered in context. The most important question to ask regarding the safety of acupuncture is how does it compare with similar treatments for the same health problems? According to a 1997 consensus statement3 from the National Institutes of Health, one of the advantages of acupuncture is “that the incidence of adverse effects is substantially lower than that of many drugs or other accepted medical procedures used for the same conditions.”

—Aileen Burford-Mason, PhD
Director of Communications and Scientific Affairs
Acupuncture Foundation of Canada
Toronto, Ont
by e-mail

References

The recent article1 “Adverse effects of acupuncture. Which are clinically significant?” begs for comment and correction.

First, no definition of acupuncture of which I am aware describes acupuncture as the placing of needles “transcutaneously,” as these authors describe. The needles puncture the dermis and are often inserted deeply into muscle, adjacent to nerves, or intra-articularly. Transcutaneous electrical nerve stimulation (TENS) machines use electrode pads on the skin to transcutaneously stimulate acupuncture points.

Traditional Chinese medicine concepts of acupuncture should be respected and used to tap into the full richness of that tradition with its many health benefits. However, there is plenty of experimental evidence regarding the physiologic responses of the human body to acupuncture needling.2,5 The authors of this article chose not to acknowledge the huge body of scientific knowledge on the neurophysiology of acupuncture, suggesting that there is debate about “the physiologic effects and therapeutic mechanisms of acupuncture therapy.” What they could have correctly pointed out is that more well designed, randomized trials on the therapeutic benefits of acupuncture for a range of conditions, for which there is massive anecdotal evidence of efficacy and safety worldwide, are needed. In spite of that, systematic reviews have shown that acupuncture works for back pain, migraine headaches, nausea and vomiting of pregnancy, and dental pain.6,8

The statement on page 9861 that acupuncture is used by family physicians to treat cancer must be a typographical error. Acupuncture can be used in the management of cancer pain, but no one treats cancer with acupuncture; Chinese herbs, yes, but not acupuncture. Many types of cancer pain can be managed well at home by using a high-tech, sophisticated, Canadian TENS device (Codetron™) on acupuncture points.9

Family physicians wishing to learn acupuncture have been well served by two Canadian continuing education programs for many years. The Acupuncture Foundation of Canada Institute (AFCI) program began in 1974 and has been accredited by the University of Toronto Continuing Education department since 1998. Family doctors from all 10 provinces and the territories have availed themselves of this excellent program. The CME Certificate Program in Medical Acupuncture at the University of Alberta was established in the early 1990s and, like the AFCI program, has