

Does negative plus negative give positive? The value of combining intradiscal treatment strategies

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Received: 17 June 2010 / Accepted: 18 June 2010 / Published online: 14 July 2010
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Keywords Medicine · Spine surgery

Combining different treatment strategies is common practice in medical therapy by pharmaceutical agents. Why not do the same in spine surgery?

Obviously, any combination of treatments requires rigorous analysis of possible synergistic or antagonistic effects on outcome. Ahn and Lee provide a well-designed prospective study on the combination of percutaneous endoscopic lumbar discectomy with thermal annuloplasty for mono- or bisegmental discogenic low back pain. Outcome assessment is based on widely accepted scales, and a follow-up rate of 90% after 2 years is generally considered sufficient for evaluation in spine surgery. The success rate of 70% suggests a considerable value of the proposed combination for discogenic low back pain, although it has dropped from 90% reported in a preceding series of 30 patients presented by the same group in 2009 [4].

Does the combination of two minimally invasive techniques finally offer a surgical solution for discogenic low back pain? We doubt it!

The concept of combining a “thermal annuloplasty effect” and a “decompression effect” is not new and has been used since the late 1990s [9]. Intradiscal electrother-

mal therapy (IDET) has been based on the mechanisms of action proposed by the authors and has also started out with a success rate of 70% [8]. Randomised controlled trials, however, demonstrated that IDET is no better than placebo in the treatment of discogenic low back pain [3, 6]. The selective citation of annuloplasty results as provided in the paper is not scientifically sound. There is no evidence for percutaneous mechanical disc decompression in managing axial low back pain [5]. Thus, both intradiscal decompression and annuloplasty have not demonstrated long-term efficacy according to the pertinent literature. Can we expect that the combination of two ineffective or at least questionable treatment strategies will be effective in the treatment of discogenic low back pain? Does negative plus negative give positive? It cannot be stressed enough that the presented data are not based on a randomised and not even a controlled study. An independent observer does not at all eliminate bias if there is no control group, and telephone interviews as part of the postoperative assessment give limited information. Thus, without further data derived from randomised controlled trials, there is no indication that the proposed treatment works better than standardised conservative care.

The authors put great emphasis on the technical aspects of their percutaneous technique: elimination of “inflamed” nucleus tissue, preservation of normal nucleus, thermal modulation along the whole length of the posterior annulus, and so on. However, these considerations are based on unproven assumptions and theoretical pathophysiological speculations. One third of treated segments were classified as Pfirrmann grade 4, in which differentiation of nucleus and annulus is lost by definition [7]. These patients obviously do not have a normal nucleus.

What we, however, dislike most about the proposed technique is its destructive nature. Discectomy, be it by open

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surgery or endoscopy, is known to accelerate disc degeneration [1, 10] and cause secondary low back pain, particularly at long-term follow-up. When even puncturing a disc for discography has dramatic detrimental effects [2], how can we even pretend to save the “innocent central” nucleus in the degenerated discs we operate? The authors damage the disc by (1) puncture, (2) endoscopic forceps, (3) laser and (4) bipolar radiofrequency annuloplasty. Obviously, there are no more destructive techniques that could be combined to destroy the disc! Although the involved mechanisms are not yet clear, many investigators and spine surgeons nowadays absolutely minimise damage to the disc. Intradiscal therapies destroy the disc mechanically and thermally regardless of their percutaneous minimal invasive nature, and we are convinced that this will worsen long-term prognosis. With this combination of techniques being around for more than a decade, it simply cannot be advocated without randomised controlled trials as provided for IDET and without long-term evaluation of intradiscal sequelae.

The authors have to be congratulated for trying to identify a subpopulation of patients most suitable for their technique as proper patient selection is crucial for outcome of spine surgery. It is noteworthy that the presence of disc herniation was the most significant predictor of outcome with an odds ratio of more than 3! Obviously, patients with disc herniations that were removed during the procedure fared best. Did the authors evaluate a treatment strategy for disc herniations, which additionally involves destruction of significant portions of the disc by forceps plus laser plus radiofrequency rather than identifying a successful treatment for discogenic low back pain?

We are sticking with mathematics—negative plus negative still gives negative!

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