Surgical Neurology International

SNI: Spine, a supplement to Surgical Neurology International

OPEN ACCESS

For entire Editorial Board visit : http://www.surgicalneurologyint.com

Editor-in-Chief: Nancy E. Epstein, MD Winthrop University Hospital, Mineola, NY, USA

Editorial on two chronic low back pain studies: A major change in surgical management of disc disease?

Ron Pawl

Department of Neurosurgery, University of Illinois, Chicago, Illinois, USA

E-mail: *Ron Pawl - ron@pawl.com
*Corresponding author

Received: 25 July 13 Accepted: 25 July 13 Published: 29 October 13

This article may be cited as:
Pawl R. Editorial on two chronic low back pain studies: A major change in surgical management of disc disease?. Surg Neurol Int 2013;4:S373-4.
Available FREE in open access from: http://www.surgicalneurologyint.com/text.asp?2013/4/6/373/120780

Abstract

In two recent publications, the authors' hypothesis was that Modic type 1 changes seen in patients with chronic low back pain and herniated lumbar discs may be attributed to bacterial infection/inflammation. The first study showed that many herniated discs were infected with Proprionibacterium acnes, a common anaerobic skin organism, also found in sarcoidosis, and possibly, arthritic joints. In the second double-blind randomized study, 162 patients with disc herniation and Modic type 1 changes were treated with 100 days of oral Bioclavid (Amoxicillin/Clavulanic acid) vs. placebo; those treated with antibiotics improved in all dimensions (e.g., reduced chronic low back/leg pain, reduced disability). Together, the implications of these studies for spine surgeons and pain practitioners are momentous. If a few weeks of oral antibiotic treatment resolves chronic low back pain, then much currently performed spine surgery (e.g. including internal fixation/fusion), as well as chronic pain management/rehabilitation and psychological strategies may be rendered unnecessary.

Key Words: Disc disease, infection, Modic type I changes, nonsurgical, spine

Access this article online

Website: www.surgicalneurologyint.com

DOI: 10.4103/2152-7806.120780

Quick Response Code:

FIRST STUDY

Earlier this year, two papers by authors from Denmark published in the European Spine Journal might well be harbingers of change in the diagnosis and treatment of chronic low back pain.[1,2] In the first paper, the authors point out that a previous work demonstrated discs removed under strict sterile precautions during surgery for disc herniation were infected with Proprionibacterium.[2,5] They postulated a relationship between disc infection and the development of Modic type I changes (MC). Of the 61 patients undergoing surgery for extruded disc herniation in their series, 46% of specimens grew acnes (Proprionibacterium Acnes [PA]), and this correlated with a greater frequency of MC. MC, therefore, likely reflected edema surrounding an infected disc (e.g., bacterium such as PA). PA is a common bacterium found on the skin and has been implicated in other conditions as well; acne vulgaris, sarcoidosis, and possibly osteoarthritis.[3,4]

SECOND STUDY

The second double-blind, randomized, controlled trial involved 162 patients with chronic low back pain due to herniated discs accompanied by bone edema (e.g., MC in the vertebral bodies) for over 6 months duration.[1] Patients were randomized to receive either 100 days of treatment with Bioclavid (Amoxicillin/Clavulanic acid) vs. placebo. Patients were then blindly evaluated at prior

to treatment, after 100 days of treatment, and one year later (144 of the 162 patients). At one year the authors concluded ".(patients) who were treated with antibiotics obtained statistically significant improvements compared to the placebo group in all measured parameters, including: The primary outcome of disease-specific disability, back pain intensity, and the secondary outcomes of, leg pain intensity, general improvement, number of hours with pain, reduced number with chronic pain."

IMPLICATION OF LOW GRADE INFECTION VS. SPINAL SURGICAL LESION

If low grade infections are a significant cause of low back pain (and it does not take much to implicate the cervical spine as well) and a few weeks of antibiotic treatment solves much of the problem, then there will be a major reduction in internal fixation and fusion of the spine for chronic low back pain. That would be good for patients and significantly reduce medical costs, but would be bad economically for spine surgeons and some hospital services. Similarly, such patients successfully treated would not need the services of pain practitioners and pain rehabilitation services.

Further questions regarding pain management

What then are the implications for the psychological findings in patients with chronic low back pain syndromes? Are such findings reactions to the pain? What does that mean regarding somatization, converting emotional distress into bodily complaints, considered the underlying phenomenon leading to chronic pain complaints and which is a mainstay finding in chronic back pain patients? These questions will need answers as well.

REFERENCES

1. Albert HB, Sorensen JS, Christensen BS, Claus Mannich C. Antibiotic treatment in patients with chronic low back pain and vertebral bone edema (Modic type 1 changes): A double-blind randomized clinical controlled trial of efficacy. Eur Spine J 2013;22:697-707.
2. Albert HB, Lambert P, Rollason J, Sorensen JS, Worthington T, Pedersen MB, *et al.* Does nuclear tissue infected with bacteria following disc herniations lead to Modic changes in the adjacent vertebrae? Eur Spine J 2013;22:690-6.
3. Eishi Y. Etiologic link between sarcoidosis and Propionibacterium acnes. Respir Investig 2013;51:56-68.
4. Levy O, Iyer S, Atoun E, Peter N, Hous N, Cash D, *et al.* Propionibacterium acnes: An underestimated etiology in the pathogenesis of osteoarthritis? J Shoulder Elbow Surg 2013;22:505-11.
5. Segre JA. What does it take to satisfy koch's postulates two centuries later?: Microbial genomics and propionibacteria acnes. J Invest Dermatol 2013. [In press].

Disclaimer: The authors of this article have no conflicts of interest to disclose, and have adhered to *SNI's* policies regarding human/animal rights, and informed consent. Advertisers in *SNI* did not ask for, nor did they receive access to this article prior to publication.