

BACK IN THE NEWS

SUMMER 2007



A message from the
Medical Director

□ John M. Roberts, MD

An integrated approach to managing back and neck problems

Welcome. As Medical Director of The Christ Hospital Spine Institute, I would like to introduce you to our newsletter, *Back In The News*.

Back pain is the second most common neurologic ailment in the United States and is a frequent cause of visits to primary care offices. This quarterly publication will provide the medical community with updates on back care and pain management. It also will highlight some of the exciting activities of The Christ Hospital Spine Institute, a regional resource for back pain or injury that offers interdisciplinary and collaborative approaches to treatment. At The Spine Institute, experts in exercise therapy, pain management, and rehabilitation, along with general surgeons, neurosurgeons, orthopedic surgeons, and vascular surgeons provide state-of-the-art care for both nonsurgical and surgical spinal conditions.

The Spine Institute performs more spinal surgeries in the greater Cincinnati area than any other hospital. With a case volume of over 1,500 patients annually, The Spine Institute ranks in the 95th percentile among spine hospitals throughout the country. Standardized computer-based treatment algorithms are used to optimize care and to speed recovery of surgical patients.

CONTINUED

LITERATURE UPDATE | NO.1

Effects of COX-2 inhibitors on fracture healing: Implications for patient recovery

Nonsteroidal anti-inflammatory drugs (NSAIDs) are often part of treatment for pain associated with musculoskeletal trauma, including bone fracture. However, past research has found that fracture healing is impaired in mice lacking a functional cyclooxygenase-2 (COX-2) gene^{1,2} and also in rats that are continuously treated with COX-2 inhibitors.³ This suggests that COX-2, an enzyme that is critical for normal inflammation, may be a key regulator of fracture repair.

A recent experiment in the rat model evaluated the effects of the COX-2-selective NSAID celecoxib, 2 and 4 mg/kg/day.⁴ Administration was associated with reduction in the fracture callus mechanical properties, measured by torsional testing, and also with significant increases in the proportion of nonunions, or fractures that showed no bridging. Duration of COX-2 inhibition appeared to correlate with the inhibition of fracture healing. However, celecoxib treatment prior to fracture or initiated 14 days after fracture

did not significantly increase the proportion of nonunions.

The investigators concluded that NSAID therapy following fracture may adversely affect healing in humans. There are currently no prospective human studies to support this conclusion, but retrospective studies do underscore the findings from this animal study.^{5,6} Consequently, use of COX-2 drugs should be avoided in fusion patients until further studies are completed.

References

1. Simon AM, Manigrasso MB, O'Connor JP. Cyclooxygenase 2 function is essential for bone fracture healing. *J Bone Miner Res.* 2002;17:963-976.
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5. Giannoudis PV, MacDonald DA, Matthews SJ, Smith RM, Furlong AJ, De Boer P. Nonunion of the femoral diaphysis: the influence of reaming and non-steroidal anti-inflammatory drugs. *J Bone Joint Surg Br.* 2000;82:655-658.
6. Burd TA, Hughes MS, Anglen JO. Heterotopic ossification prophylaxis with indomethacin increases the risk of long-bone nonunion. *J Bone Joint Surg Br.* 2003;85:700-705.

In this quarterly newsletter from The Spine Institute, you will find:

- Literature updates on new research about spine and back problems
- Practice alerts to help you manage patients with back pain
- Case studies that describe clinical challenges and solutions

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LITERATURE UPDATE **NO.2**

Preliminary clinical results with minimally invasive posterior cervical foraminotomy

Cervical radiculopathy can be treated with posterior or anterior cervical foraminotomy. Although today many surgeons choose anterior cervical discectomy and fusion, the posterior procedure has been used for more than 60 years. In appropriately selected patients, this approach offers important advantages, such as preservation of cervical motion, freedom from internal or external bracing, and virtual elimination of the risk of postoperative complications related to swallowing or the voice. One drawback of this technique as it is conventionally performed is that muscle stripping and retraction are required to expose the spine, which can have adverse effects including postoperative pain, increased blood loss, and impaired muscle function.

Minimally invasive posterior cervical foraminotomy for single-level radiculopathy has been shown to be safe and efficacious without compromising the goals of the procedure.^{1,2} Investigators at the David Geffen School of Medicine at UCLA have published a

report of 21 consecutive patients with cervical radiculopathy treated with minimally invasive 2-level posterior cervical foraminotomy with a single incision.³ At a mean follow-up of 23 months, 90% of patients (19/21) had complete resolution of preoperative symptoms. Sixteen patients were discharged the same day as their surgery, and the mean estimated blood loss during the procedure was 35 mL. No perioperative complications were observed.

The investigators concluded that this minimally invasive outpatient procedure compared favorably to conventional open foraminotomies and should be considered as a potential alternative in appropriate patients.

References

1. Adamson TE. Microendoscopic posterior cervical laminoforaminotomy for unilateral radiculopathy: results of a new technique in 100 cases. *J Neurosurg.* 2001;95:51-57.
2. Fessler RG, Khoo LT. Minimally invasive cervical microendoscopic foraminotomy: an initial clinical experience. *Neurosurgery.* 2002;51(suppl 5):S37-S45.
3. Holly LT, Moftakhar P, Khoo LT, Wang JC, Shammie N. Minimally invasive 2-level posterior cervical foraminotomy: preliminary clinical results. *J Spinal Disord Tech.* 2007;20:20-24.

Comprehensive care for every spine

Recognizing that most spine pain is caused by degenerative disease and does not require surgery, The Spine Institute experts take a conservative approach to achieving pain management and relief. When surgery is necessary, a wide range of surgical techniques, including minimally invasive approaches, are used to optimize recovery. A few of the center's offerings are described below:

Pain-management specialists create programs tailored to the individual's needs. Treatment options include epidurals, steroid injections, indwelling catheters, and nerve root blocks. Relaxation techniques also help patients return to normal activity quickly.

Minimally invasive surgery is available to treat many spinal conditions, such as serious degenerative diseases, tumors, infections, or nerve-compression syndromes. Minimally invasive procedures require only small incisions, which limits damage to surrounding tissue and facilitates a more rapid recovery than is seen with open procedures. Minimally invasive techniques are used for anterior cervical discectomy and fusion, electrothermal therapy, kyphoplasty, lumbar laminectomy, lumbar fusion, lumbar microdiscectomy, and spinal deformity surgery. Ongoing research is being conducted at The Spine Institute to evaluate the effectiveness and potential uses of new technologies.

Intensive rehabilitation is offered on an inpatient and outpatient basis for conditions ranging from acute or chronic injury to post-surgical care. Physical therapy for nonsurgical patients reduces pain and teaches patients strategies to maintain a strong, healthy spine, such as relaxation techniques, improving posture, and increasing range of motion. Postsurgical rehabilitation may include an intensive in-hospital program followed by an at-home program of exercises and activities.

Restoration and preservation of the biomechanics, structure, and function of the spine is the focus of board-certified chiropractors, who partner with the medical team of The Spine Institute.

The Institute is a leading resource for Cincinnati-area primary care physicians and their patients with back or neck pain or injury and represents an excellent option for specialty referral.



For more information about The Spine Institute or to refer patients for specialized care, please call (513) 585-BACK(2225) or visit www.spinecincinnati.com.

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Pain management in spinal disease: Assessing lumbar epidural/transforaminal steroids

Lumbar epidural steroid injections (ESIs) are commonly and increasingly used to manage the back and leg pain associated with sciatica. This procedure is employed at The Spine Institute in appropriate patients as a nonsurgical option to reduce inflammation and pain. This can be used even in patients for whom nonsteroidal anti-inflammatory drugs (NSAIDs) are ineffective because corticosteroids exert their effects earlier in the inflammatory process than NSAIDs do. Indications for ESI include lower back pain associated with radicular symptoms, failure of other nonsurgical management options, and nerve root compression

or irritation.

In a recent review of the ESI procedure discussing spinal anatomy, injection techniques, and the reported efficacy of ESI for the treatment of acute sciatica, the authors concluded that¹:

- Serious adverse events are exceedingly rare with ESI, although the procedure does carry risks.
- Fluoroscopic guidance ensures accurate drug placement into the epidural space; its nonuse may lead to a high incidence of technical injection failures.
- The transforaminal approach is helpful from a diagnostic

as well as a therapeutic standpoint.

- Injection therapy provides “adequate, albeit temporary, symptomatic relief while awaiting the natural resolution of sciatica.”
- Evidence does not support the use of repeated injections, which should be performed on an individual basis based upon the outcome of prior ESIs.

Reference

1. Young IA, Hyman GS, Packia-Raj LN, Cole AJ. The use of lumbar epidural/transforaminal steroids for managing spinal disease. *J Am Acad Orthop Surg.* 2007;15:228.

The Spine Institute: Surgeons, physicians & partnering chiropractors

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Practice Alert

Strategies for detecting injuries and initiating appropriate follow-up

Most back-related problems are muscular and may be treated effectively by a chiropractor. At The Christ Hospital, a red-flag system is used by the emergency room and by the triage nurse for The Spine Institute in order to identify patients who require attention from a medical doctor.

Red flags are the patient complaints that often indicate the presence of a more severe disease process, and, therefore, trigger a more rigorous workup. If a red flag

is present, the patient is referred to an intake physician. If not, the patient is referred to one of The Spine Institute's community-based chiropractors, who employ the Mercy guidelines for chiropractic quality assurance, a nationally accepted treatment protocol that carefully defines guidelines for accepted care.

A patient with any of the following red-flag characteristics should be referred to a specialist at a facility such as The Spine Institute:

- History of recent unexplained bowel or bladder dysfunction
- History of fevers or chills
- History of significant trauma (eg, fall from ladder or tree)
- High-speed impact (eg, rollerblading or bicycling injury)
- History of unexplained weight loss
- Night pain that awakens the patient from a deep sleep
- Significant motor loss

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