

DIRECTOR'S NOTES

The CMBD recently funded 4 new pilot and feasibility projects. Awardees are: 1) Derrick R. Dean, PhD, Associate Professor, Materials Science and Engineering, 2) Majd Zayzafoon, MD, PhD, Assistant Professor, Pathology, 3) Shawn R. Gilbert, MD, Assistant Professor, Orthopedics, and 4) Hui Wu, PhD, Assistant Professor, Pediatric Dentistry. Also, the CMBD has submitted two competitive renewal grants: (1) an NIH P30 Research Core Center; and (2) the University-Wide Center grant.

Linda C. Lucas, PhD, Dean, School of Engineering, recently announced the successful recruitment of Timothy M. Wick, PhD, Professor, Georgia Institute of Technology, to chair the UAB Department of Biomedical Engineering and lead the Biomolecular Engineering and Regenerative Medicine Program. This interdisciplinary program between the School of Engineering, the CMBD, the Cell Adhesion and Matrix Research Center and the Vision Science Research Center will be centered in the Shelby Building.

Vertebroplasty has gained considerable momentum as a treatment for vertebral fractures. It has been a recent topic at the CMBD Journal Club. Below is an overview provided by Kenneth G. Saag, MD, MSc.

Jay M. McDonald, M.D., Director, Center for Metabolic Bone Disease

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VERTEBROPLASTY IN THE TREATMENT OF VERTEBRAL COMPRESSION FRACTURES

Percutaneous Vertebroplasty is a minimally invasive surgical procedure for the treatment of osteoporotic vertebral compression fractures (VCFs) and vertebral fractures secondary to cancers. The surgical procedure involves the insertion of bone cement, commonly Polymethylmethacrylate, via needle injection to stabilize the compressed vertebral area. Developed in France in the mid-1980s, vertebroplasty developed as a technique to relieve back pain caused by osteoporotic VCFs. Since then, investigation of vertebroplasty in both the United States and Europe has continued to assess the safety and effectiveness of this treatment and measure the relief it provides to patients. There are approximately 700,000 VCFs annually in the U.S., among which 270,000 are painful and clinically diagnosed¹.

Introduced to the U.S. in the mid-1990s and covered by Medicare in 2001, vertebroplasty has steadily gained popularity. Vertebroplasty is a surgical procedure and is not subject to U.S. Food and Drug Administration (FDA) approval. Several uncontrolled short-term case series variously have claimed that between two-thirds and nearly 100% of treated patients experienced improvement in pain. It is difficult to interpret such reports because the pain associated with acute vertebral fractures is often self-limited, and the mechanism that results in immediate pain relief is not fully understood.

Although reported short-term complications of this procedure are uncommon, little is known about long-term outcomes. Reported short-term adverse events of vertebroplasty include anesthesia complications, bone cement leakage, fractures of the ribs or pedicles, nerve damage, infection, bleeding, and even more serious complications of pulmonary embolism and death^{2,3}. An FDA Public Health Web Notification of possible adverse events was issued in 2003-2004.

The UAB Center for Education and Research on Therapeutics (CERTs) in collaboration with the FDA and Blue Cross and Blue Shield of Alabama are conducting a study to compare longer-term outcomes of vertebroplasty vs. the traditional treatment for pain reduction among patients with VCF. Evidence suggests that vertebral stiffness after vertebroplasty treatment is comparable to the stiffness of unfractured, untreated vertebra. A potential concern is that injected bone cement creates a very rigid area in a highly osteoporotic spine that could lead to a greater rate of subsequent fractures. Using claims data, this UAB study will evaluate multiple outcomes of these patients who have undergone vertebroplasty.

¹(FDA 2003); ²(Truumees et al. 2004); ³<http://www.fda.gov/cdrh/safety/bonecement.html>

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