Balloon Kyphoplasty May Aid Vertebral Fractures

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VIENNA — Balloon kyphoplasty for vertebral compression fractures proved to be a safe and markedly more effective alternative to conservative management in a prospective 12-month comparative study, Arnd Lienert, M.D., Ph.D., said at the annual European congress of rheumatology.

He reported on 19 patients who underwent balloon kyphoplasty and 17 who opted instead for conservative management of monosegmental osteoporotic vertebral fractures in a nonrandomized study.

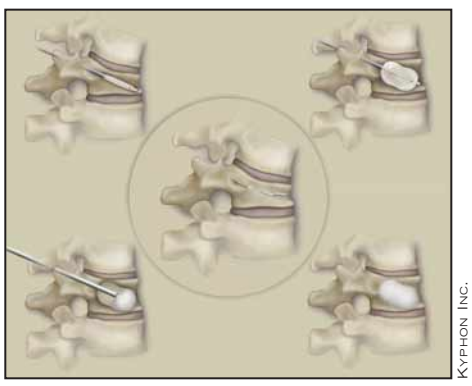
During 1 year of follow-up, 13 of 17 conservatively managed patients developed a total of 23 new radiographically proven vertebral fractures, of which 19 occurred adjacent to the index fracture. In contrast, only 8 of 19 balloon kyphoplasty patients developed 10 new fractures, of which 6 were in a vertebra next to the index fracture, said Dr. Lienert, an orthopedic surgeon at the University of Witten/Herdecke, Germany.

The balloon kyphoplasty group experienced significantly faster and greater reductions in pain and functional disability as assessed by a visual analog scale and a North American Spine Society questionnaire. Moreover, their slumping due to spinal deformity was significantly less over time. Their pretreatment kyphotic angle of 34 degrees was reduced to 7 degrees at 1 year, compared with 19 degrees in the conservatively managed group, he added at the meeting sponsored by the European League Against Rheumatism.

There were no periprocedural complications associated with balloon kyphoplasty. The procedure restored vertebral compression fractures to more than 50% of the original vertebral height in all 19 treated patients, and to more than two-thirds of original height in 11 patients. All patients in the balloon kyphoplasty group indicated that they would be willing to undergo the procedure again if necessary.

Patients in both study arms received antiosteoporosis medication. Conservative management consisted of bracing, physical therapy, and nonsteroidal anti-inflammatory drugs.

Balloon kyphoplasty is a minimally invasive procedure in which the balloon inflation creates an intravertebral void that allows injection of high-viscosity bone cement to stabilize and reduce the fracture.



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Inflatable balloon creates a cavity that is then filled with "internal cast" material.

A promising recent development involves the investigational use of a resorbable artificial bone scaffold capable of undergoing bone remodeling in lieu of the standard bone cement used in this study, according to the surgeon.

The best time to perform the procedure is still not known, and how well the results hold up beyond the 1-year mark also remains a question, Dr. Lienert observed.

The study was conducted by Dr. Lienert and his orthopedist colleagues at St. Anna Hospital in Herne, Germany, without outside sponsorship.

One audience member said he found it surprising that the incidence of adjacent fractures was significantly lower in the balloon kyphoplasty group than in conservatively managed patients given that some reports in the literature suggest balloon kyphoplasty might actually predispose patients to adjacent vertebral fractures. Dr. Lienert replied that he, too, is aware of such reports, adding that it's possible his findings to the contrary could simply be due to chance in a study with relatively small patient numbers.

Session cochair Winfried B. Graninger, M.D., a rheumatologist at the Medical University of Vienna, commented that a nonrandomized trial in which pain is a major end point is so methodologically problematic that he views it as "almost an uncontrolled study."

Dr. Lienert responded that in his experience, it is harder to get patients to consent to randomization in studies involving surgical procedures than in drug trials. ■