P126. The use of ultraporous a-tricalcium phosphate supplementing local autograft in lumbar interbody fusion surgery

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BACKGROUND CONTEXT: Synthetic bone graft substitutes (BGS) have been proposed to replace autograft in order to reduce donor site morbidity. Reported results to date vary. In animals, ultraporous a-tricalcium phosphate (uTCP), with bone marrow aspirate, has been shown to be superior to conventional BGS.

PURPOSE: To evaluate the clinical and radiographic outcomes of two groups of patients with instrumented posterior interbody fusion procedures, comparing patients that received iliac crest bone graft and cortical allograft to patients that received local autograft, an ultraporous a-tricalcium phosphate (uTCP) with bone marrow aspirate, and cortical allograft or PEEK spacers.

STUDY DESIGN/SETTING: A retrospective series of 48 consecutive patients who were operated for spinal stenosis and/or degenerative spondylolisthesis, combined with prospective follow-up by mail.

PATIENT SAMPLE: 48 patients (14 males and 34 females) ranging in age from 44–80 years were included. Thirty-eight patients (79%) underwent a single-level fusion, ten a multiple level procedure. Fifteen percent (7/48) had a history of prior spine surgery.

OUTCOME MEASURES: Clinical outcomes were based on questionnaires collecting VAS pain and Low Back Outcome (LBO) scores. Planar and F/E films were used for the radiological assessment of graft healing.

METHODS: From 2000 through 2003, 21 consecutive patients were treated with autograft (ICBG), from 2002, 27 consecutive patients were treated with uTCP. Follow-up intervals were 3, 6, 12 and 24 months. Patients that did not return for follow-up responded to the questionnaires via mail, for them last available X-rays were used for the assessment of fusion. Fusion was defined as bridging trabecular bone through the interspace, and no movement on F/E films. X-rays were reviewed by the surgeon and an independent evaluator.

RESULTS: 30 patients had reached at least 12 months follow-up, 16 had reached 24 months. Overall, 47 of 48 patients had fused, 1 had pseudoarthrosis. The failure occurred in a multiple level patient treated with ICBG. The average pain in the ICBG group went from 7.5/10 preoperatively to 3.0/10 at both 12- and 24 months. The LBO score improved from an average of 25 preoperatively, to 58 at 12-months, and 57 at 24-months. The average pain in the uTCP group went from 7.9/10 preoperatively to 2.2/10
at 12 months. LBO scores in the uTCP improved from an average of 25 preoperatively, to 54 at 12-months. These differences were not statistically significant.

CONCLUSIONS: In patients undergoing instrumented interbody fusion procedures, the use of local bone with uTCP yielded equivalent radiological and clinical results in patients as compared with ICBG. Thus, the use of local bone with uTCP in these patients is a viable alternative to ICBG, and eliminates the risk associated with ICBG harvesting.