No Difference in Polyethylene Wear Using Metal or Ceramic Femoral Heads

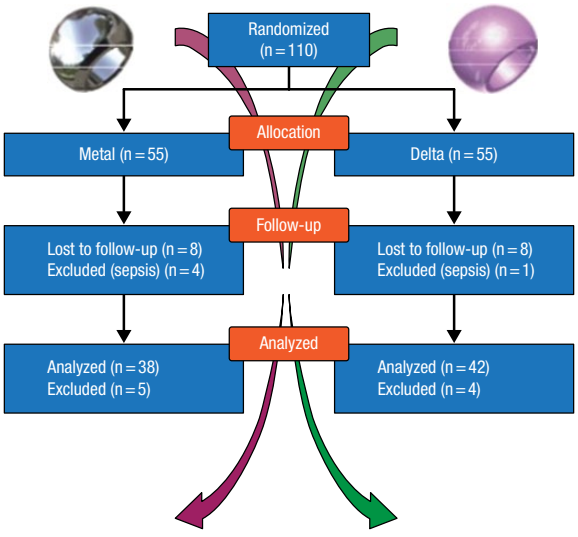
Written by Nicola Parry

Amine Zaoui, MD, Université René Descartes, Paris, France, presented data from a trial comparing the effect of femoral head material against conventional polyethylene (CPE) wear in total hip arthroplasty (THA). The results of the study demonstrated that the choice of a metal compared with a delta ceramic femoral head did not significantly influence creep or wear of a contemporary annealed polyethylene socket.

The study was conducted to examine the effect of femoral head material on CPE wear in a consecutive, prospective, randomized series of low friction THAs, said Dr Zaoui. Inclusion criteria included patients aged between 18 and 75 years with hip osteoarthritis. The study enrolled 110 patients (mean age, 60.6 years) from April 2007 to June 2008 who were randomized to receive either a 22.2-mm-diameter metal (n=55) or delta ceramic (n=55) femoral head (Figure 1). All patients received a polyethylene socket that was moderately cross-linked (3 Mrad of gamma radiation in nitrogen) and annealed at 130°C.

The primary outcome of the study was femoral head penetration at a minimum of 4 years' postoperative follow-up. This was evaluated using the Martell method, by an investigator who was blinded to the study's randomization.

Figure 1. Flow Chart Illustrating Patient Randomization in the Study



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Complete data were available for 38 hips in the metal group at a median follow-up of 4.4 years, and in 42 hips in the delta ceramic group at a median follow-up of 4.0 years. Eight patients were lost to follow-up in each group, some patients in the metal and ceramic groups were removed from the final analysis due to sepsis (4 vs 1), and additional patients were excluded for other reasons (5 vs 4).

However, according to Dr Zaoui, at up to the 5-year follow-up, the results of this study showed no significant difference in CPE creep or wear using a metal femoral head compared with a delta ceramic head. The mean femoral head penetration was 0.14 vs 0.12 mm/y ($P=.48$), and the mean creep at the approximately 1-year follow-up was 0.27 vs 0.25 mm ($P=.56$). The mean steady-state penetration rate was 0.07 vs 0.06 mm/y ($P=.48$). There were no reports of ceramic femoral head fracture or periprosthetic osteolysis in either group.

Additional studies with longer-term follow-up will be required to further evaluate the potential clinical benefits of delta ceramic as the choice of femoral component in THA, concluded Dr Zaoui.

Lateral Column Lengthening as a Repair for Adult Flatfoot Deformity

Written by Jill Shuman

Adult flatfoot deformity is a progressive condition that causes flattening or collapse of the arch of the foot and is characterized by pain and difficulty managing daily activities. Although damage to the posterior tibial tendon is the most common cause, other contributing factors include arthritis, injury, and Charcot foot. Among patients who have a flexible—as compared to rigid—arch collapse, surgery can often help improve pain and walking ability.

Two commonly performed adult flatfoot procedures include subtalar arthroereisis (SA) and lateral column lengthening (LCL). During the SA procedure, an implant is placed below the talus to stabilize the subtalar joint by limiting excessive pronation and preserving varus range of motion. LCL allows surgeons to create a higher arch by realigning the calcaneus.

To evaluate whether one procedure might offer better repair than the other, Lee Bing Howe, MD, Yong Loo Lin School of Medicine, Singapore, described outcomes from a study that compared clinical and radiographic outcomes of the two surgeries. Eighteen consecutive patients (11 men, 7 women) with adult stage II flexible flatfoot deformity were randomized to surgical treatment with either LCL (n=9) or SA (n=9) performed by a senior surgeon. All patients also underwent a concomitant endoscopic gastrocnemius recession procedure, a medializing calcaneal osteotomy,