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CORR Insights®: Ultrashort versus Conventional Anatomic Cementless Femoral Stems in the Same Patients Younger Than 55 Years

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Where Are We Now?

Cementless femoral fixation is the recommended approach for young, active patients who undergo THA. Although short-

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stem designs are not a new concept [1, 2], there has been a growing interest in utilizing less-invasive techniques. This trend illustrates the progression towards bone- and tissue-sparing THA.

In the current study, Kim and colleagues performed an interesting, well-designed analysis with a minimum followup of 10 years, comparing conventional-length uncemented stems with short stems in young patients treated with a bilateral sequential primary THA.

The stem design used in this study has been classified as a Type 3 stem, which means it loads the calcar and has a lateral flare, and extends just past the proximal femoral metaphysis [1]. With a tapered, trapezoidal geometry and lateral flare, this design achieves fixation in, and transfers load to, the

calcar and lateral cortex. The lateral flare conforms to the proximal femoral geometry to load the lateral aspect of the femur more physiologically [1]. Using the classification system developed by Wright et al. [3] that describes the grades of recommendation based on the overall quality of the available evidence, Khanuja et al. stated there is insufficient evidence to recommend the routine use of Type 3 short stems at present [1].

This study brings to light two topics of interest. First, the authors found no difference in validated outcomes scores or fixation between short stems and conventional cementless stems at followup into the second decade. However, less stress shielding was observed in the short stem group. Second, the authors found no differences between the stem designs in terms of the proportion of hips undergoing revision.

Where Do We Need To Go?

Evidence-based and unbiased data on short stems should be our goal.

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Reaching these goals requires answering these basic questions: (1) Is the percentage of complications with a short stem higher than with a conventional stem? (2) Are there any differences in the quality-of-life in patients with a short versus a conventional stem? (3) Is the percentage of revisions after a short stem higher than a conventional stem at long-term followup in a multicenter prospective randomized study? (4) Is a failed short stem capable of being revised with a conventional stem? Most of the available studies only provide information on the durability of these implants. They do not demonstrate, however, their potential clinical benefits. There is a lack of randomized, controlled trials with long-term followup or data from registries that can affirm the real benefits of short stems versus conventional hip arthroplasty.

How Do We Get There?

Before widespread use of these stems can be recommended, we need to obtain stronger evidence. We can potentially gather stronger evidence by performing prospective multicenter randomized trials comparing short stems that have surpassed the 10-year benchmark with conventional designs that might be less expensive and have a longer record of use. Virtually all of the studies on the topic are observational case series, few of which had a followup of more than 5 years. The study by Kim and colleagues is an exemption, as it is prospective and randomized with a long-term followup.

Most studies covering short-stem hip arthroplasty are Level 4 case series [2]. Many of these studies were performed by hip surgeons who specialize in THA, which can result in an expertise bias. This highlights the need

for multicenter randomized controlled trials to evaluate hip implant innovations. Until these investigations confirm a real benefit of short stems of this design over conventional stems, I do not recommend the widespread use of this particular short-stem design.

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