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2010 Annual Meeting Podium Presentations

Adult Reconstruction Hip 1: Metal-on-Metal Implants

The role of acetabular component positioning in the development of Inflammatory Pseudotumours

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Location: Morial Convention Center
Room 265

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Acetabular component orientation outside a zone ±10° around an optimal placement of 20° anteversion and 40° inclination had a greater risk of pseudotumour.

Acetabular component orientation is known to influence the wear of metal-on-metal hip replacement bearings. Inflammatory pseudotumour (IPT) is a recognised complication following hip resurfacing arthroplasty(HRA), thought to occur as a response to wear debris. This study's aims were to investigate the relationship between cup orientation and development of IPT, and to identify cup orientations which can minimise the risk IPT development.

Patients with confirmed IPT (n=31) were matched for sex, age, pre-operative diagnosis, component size and follow-up with a cohort without pseudotumours (Control n=60). For all patients radiographic anteversion(RCA) and cup inclination(RCI) were measured using EBRA; the incidence of IPT with respect to Lewinneck's safe zone (5°-25°/30°-50°) was examined. An optimal placement zone was determined based on a significant difference in IPT incidence between components in the zone versus those outside.

There was a wide range in cup orientations, mean RCA and RCI were similar in the two groups, IPT: 14.1° (4.1°-33.6°)/47.5° (10.1°-80.6°), Control: 15.6° (4.3°-32.9°)/ 46.1° (28.8°-59.8°). IP incidence in(13/35) or out(18/23) of Lewinneck's zone was not significantly different(p=0.09). Cups placed in a zone bounded by ±10° around anteversion of 20° and inclination of 40° had significantly (p=0.01) lower IPT incidence(6/27) versus those outside this zone(25/31). The odd's ratio of IPT outside this placement zone was 3.7.

Acetabular component orientation has an important role in IPT development. We recommend an optimal placement of 20° anteversion and 40° inclination; a ±10° zone about this placement has a significantly lower association with the development of pseudotumor.

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