Title:

Short Stem Metaphyseal Engaging implants: The Impact of Design on Contact Area and Positioning

Abstract: (Your abstract must use 11pt Arial font and must not be longer than this box)

Short stem metaphyseal engaging implants in Total Hip Arthroplasty (THA) aim to achieve an extensive circumferential fit within the proximal femur, increasing contact area and promoting long-term bone remodeling. Areas of contact depend upon proximal implant design parameters. The goal of this study was to compare the radiographic outcomes in patients who underwent THA with one of two uncemented short stem metaphyseal-engaging implants.

A review of prospectively collected data on 105 patients (avg age 65 years/BMI 29 kg/m²) who underwent a total of 109 primary THA using an ABG II implant (Stryker, Mawah, NJ), and 160 hips in 149 patients (avg age 70 years/BMI 28 kg/m²) using the Citation (Stryker). There was no significant difference in demographics (age, gender or BMI) or in preoperative WOMAC and Harris Hip Scores (HHS) between the two groups. Post-operative outcomes and alignment on radiographs were compared.

Post-operative HHS and WOMAC scores in the ABG II group were 90 and 10, respectively. There was no statistically significant difference when compared to HHS (94) and WOMAC (4) scores in the Citation group (p > .1).

Zero of the ABG II implants were found to be placed in varus (0%), while 8 of the Citation implants were placed in varus (5%).

Both implants provide great clinical and functional results in primary THA. The lateral flare on the Citation implant led to a greater number of implants in varus alignment, potentially affecting offset and leg-length. Optimal short stem metaphyseal engaging implants maximize contact area proximally while restoring hip kinematics.

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