

Highly Cross-Linked Polyethylene in Total Hip Arthroplasty Patients 50 and Younger, A 20-Year Follow-Up Analysis

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INTRODUCTION: Highly cross-linked polyethylene (HXLPE) has been an excellent bearing for total hip arthroplasty (THA). The purpose of this study was to evaluate the clinical outcome in the population of patients 50 years or younger who had total hip arthroplasty (THA) an average of 20 years ago. The second purpose was to assess the radiographic findings secondary to wear or failure.

METHODS: This is an ongoing retrospective review of 105 total hips which were performed in 95 patients (53 female, 42 male). Eighty-two of these patients were available at the average of 20 years (mean 20.4 range 18-25). Harris Hip Scores (HHS) were collected preoperatively, 1 year, 5 years, 10 years, and at the most recent follow up. Radiographs with a minimum 18-year follow up (avg. 20.0) have been studied to calculate wear. Statistical analysis was performed to compare baseline characteristics and outcome.

RESULTS: Clinical outcome showed significant improvement in the patient's Harris Hip Scores from 46 to 90 at the most recent follow up. None of the hips were revised for clinical loosening or osteolysis. One hip did have a recurrent subluxation requiring revision. There were no significant differences in age, sex, or BMI between groups. The polyethylene wear averaged 0.02 mm/year (0.003 to 0.05 mm/year) with no significant difference based on articulation type or head size.

DISCUSSION AND CONCLUSION: The average 20-year follow up for these patients with HXLPE who were aged 50 or younger at the time of surgery have continued to perform well. Patients have had minimal polyethylene wear without evidence of loosening or osteolysis at this follow up.