No Differences Between Cemented Versus Cementless Total Hip Arthroplasties For Osteoporotic Patients Diagnosed With or Without DEXA Scans

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INTRODUCTION: While there is ongoing debate regarding the bone quality necessary to perform cementless total hip arthroplasties (THAs), there is also controversy over the requirement for dual-energy X-ray absorptiometry (DEXA) scan diagnoses. Reports suggest increased risk of periprosthetic fracture when THAs are performed on patients who have osteoporosis, but recent large updated studies analyzing the utility of diagnosing osteoporosis with DEXA scans prior to undergoing cemented or cementless THA are lacking. Therefore, we compared complications in a large sample of these patients and specifically assessed 90-day, one-year, as well as two-year: (1) surgical complications; (2) other complications; and (3) independent risk factors comparing patients who did or did not receive DEXA scans as well as cemented to cementless fixation.

METHODS: An administrative claims database review from January 1, 2010 to December 31, 2019 identified osteoporotic patients diagnosed with or without a DEXA scan undergoing either cementless or cemented primary THA. Complication rates based on diagnosis codes at 90 days, one year, and two years were compared between all four groups using unadjusted odds ratios (ORs) with 95% confidence intervals (CIs). Additionally, multivariate logistic regressions were performed to analyze independent risk factors for periprosthetic fractures, aseptic loosening, and prosthetic joint infections (PJIs) between the groups.

RESULTS: There was no difference in the rates of periprosthetic fracture or aseptic loosening between all cohorts. Alcohol abuse, chronic kidney disease, obesity, and rheumatoid arthritis were shown to be independent risk factors for periprosthetic fractures regardless of DEXA scan status. Similarly, alcohol abuse, chronic kidney disease, obesity, and rheumatoid arthritis were demonstrated to be independent risk factors for aseptic loosening with no association with DEXA scans.

DISCUSSION AND CONCLUSION: This report provides an updated large analyses demonstrating no difference in periprosthetic fracture or aseptic loosening rates between patients diagnosed with osteoporosis with or without DEXA scans who received cemented compared with cementless THAs. The comorbidities of alcohol abuse, chronic kidney disease, obesity, and rheumatoid arthritis continue to place this patient population at increased risk for periprosthetic fracture as well as aseptic loosening. Therefore, DEXA scans may not be necessary in determining which prosthetic fixation method is ideal for a specific patient.