

Revision of Arthroplasty in Rheumatoid and Osteoarthritis: Methotrexate and Radiographic Lucency in RA Patients

Authors : Mike T. Wei, Douglas N. Mintz, Lisa A. Mandl, Arielle W. Fein, Jayme C. Burket, Yuo-Yu Lee, Wei-Ti Huang, Vivian P. Bykerk, Mark P. Figgie, Edward F. Di Carlo, Bruce N. Cronstein, Susan M. Goodman

Abstract : Background/Purpose: Rheumatoid arthritis (RA) patients have excellent total hip arthroplasty (THA) survival, and methotrexate (MTX), an anti-inflammatory disease modifying drug which may affect bone reabsorption, may play a role. The purpose of this study is to determine the diagnosis leading to revision THA (rTHA) in RA patients and to assess the association of radiographic lucency with MTX use. Methods: All patients with validated diagnosis of RA in the institution's THA registry undergoing rTHA from May 2007 - February 2011 were eligible. Diagnosis leading to rTHA and medication use was determined by chart review. Osteolysis was evaluated on available radiographs by measuring maximum lucency in each Gruen zone. Differences within RA patients with/without MTX in osteolysis, demographics, and medications were assessed with chi-squared, Fisher's exact tests or Mann-Whitney U tests as appropriate. The error rate for multiple comparisons of lucency in the different Gruen zones was corrected via false discovery rate methods. A secondary analysis was performed to determine differences in diagnoses leading to revision between RA and matched OA controls (2:1 match by sex age +/- 5 years). OA exclusion criteria included presence of rheumatic diseases, use of MTX, and lack of records. Results: 51 RA rTHA were identified and compared with 103 OA. Mean age for RA was 57.7 v 59.4 years for OA ($p = 0.240$). 82.4% RA were female v 83.5% OA ($p = 0.859$). RA had lower BMI than OA (25.5 v 28.2; $p = 0.166$). There was no difference in diagnosis leading to rTHA, including infection (RA 3.9 v OA 6.8%; $p = 0.719$) or dislocation (RA 23.5 v OA 23.3%; $p = 0.975$). There was no significant difference in the length of time the implant was in before revision: RA 11.0 v OA 8.8 years ($p = 0.060$). Among RA with/without MTX, there was no difference in use of biologics (30.0 v 43.3%, $p = 0.283$), steroids (47.6 v 50.0%, $p = 0.867$) or bisphosphonates (23.8 v 33.3%, $p = 0.543$). There was no difference in rTHA diagnosis with/without MTX, including loosening (52.4 v 56.7%, $p = 0.762$). There was no significant difference in lucencies with MTX use in any Gruen zone. Patients with MTX had femoral stem subsidence of 3.7mm v no subsidence without MTX ($p = 0.006$). Conclusion: There was no difference in the diagnosis leading to rTHR in RA and OA, although RA trended longer prior to rTHA. In this small retrospective study, there were no significant differences associated with MTX exposure or radiographic lucency among RA patients. The significance of subsidence is not clear. Further study of arthroplasty survival in RA patients is warranted.

Keywords : hip arthroplasty, methotrexate, revision arthroplasty, rheumatoid arthritis

Conference Title : ICIM 2016 : International Conference on Internal Medicine

Conference Location : London, United Kingdom

Conference Dates : May 23-24, 2016