Total hip arthroplasty in patients under 30 years: a long-term report of 180 hips with a follow-up from 2 to 25 years

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INTRODUCTION: Total hip arthroplasty (THA) in extremely young patients under the age of 30 years is performed more frequently over the last decade. This patient group is more challenging due to anatomical difficulties and higher demands of the patients. Some studies have described outcomes of THA in this age group, however with a short-follow up, limited patient group or incomplete data. In addition, it is very worrisome that almost all patients under 30 years old will face a future revision of their hip prosthesis due to their life expectancy. These inevitable revisions will determine the longterm outcome. This study describes the patient reported outcome measures (PROMs), radiological outcomes and the survival at 10 and 15 years of follow-up in patients with a THA under the age of 30 years. However, also the outcomes of the subsequent revisions within the same cohort are reported as well as the Girdlestone load, defined as the final failure status of an unrevisable total hip implant.

METHODS: All primary THAs performed in our institution between 1986-2014 in patients under 30 years were included (n=180), the maximal follow-up after surgery was 27 years. Only cemented implants were used. Acetabular impaction bone grafting was used in 127 (71%) of the cases to reconstruct acetabular bone defects. The Harris Hip Score, modified Oxford Hip Score and VAS scores for pain and satisfaction were collected. Assessment for radiological loosening of any component was performed. Kaplan-Meier survival analyses were used to determine the survival of primary THA with end-points revision for any reason, aseptic and septic loosening at 10 and 15 years. The results of the revision surgeries within this primary cohort are reported as well as the cases that ended in a permanent Girdlestone.

RESULTS: Mean age at primary THA was 24 (13-30) years. Mean follow-up of the primary THA was 8.7 (2-27.4) years. Mean HHS improved from 50 (20-77) preoperatively to 88 (28-100) postoperatively at last review. Mean postoperative VAS scores for pain in rest and activity were 8 (0-70) and 15 (0-90), respectively. The mean postoperative VAS satisfaction score was 87 (10-100) and modified OHS was 41 (8-48). Radiographically, 3 non-revised acetabular components were loose, no femoral components showed radiographic loosening. Survival of the primary THA with endpoint revision of any component for any reason at 10 and 15 years was 87% (95% CI 79-92) and 77% (95% CI 65-86), respectively; survival for endpoint aseptic loosening at 10 and 15 years was 92% (95% CI 84-96) and 84% (95% CI 71-92). In total, 26 revisions of any component for any reason were performed during follow-up. Four re-revisions were performed within this revision cohort of 26 hips. Of these 4 re-revisions, 3 were performed for septic loosening, the other re-revision was performed for aseptic loosening of the cup at 12 years after the revision surgery. One patient ended in a permanent Girdlestone, resulting in a Girdlestone load of 0.6 %. This patient had a septic loosening due to tuberculosis after the primary total hip, the hip was extracted 4 months after the surgery.

DISCUSSION AND CONCLUSION:

The 10- and 15 year results of primary THA in patients younger than 30 years show acceptable results. This study shows that cemented THA is a valid option in these young patients, when used in combination with impaction bone grafting for reconstruction of the frequently present acetabular bone defects. In this challenging patient group, it is important to report the outcomes of subsequent revisions as well, as these inevitable revisions will determine the longterm outcome in this very young THA population. By restoring bone stock during primary THA with impaction bone grafting, we believe revisions are facilitated. The outcome of the subsequent revisions in our cohort was very acceptable, although persisting infections are problematically.