Thirty years of experience with instrumented femoral revisions using impactionbone grafting and a cemented polished stem *a prospective cohort study of 208 revision arthroplasties performed between 1991 and 2007*

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INTRODUCTION:
Loosenings of femoral components often leads to bone defects. These defects can be reconstructed by instrumented impaction bone-grafting technique (IBG), often resulting in restoration of femoral bone stock quantity. We now report the long-term outcomes of these instrumented femoral revisions with impaction allograft bone grafting using the X-change femoral revision system at thirty years after introduction of the technique in the clinic.
METHODS:
We updated the outcomes of our previous study based on 208 consecutive revisions in 202 patients using IBG and the X-change femoral revision system in combination with a cemented polished stem, performed in our tertiary care institute between 1991 and 2007. Kaplan-Meier survival analyses were used to determine the survival rate of the revisions with end-point revision for any reason and aseptic loosening. Secondary outcomes were radiologic loosening and subsidence.
RESULTS:
Mean age at revision total hip arthroplasty (THA) was 64.9 years (range 30-86). The most prevalent diagnosis for the femoral revision was aseptic loosening. At review in May 2021, 81 patients (85 hips) were still alive and 118 patients (120 hips, 58%) had died. Three patients (1%) were lost to follow-up at 11, 15 and 16 years after surgery. Data of all deceased and lost patients were included until final follow-up. The mean follow-up was 13.4 years (range 0-28 yrs). During the follow-up 22 re-revisions were performed. The most common reason for re-revision was infection (n= 12, 54%). The survival with endpoint re-revision for any reason was 86% (CI 79-91) at 20 years and 74% (CI 43-89) at 25 years after surgery. The survival for endpoint re-revision for aseptic loosening was 97% (CI 91-99) after both 20 and 25 years. There were no radiological looseninsg although 25 cases had a subsidence of the stem within the graft construction of more than 5 mm.
DISCUSSION AND CONCLUSION:
The femoral IBG is a valuable biological technique that really can reconstitute femoral bone loss in the longterm. After 25 years of follow-up, few re-revisions for aseptic loosening were required. Also, the overall revision rate is very acceptable at a long follow-up. This technique is especially attractive for younger patients facing femoral revisions with extensive bone loss.