Hip arthroplasty with the Primoris® stem – Bone remodelling around a short femoral neck stem

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Introduction:
Total hip arthroplasty gives immediate pain relief and restoration of mobility in patients with end stage osteoarthritis. If the patient returns for revision the bone stock left for reimplantation will be compromised. The Primoris® stem is developed to reduce stress-shielding in order to preserve bone stock.

Objectives:
This study includes postoperative changes in BMD in the proximal femur and evaluation of bone stock preservation at 1 year follow up (FU) in patients with the Primoris® stem.

Methods:
A prospective cohort study of 52 patients scheduled for surgery with the femoral neck-preserving Primoris® stem was carried out. Patients were studied with DEXA-scans, RSA-analysis, Harris hip score, UCLA activity score, WOMAC, EQ5D health questionnaire and Oxford Hip scores. Results from DEXA-scanner were measured in 3 specific regions of interest (ROI) - the regions of calcar (ROC), trochanter minor (ROT) and a diaphysial reference (ROD). Pre-operative, and postoperative BMD results from day one, 6 months and 12 months were analysed.

Results:
3 patients were excluded, leaving 49 patients for BMD-analysis. A slightly significant decrease was found at 6 months FU compared to day one in ROC and ROT. There was no significant difference at 12 months FU compared to day one. A non significant gain of BMD was found at 12 months FU compared to 6 months FU.

Conclusions:
As to bone preservation the results are encouraging. Later follow up will be performed to evaluate if the bone stock remains. If the proximal femoral bone stock is preserved and diaphysis is not compromised then the potential for successful future revision is maximized.

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