

## Long Term Outcome of Total Hip Replacement in Patients with Ankylosing Spondylitis

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**Background:** Total hip replacement (THR) surgery is a reliable therapeutic intervention for patients with severe hip involvement. The aim of our study was to determine the long term outcome and associated risk factors of THR in patients with Ankylosing Spondylitis (AS).

**Materials and Methods:** Patients  $\geq 18$  years with AxSpA diagnosis according to ASAS or NY criteria of ESPAXIA cohort were included. Demographic data, disease duration, comorbidities and current treatment were collected. Pain, patient global assessment (VAS), disease activity (BASDAI), functional capacity (BASFI), enthesitis (MASES), axial mobility (BASMI) and radiological damage (mSASSS) were assessed.

THR data included: date of each total hip arthroplasty (right, left), surgery complications and revision. Actual hip pain by VAS and Steimbroker functional class (FC I-IV). Patients were asked to determine the level of pain previous to the surgery (VAS). Hips functional capacity was evaluated by Merle d'Aubigné and Postel method. Pelvis x rays were taken to determine: presence of periprosthetic osteolysis of the femoral and acetabular components, fracture, luxation and heterotopic ossification (HO) according to Brooker's classification. Statistical analysis: T test, Mann Whitney,  $\chi^2$  and Fisher test. Multiple logistic regression analysis to explore risk factors associated to THR.

**Results:** 190 patients were evaluated and 25 (13,15%) underwent THR. 16 patients were included in the analysis (2 died and 7 lost follow-up). Nine (56,2%) had bilateral THR. Fifteen (93,8%) were male, *median* age of 45 years (IQR 35-44), *median* disease duration 28,5 years (IQR 18-35,2). 11 (68,8%) were HLA-B27 positive. The median time of THR's evolution was 12,5 years (IQR 8.7-16.7). 25 prosthesis were evaluated (14 right y 11 left). 48% were cemented and 54% were non cemented. 3 (12%) prosthesis had surgery complications, 3 (12%) had revision surgery. A relief of pain was observed after THR surgery median pain (VAS) previous surgery 10 cm (IQR 9.7-10) vs 0 cm (IQR 0-1.2). There was also improvement after the surgery in FC: 6 (24%) class II, 16 (64%) class III y 3 (12%) class IV and at the moment of evaluation 15 (60%) class II y 10 (40%) class III. Merle d'Aubigné and Postel method median value 15,2 (IQR 13,5-17). We evaluated 22 THR x rays. 11 (50%) prosthesis had acetabular osteolysis, 3 (13,6%) subluxacion and 1 peri-prosthesis fracture. 15/17 hips (88,2 %) had femoral osteolysis. 15 had heterotopic ossification, (4 grade I, 4 II, 6 III y 1 IV).

THR was associated with longer disease duration ( $27,1 \pm 10,6$  vs  $19,6 \pm 13,4$  years,  $p= 0,03$ ), younger age at the beginning of symptoms ( $17,4 \pm 7,6$  vs  $26,2 \pm 11,9$  years,  $p= 0,0001$ ), minor MASES ( $0,6 \pm 1,2$  vs  $1,6 \pm 2,3$   $p= 0,007$ ) and more frequency of biologic treatment (50% vs 23,6%,  $p=0,03$ ). In the multivariate analysis, the only variable independently associated with THR was younger age at the beginning of symptoms [ $\beta 0,91$  (IC95% 0,85-0,97)  $p=0,001$ ].

**Conclusion:** A substantial relief in pain and improvement of functional capacity were seen in AS patients who underwent THR. Younger age at disease onset was the only predictor associated to THR.