

Total hip arthroplasty with the CORAIL® femoral stem and/or PINNACLE® acetabular cup is generally associated with good/excellent or improved patient-reported and clinical outcomes, with favourable radiologically-determined fixation

Introduction

A total of 32 studies reporting on patient-reported, clinical or radiological outcomes after total hip arthroplasty (THA) were identified in a systematic review (SR); representing a total of 5,214 hips. Results are summarised for patient-reported (Oxford Hip Score [OHS], Western Ontario and McMaster Universities Arthritis Index score [WOMAC]), clinical (Harris Hip Score [HHS]), and radiological outcomes (stem subsidence, cup migration).

Follow-up periods were grouped into short- (0-4 years), medium- (5-10 years) and long-term (>10 years).

Results – patient-reported outcomes

Oxford Hip Score (OHS)

Six short-term studies, representing a total of 1,576 hips, reported on the OHS. Postoperative OHS ratings were described as excellent (OHS>41) in three studies¹⁻³, good (OHS 34-41) in one study⁴, and fair (OHS 27-33) in two studies^{5,6}. The two studies reporting fair OHS ratings may be considered unrepresentative. In the first study, only patients with a greater trochanteric fracture after THA were assessed⁵ and therefore results may not be generalisable to the overall THA population. Although the OHS may improve out to six months postoperatively the second study used a follow-up time (six weeks) which may not capture the expected OHS improvements⁶.

Western Ontario and McMaster Universities Arthritis Index Score (WOMAC)

The mean WOMAC score was reported in one short-², three medium-⁶⁻⁸ and one long-term study⁹; representing 1,012 hips. Due to variations in reporting of the WOMAC score, direct comparisons between studies were not possible. However, across all five studies an improvement in the mean WOMAC score was reported postoperatively^{2,6-9}.

Results – clinical outcome

Harris Hip Score (HHS)

Postoperative HHS outcomes were reported across a total of 2,952 hips from 19 studies. The mean HHS was rated as good or excellent (HHS>80) in 10 short-, four medium- and three long-term studies. In the remaining two studies, a statistically significant ($p<0.05$) improvement from baseline was reported at follow-up^{10,11}.

Results – radiological outcomes

Stem subsidence

Stem subsidence was reported in either a) number of patients (four studies) or b) number of hips (six studies). The number of patients experiencing clinically significant stem subsidence of >3 mm was 33/325 (10.0%) across three short-term studies¹²⁻¹⁴ and 1/347 (0.3%) in one long-term study¹⁵. Across three short-term studies, 23/451 (5.1%) hips had clinically significant stem subsidence¹⁶⁻¹⁸. Clinically significant subsidence was frequently confined to the first six months postoperatively, which may indicate stabilisation due to osseointegration. In the remaining studies (two medium-term and one long-term), no hips had clinically significant subsidence¹⁹⁻²¹.

Cup migration

One study, including 60 hips, reported on cup migration. After three months, a clinically significant migration of >1 mm was reported for 14.0% of the cups. However after three months, migration decreased significantly and within 12 months, all implants except two showed stable migration. This indicated that the desired outcome of osseointegration of the POROCOAT® cup surface had taken place²².

Conclusion

The SR provides evidence that THA with the CORAIL stem and/or PINNACLE cup is generally associated with good/excellent patient-reported and clinical outcomes. The 2 studies showing only fair OHS did not represent the general patient population in clinical practice and were less robust in methodology. Radiologically-determined fixation was favourable although data were limited for cup migration.

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Outcome grades

Oxford Hip Score²²

>41: Excellent
34-41: Good
27-33: Fair
<27: Poor

Harris Hip Score²³

90-100: Excellent
80-89: Good
70-79: Fair
<70: Poor

WOMAC score

Due to variations in the questionnaire used in the included publications, please refer to the individual publications.



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