**ABSTRACT**

**Purpose.** To assess short- to medium-term outcome of the Omnifit constrained acetabular component in preventing dislocation in at-risk patients after total hip arthroplasty (THA).

**Methods.** 81 patients (mean age, 77 years) underwent either primary or revision THA with an Omnifit constrained acetabular component and were followed up clinically and radiologically for a mean period of 24 months.

**Results.** There was one dislocation and one revision for avulsion of the acetabulum. The remaining prostheses remained well fixed.

**Conclusions.** In the short- to medium-term, the Omnifit constrained acetabular component is effective in preventing primary and recurrent dislocation in at-risk patients. Long-term follow-up is needed to assess whether good fixation is maintained. The Omnifit acetabular cup is recommended for elderly patients with limited life expectancy and functional demands.

**Key words:** arthroplasty, replacement, hip; hip dislocation

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**INTRODUCTION**

Dislocation is the most common complication of total hip arthroplasty (THA) after aseptic loosening (range, 0.5–10%).

Cerebral dysfunction and increased age are risk factors for dislocation. Two thirds of dislocations become recurrent, and after revision, redislocation rates of 31 to 55% have been reported.

To prevent and treat dislocation, the use of a captive or constrained acetabular component is suggested, but 2 drawbacks may occur: (1) the primary arc of movement may decrease causing functional constraint, and (2) the constrained components may loosen early due to increased forces.

**MATERIALS AND METHODS**

From January 2003 to June 2004, 81 patients (29 male, 52 female) underwent either primary or revision THA with an Omnifit (Osteonics, Allendale [NJ], US) constrained acetabular component. Seven of 12 primary THA patients had risk factors for dislocation: dementia (n=1), age over 90 (n=1), previous neurological damage to the limb (n=2), and poor mobility due to medical co-morbidities (n=3). Six of these 12 patients were in their 70s and
of low demand. 40 of 69 THA revision patients had risk factors for dislocation, including trochanteric non-union or multiple revisions; 29 had undergone revision for recurrent instability.

The mean patient age at surgery was 77 (range, 47–96) years; 16 (20%) were aged between 80 and 90 years and 12 (15%) were >90 years old. The femoral component was cemented in 47 patients and uncemented in 34. The mean clinical and radiological follow-up period was 24 (range, 7–48) months.

The Oxford Hip Score was used for clinical assessment of acetabular fixation (scale, 0–48; 0 being best). Radiographs were used to assess loosening of the acetabular and femoral components.

Tompkins’s criteria were used for radiological assessment of the uncemented acetabular components: (1) stable—defined as radiolucent line between prosthesis and bone in less than 4 of 5 zones, and no migration of the component; (2) possibly unstable—defined as radiolucent line between prosthesis and bone in at least 4 of 5 zones, with no zone having a radiolucent line of ≥2 mm wide, and no migration of the component; (3) probably unstable—defined as radiolucent line between prosthesis and bone in at least 4 of 5 zones, and with at least one zone having a radiolucent line ≥2 mm wide, and no migration of the component; (4) unstable—defined as change in position of the component by ≥2º or its migration by ≥2 mm.

Engh’s criteria were used to classify the fixation of the uncemented femoral components: (1) stable bone ingrowth—defined as an implant with no subsidence or migration and no circumferential radiolucent line formation; (2) stable fibrous ingrowth—defined as an implant with circumferential radiolucent line formation but no progressive migration; (3) unstable—defined as definite evidence of migration (i.e. change in component position) or definite progression in width of a previous radiolucent circumferential line.

Harris’s criteria were used to classify the fixation of the cemented femoral components: (1) definite loosening—defined as subsidence of the femoral component, fracture of the cement or stem, or the presence of a radiolucent line that had not been present on the early postoperative radiograph at the interface between the stem of prosthesis and cement; (2) probable loosening—defined as the presence of a continuous lucency along the entire bone–cement interface; (3) possible loosening—defined as a radiolucent line at the bone cement interface that encompassed >50% but <100% of the circumference of the stem on at least one radiograph; (4) stable—no evidence of loosening.

### RESULTS

Nine (11%) of the 81 patients died within 24 months of surgery. The mean Oxford Hip Score of the remaining patients was 19 (range, 0–35). One patient had a dislocation of the femoral head and the constrained liner dislocated from the metal shell. Closed reduction was achieved by the on-call registrar and the patient had no further problems. In another patient, the entire cup including the screws was avulsed from the pelvis, necessitating revision of the acetabular component. In the other 80 patients, the acetabular components remained well fixed with only one component having a radiolucent line at the bone component interface (Table). One uncemented femoral component had a radiolucent line at the bone component interface and 33 did not (Table). Three of the cemented femoral components had radiolucent lines at the bone cement interface and 44 did not (Table). None of the 28 patients who underwent revision for instability had a redislocation.

### DISCUSSION

In the short- to medium-term, the Omnifit constrained acetabular component is effective in preventing dislocation in at-risk patients who have had a THA. Neither the acetabular nor the femoral components showed a high rate of loosening. This was comparable to other studies with the same prosthesis reporting a 4% dislocation or failure rate at 61 months, and redislocation and re-revision rates of 2.4% and 8.2% respectively. All these redislocations occurred in patients having cemented liners in the place. The cemented liners tended to disassociate. A
REFERENCES