

## **The effect of age on the relative revision rates of cemented and cementless Unicompartmental Knee Replacements, based on data from National Databases. An analysis of over 12,000 Knee Replacements.**

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**INTRODUCTION:** Unicompartmental knee replacement (UKR) is an effective treatment for medial compartment knee arthritis. A challenge is patients requiring knee replacements are becoming younger. It is currently unknown what the relative performances of cemented and cementless UKRs are in different age groups.

### **METHODS:**

From 34,277 Oxford UKRs identified from the National Joint Registry and Hospital Episode Statistics database, we propensity score matched 12,882 cemented and cementless UKRs on patient and surgical factors. Patients were stratified into three groups; (1) <60 years (2) 60-69 years (3) ≥70 years. The relative performances of cemented and cementless UKRs were studied in each age group. Revision rates were compared using cox regression with the proportional hazards assumption satisfied in analyses. Hazard ratios (HR) below 1.0 favour cementless fixation. Aseptic loosening rates were compared between groups using the Chi Squared Test.

**RESULTS:** The 10 year implant survival for the matched cemented and cementless UKRs for (1) <60 years (n=3,993) were 81.4% (CI 73.6-87.0) and 86.7% (CI 80.7-90.9) (HR 0.73, p=0.02), (2) for 60-69 years (n=4,715) were 91.8% (CI 88.9-94.0) and 94.5% (CI 92.9-95.7) (HR 0.90, p=0.51), and for (3) ≥70 years (n=4,174) were 93.5% (CI 91.1-95.3) and 94.2% (CI 92.0-95.8) (HR 1.0, p=0.99). In the <60 years and 60-69 years there were significantly fewer cases of revision for aseptic loosening in the cementless group (0.5% vs 1.6% [p <0.001] and 0.4% vs 1.3% [p=0.002] respectively).

**DISCUSSION AND CONCLUSION:** Younger ages were associated with higher revision rates in both cemented and cementless UKR groups. Cementless fixation offers reduced long-term revision rates compared to cemented fixation in the <60 years group with aseptic loosening rates three times lower. This study suggests younger patients benefit most from using cementless fixation.