Pre-operative patellofemoral degenerative changes do not affect the outcome after medial Oxford unicompartmental knee replacement

A REPORT FROM AN INDEPENDENT CENTRE

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There has been debate about the role of unicompartmental knee replacement in the presence of radiologically identifiable degenerative changes of the patellofemoral joint. We studied 195 knees in 163 patients in whom an Oxford unicompartmental knee replacement had been performed for medial osteoarthritis between January 2004 and July 2007. The mean age of the patients was 66 years (51 to 93). The degree of degenerative change of the patellofemoral joint was assessed using Jones’ criteria. Functional outcome was assessed at a mean of 3.4 years (2 to 7) post-operatively, using the Oxford knee score and the Short-form 12 score.

Degenerative changes of the patellofemoral joint were seen pre-operatively in 125 knees (64%) on the skyline radiographs. There was no statistically significant difference in the Oxford knee or Short-form 12 scores between those patients who had patellofemoral osteoarthritis pre-operatively and those who did not (p = 0.22 and 0.54, respectively).

These results support the opinion expressed at the designer’s hospital that degenerative changes of the patellofemoral joint in isolation should not be considered to be a contraindication to medial Oxford unicompartmental knee replacement.
In order to address the research question, we divided the patients into two cohorts: those who presented with pre-operative radiological evidence of patellofemoral joint OA and those who did not, and assessed any difference between these groups in the OKS and SF-12 scores at follow-up.

**Statistical analysis.** Patient characteristics were initially assessed using descriptive statistics. The Mann-Whitney U test was used to analyse the outcome as the data were not normally distributed. A p-value < 0.05 was considered statistically significant. All statistical analyses were performed using SPSS version 16.0 for Windows (SPSS Inc., Chicago, Illinois).

**Results**

The mean follow-up was 3.4 years (2 to 7). Of the 195 knees in this series, 125 (64%) had radiographic evidence of patellofemoral OA pre-operatively. Of these, only seven had the change isolated to the medial or lateral facet (Table II).

There were no statistically significant differences in the outcome OKS or SF-12 scores between those patients who had patellofemoral OA pre-operatively and those who did not (Mann-Whitney, \( p = 0.22 \) and \( p = 0.99 \), respectively) (Table III).

**Discussion**

UKR is being more widely undertaken as demonstrated by various national joint registries. Of the implants available, the Oxford UKR is a commonly used prosthesis in England and Wales. Among the reasons cited for this rising trend in UKR is less pain-related morbidity, faster recovery, shorter hospital stay, lower incidence of infection, and fewer thromboembolic complications than with total knee replacement (TKR). Furthermore, UKR has also been shown to be cost-effective compared to TKR in patients over 70 years of age, which represents a large proportion of our cohort. Current reports show that progression of arthritis is an uncommon reason for revision. Prior to our study, only the designing institute has demonstrated that pre-operative patellofemoral arthritis does not impair the functional outcome following medial UKR. Our independent results corroborate those findings. We used a radiological scoring system that has previously been validated and shown to be reliable and reproducible for determining patellofemoral arthritis on skyline views.

We recognise the limitations of our study. First, the mean age of this cohort was 66 years; accordingly, caution should be observed in extrapolating the results to younger patients.
undergoing UKR. Furthermore, the duration of follow-up may have influenced the findings of this analysis. As the follow-up period ranged from two years to seven years, this spread may have resulted in changes in the outcome scores. Including patients in the study in this manner was necessary in order to increase the sample size, but we nevertheless accept that despite reporting the largest number of patients to date, our study was still underpowered to provide a definitive answer.

A post hoc power calculation indicated that a cohort of 232 patients (116 in each group) would be required, based on a three-point difference in the OKS being considered clinically significant, a SD of 7, with a significance level of 0.05 and a power of 90% (two-sample t-test).

Finally, because of the retrospective design of the study, we were unable to perform pre- or post-operative functional analyses specific to the patellofemoral joint, such as the Kujala or Feller scores.\textsuperscript{14,15}

We confirm, as previously reported,\textsuperscript{1} that pre-existing patellofemoral OA should not be considered a contra-indication to medial Oxford UKR.

**References**