2-Year Results From A Double-Blinded Multicentre Randomized Trial Of 350 Patients comparing Medial Unicompartmental Versus Knee Arthroplasty In The Treatment Of Isolated Anteromedial Knee Osteoarthritis

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INTRODUCTION: Total Knee Arthroplasty (TKA) and Medial Unicompartmental Knee Arthroplasty (mUKA) are common treatments for isolated anteromedial osteoarthritis, but there is ongoing debate regarding which is more effective and gives better results in both the short and long term.

METHODS:

This study aimed to compare mUKA and TKA, with the primary objective being to assess the time-adjusted improvement in the Oxford Knee Score (OKS) over the first two years. Secondary objectives included evaluating the time-adjusted Forgotten Joint Score, Copenhagen Knee ROM scale, clinical ROM, KOOS, SF-36, EQ-5D, and UCLA activity scale, as well as mean scores at the two-year follow-up for OKS and clinical ROM. Additionally, revision and re-operation rates were compared.

A double-blinded, multicenter randomized trial was conducted across all five regions of Denmark. Secondary outcomes were analyzed using a hierarchical sequential gatekeeping statistical method. Time-adjusted outcomes were calculated by measuring specific time points and determining the area under the curve.

RESULTS: From August 2017 to April 2021, 1,219 patients were assessed, with 350 randomly assigned to either mUKA or TKA. The mean time-adjusted OKS improvement was 3.5 (CI 2.3; 4.7, $p<.001$) higher for mUKA. The OKS at two years showed a mean difference of 2.7 (CI 1.3; 4, $p<0.001$) in favor of mUKA. Ten out of twelve secondary outcomes were statistically in favour of mUKA, and the remaining two secondary outcomes were not significant. The hierarchical sequential gatekeeping statistical method proved significance through the whole procedure, minimizing type 1 errors. Re-operation rates within two years were 2.3% for mUKA and 6.9% for TKA, with a difference of 4.7% (CI 0.2%; 9.8%). Revision surgery rates were 2.8% for mUKA and 4% for TKA, with a difference of 1.2% (CI -3%; 5.7%).

DISCUSSION AND CONCLUSION: There was a statistically significant difference in the time- weighted mean OKS change from baseline between mUKA and TKA, in favour of mUKA. Most secondary outcomes, including revision and re-operation rates, favoured mUKA. These findings support the increasing usage of mUKA worldwide, however, long-term follow-up is needed before definitive clinical recommendations can be made, which this study provides with its 20 year expected follow-up.