## Paper #51

## Two-Year Results of a Randomized Trial of Robotic Surgical Assistance vs. Manual Unicompartmental Knee Arthroplasty

Notes

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**Introduction:** We have carried out the first Randomised Controlled Trial (RCT) comparing robotic-assisted and manual Unicompartmental Knee Arthroplasty (UKA). We previously reported that robotic assistance produces significantly more accurate implant positioning, early postop pain is decreased, and better function at 3 months. We now report on the 2-year clinical outcomes.

**Methods:** 139 patients were randomised to receive UKA with/without the aid of robotic assistance. Patients were assessed at 3 months and 1, 2 years post-op. Outcome was assessed using the American Knee Society Score (AKSS), Oxford Knee Score (OKS), Pain VAS, Forgotten Joint Score (FJS), complications and adverse events. Subgroup analysis was performed which examined the outcome in more active patients (UCLA Activity Score>5, n=31, 22.3%). Multivariable analysis investigated whether there were any other independent predictors of outcome, other than treatment assignment.

**Results:** No difference in outcome observed between robotic and manual groups at 2 years for the AKSS (p=0.92). There were no significant differences in either FJS (p=0.94), Pain VAS (p=0.53) or OKS (p=0.97). In patients who were more active prior to surgery, OKS was better in the robotically assisted group at two years (p=0.04). The VAS stiffness (p=0.019) and FJS scores (p=0.017) were also better in the robotic group.

Conclusion: Robotic-assisted surgery in UKA resulted in better early post-operative pain and clinical outcomes, but this difference was not present at two years. The subgroup of patients with increased pre-operative activity levels had improved functional outcomes observed in the robotic assisted UKA group which persisted to 2 years. This is the first RCT to demonstrate functional superiority of robotically assisted UKA in a more active subgroup of patients undergoing surgery for unicompartmental osteoarthritis. The study is limited by the inherent problems associated with subgroup analysis, in a study of this size.