No Difference In Clinical Outcome Between A Well-Established Total Knee Arthroplasty Design And Its Successor: A Prospective, Randomized, Controlled Trial.

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Background

Total knee arthroplasty (TKA) has been known as the most effective treatment for patients with end stage knee osteoarthritis (OA), with implant survival rate of 95% over 10 years after surgery. Although TKA is a highly effective procedure, up to 20% of patients continue to suffer from pain after the joint replacement. To address this difficulty, the number of implants available on the market has substantially proliferated, often with little or no evidence of clinical effectiveness or cost-effectiveness. Despite very promising survival rates after long-term follow up, the Press Fit Condylar (PFC) Sigma (DePuy Synthes, Warsaw, IN) TKA has continued to be associated with relatively high rates of dissatisfaction at short-to-midterm follow-up. Its successor model, the Attune Total Knee Arthroplasty System (DePuy Synthes, Warsaw, IN) was designed to address these rates by optimising patellofemoral tracking.

Objectives

To our knowledge, no prospective, randomized, controlled trial was conducted so far to compare both designs. Therefore, the aim of this study was to compare the well-established PFC system and the Attune TKA using clinical outcome scores after two-year follow-up. The null hypothesis was that modifications of the design of the Attune system would show no difference in clinical outcome compared to the PFC Sigma system.

Study Design & Methods

Two hundred patients who underwent TKA were randomized into two groups: patients received either Attune TKA or PFC Sigma. Clinically, the Knee Society knee and function scores (KS and FS), Western Ontario and McMaster Universities

Osteoarthritis Index (WOMAC), ROM and Visual Analogue Scale (VAS) were evaluated and compared between the groups at two years after surgery. One-hundred fifty-eight patients (80 in the Attune group and 78 in the PFC Sigma group) were available for follow-up.

Results

In bivariate analysis using parametric and non-parametric statistical tests, no significant differences in terms of pre- and postoperative VAS, KS, FS, WOMAC, and ROM between the two groups were observed. At two years follow-up, statistically significant (p

Conclusions

The expected benefits of the Attune TKA modifications compared to its predecessor could not be observed in clinical outcome scores at 2 year postoperatively. However, both designs are effective options for improving pain and function following TKA.