

Early Experience With Visionaire Patient Matched Instrumentation in Total Knee Arthroplasty

Narayana Prasad, FRCS (Tr & Orth), UNITED KINGDOM
Mark Lewis, FRCS (Tr & Orth), UNITED KINGDOM

Royal Gwent Hospital
Newport, Wales, UNITED KINGDOM

Summary:

A comparison of total knee replacement using patient specific instrumentation with historical cohort in terms of operating time, length of stay and long leg alignment.

Abstract:

Introduction:

We aim to report the preliminary outcome of visionaire (Genesis 2, Smith and nephew) patient matched instruments in total knee arthroplasty in terms of operating time, hospital stay and post-operative alignment in coronal plane. We also compared this with historical cohort of patients who had total knee arthroplasty using the same implant (Genesis 2 Smith and nephew) with standard instrumentation.

Patients and Methods:

Twenty-five patients were included in the prospective study to have visionaire (Genesis 2, Smith and Nephew) patient matched instruments for total knee replacement. All patients had pre-operative MRI scan and long leg alignment view of the legs for planning and to prepare custom made cutting blocks. All procedures performed by three consultant orthopaedic surgeons. We looked at the operating time, length of hospital stay and the post-operative long leg alignment radiographs. We compared this with age and sex matched cohort of twenty-five patients who had total knee arthroplasty with conventional instrumentation using the same implant type (Genesis 2) by the same surgeons in the previous year.

Results:

There were 14 males and 11 females in the visionaire group with a mean age of 68 (52-79) years. The comparison group also had 14 males and 11 females with mean age of 67 (57-80) years. The mean operating time in the visionaire group was 72 minutes compared to 77 minutes in the comparison knee replacement group. The length of stay in the visionaire group was 5 days compared to 6 days in the standard knee replacement group. On comparing the long leg alignment view there were 22% outliers in the Visionaire group compared to 40% in the control group and this was statistically significant (chi square test).

Discussion:

A coronal tibiofemoral angle in excess of ± 3 degrees has been associated with worse functional outcomes and higher rates of implant failure. We have not found any significant difference in the operating time or length of stay in the visionaire group although the learning curve of the 3 surgeons needs to be taken into consideration. The early trend on the post-operative alignment radiographs shows good post-operative alignment however despite using this system there are outliers however the number of outliers can be reduced compared to the standard TKA system. Of note the cases in the visionaire group had significant pre-operative deformity and this has caused a selection bias, which could be eliminated by conducting a randomized controlled trial.