Examining Long-Term Outcomes of High Tibial Osteotomies and Distal Femoral Osteotomies

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INTRODUCTION:

Patients with unicompartmental osteoarthritis and coronal malalignment may be treated with osteotomy procedures to offload the affected compartment. Previous research has shown good short- and mid-term outcomes with improvements in pain and function. Relatively few reports document follow up at 10 years and beyond.

METHODS:

Patients were identified via retrospective electronic medical review of patients who previously underwent a high tibial osteotomy (HTO) or distal femoral osteotomy (DFO) procedures at our institution prior to July 31, 2012. Subjects were contacted to fill out the Knee Injury and Osteoarthritis Outcome Score for Joint Replacement (KOOS Jr.) survey and list any additional surgeries undergone including conversion to total knee arthroplasty (TKA). Additionally, a chart review was conducted to identify additional procedures including conversion to TKA at our institution. Survivorship, defined as no conversion to TKA, rates were calculated based on survey responses and chart review.

RESULTS:

In total, 79 patients were available for minimum 10-year follow up (mean 11.23 (+/- 0.9) years). Sixty-four of these patients underwent an HTO procedure with 50% of this population being female, and the average age of this population being 42.3 years old (+/- 10.1 years). Fifteen of these patients underwent a DFO procedure with 46.7% of this population being female, and the average of this population being 30.5 years old (+/- 11.8 years). The 10-year survivorship for all patients was 74.7%. There were 7 subjects who underwent TKA after the 10-year mark making the final survivorship 66.8%. The average time from HTO/DFO to TKA was 6.6 years. When categorized by procedure, the HTO group had 18 out of 64 subjects undergo conversion to TKA prior to 10-years, with 10-year survivorship 72.1%. An additional 5 subjects underwent TKA after 10 years, making the overall survivorship 64.1%. The DFO group had 2 out of 15 subjects undergo TKA prior to 10 years making 10-year survivorship 86.7%. An additional 2 subjects underwent conversion to TKA after the 10-year mark, making overall survivorship 73.3%. Forty-four of the 79 subjects (55.7%) underwent an additional procedure, averaging 1.8 additional procedures in those requiring one. The average KOOS Jr. score of those subjects completing surveys was 72.1 (+/- 20).

DISCUSSION AND CONCLUSION:

The ten-year survivorship rates for HTO and DFO were 74.7% and 86.7%, respectively. However, the overall survivorship rates decreased to 66.8% and 73.3% at final follow up of 11.2 +/- 0.9 years. Approximately 55.7% of subjects underwent additional procedures, with an average of 1.8 additional procedures per patient. The average KOOS Jr. score was 72.1, indicating moderate improvement in pain and function. Continued monitoring and further research are needed to enhance long-term outcomes in this patient population.