INTRODUCTION:

There are very few studies of total knee replacement where cohorts of patients have been followed for a minimum of 20 years. The purpose of this study was to examine the minimum 20 year follow-up of two prospectively followed, consecutively performed cohorts of total knee replacement patients to determine differences in implant durability as well as to provide insight into future study designs for long term follow-up of knee replacement cohorts.

METHODS:

Two consecutive series of total knee replacement cohorts were performed sequentially in a single orthopaedic practice and were prospectively followed for a minimum of 20 years both clinically and with serial radiographs. One cohort received a rotating platform knee design and the second a modular tibial tray design. In the first cohort, 119 knees were performed in 86 patients, average age 70 at the time of surgery. The second cohort consisted of 101 knees performed in 75 patients, average age 70. In addition to evaluation of the prevalence of revision, radiographic loosening and osteolysis, the authors performed survivorship analysis for patient longevity categorized by the age at surgery.

RESULTS:

In the first cohort, 20 patients with 26 of the 119 knees were still alive and in the second, 16 patients with 22 of 101 knees were still alive at twenty-year follow-up. Revision rates for aseptic loosening were 0% and 5%, respectively, and osteolysis rates were 5% and 9%, respectively. In both groups the patient survivorship at 20 years for patients over 60 at surgery was 19% and for patients under 60 at the time of surgery was 50%.

DISCUSSION:

At 20 year follow-up these studies demonstrate the durability of total knee replacement with low revision and loosening rates in these elderly cohorts at 20 year follow-up. Unfortunately, in these long term follow-up studies of older patients groups undergoing TKA, few patients live to 20 years. Investigators will need to follow large cohorts of younger patients in order to make pertinent long term observations concerning differences in implant design durability and bearing surface material differences.

SIGNIFICANCE:

At 20 year follow-up these studies demonstrate the durability of total knee replacement with small differences in the results of these two elderly patient prospectively followed cohorts. Age at surgery stratified patient survivorship at 20 years demonstrates the need to follow large cohorts of younger patients in the future to have adequate numbers of patients surviving at twenty years to make pertinent observations. Such studies will probably require multi-institution collaborations.

REFERENCES:


Poster No. 1009 • ORS 2012 Annual Meeting