Trends in the Utilization of Total Wrist Arthroplasty versus Wrist Fusion for Treatment of Advanced Wrist Arthritis

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Introduction

Wrist arthritis affects nearly 2,000,000 wrists annually in the United States.

• The two major options for recalcitrant, advanced wrist arthritis include total wrist arthroplasty (TWA) and total wrist fusion (WF).

Objective

• The purpose of this study was to analyze data collected from the Nationwide Inpatient Sample (NIS) regarding TWA versus WF.

We hypothesized that over a 10 year period utilization rates of TWA have increased.

Methods

• We reviewed temporal trends in the utilization of TWA and WF from 2001 through 2010 using the NIS. The NIS database is the largest all-payer database of hospital discharges in the United States. The database consists of approximately a 20% stratified sample of US hospitals.

• Nationwide Inpatient Sample (NIS) data from 2001 to 2010 were reviewed. Procedures were identified by ICD-9-CM codes 81.73 (TWA) and 81.25 (WF).

• Utilization rates, primary treatment diagnoses, patient demographic and medical comorbidity data, and procedure costs were compared between TWA and WF using y2 and student t tests for categorical and continuous variables, respectively.

• Linear regression modeling was used to determine national trends.

Results

• There was a decrease in the number of TWA cases per year (p<0.05), while the annual number of WF procedures remained relatively constant (p=0.13) (Figure 1).

• Patients with malunion or traumatic arthritis were more likely to have undergone WF (malunion: 12% vs 3%, p<0.001; traumatic arthritis: 12% vs 3%, p<0.001).

• Rheumatoid patients were more likely to undergo TWA than WF (51% vs 16%, p<0.001).

• Patients receiving TWA also tended to be older and female.

• TWA patients also demonstrated a higher comorbidity burden and were more often insured by Medicare. Hospital charges were greater for TWA compared to WF ($34,055 vs. $27,079, p<0.01).

Conclusions

• Despite improvements in TWA ingrowth strategies, bearing surfaces, and the potential for preservation of wrist movement, WF was performed nearly four times more frequently.

• Overall TWA utilization decreased over the 10 year period despite being utilized more often in patients with underlying comorbidities. WF was associated with a higher risk of complications when compared to TWA during the index hospitalization period.

• Although LOS was similar between the 2 groups, TWA was associated with a higher hospitalization charge.

References:


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