The Comparative Performance of Radial Head Prostheses in Patients Younger than and Older than 50 Years: A Systematic Review

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INTRODUCTION:
Surgeon preference between radial head arthroplasty (RHA) and open reduction internal fixation (ORIF) may depend in part, on patient age. Outcome metrics are not uniform across a broad age distribution; therefore, treatment decisions must be evaluated within the confines of a more narrow age bracket. With radial head fractures commonly occurring in young adult patients, an understanding of outcomes for radial head replacement within age-specific populations will provide context and value for the surgeon. We performed a systematic review comparing the clinical outcomes for radial head replacement in patients younger and older than 50 years of age. Analysis also compared outcomes between radial head arthroplasty performed as a primary procedure versus as a secondary procedure in patients younger and older than 50 years of age.

METHODS:
PubMed was queried for articles which delineated individual patient data for age, surgical treatment, and appropriate outcome metrics. Articles were grouped based on patient age of under 50 and over 50 years and within those age groups, based on the arthroplasty being performed as a primary or as a secondary procedure.

RESULTS:
In the under 50 group, articles which reported on RHA done as a primary procedure had significantly higher (p=0.001) mean Mayo Elbow Performance Score (MEPS) than articles with RHA done as a secondary procedure. Implant revision or removal occurred in 6.7% of patients over 50 and in 8.4% of patients under 50 (p=0.32). The relative risk ratio for implant revision or removal between the under 50 and over 50 groups was 1.24.

DISCUSSION AND CONCLUSION:
It is important that we understand how clinical outcomes in radial head arthroplasty relate to upper and lower divisions of the wide age distribution that is common in radial head fracture patients. The current results demonstrate radial head arthroplasty in patients under the age of 50 years have satisfactory short-term outcomes which are comparable to outcomes in patients over the age of 50 years. Failed radial head fixation followed by revision with arthroplasty may have inferior outcomes compared to a primary arthroplasty across all ages. Our findings provide guidance to surgeons who face a multifaceted decision when encountering young patients with radial head fracture patterns that may be amenable to arthroplasty.