Hemi and total wrist arthroplasty

av

Per Fischer

Akademisk avhandling

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Opponent: Professor Jan Fridén
Institutionen för kliniska vetenskaper
Sahlgrenska akademin, Göteborg Universitet
Abstract


Aim: To study implant survival and implant loosening following primary total wrist arthroplasty (TWA) using four different implants. To report outcome following wrist revision arthroplasty. To evaluate a new radial wrist hemi arthroplasty (RHWA) design clinically and biomechanically.

Method: The studies included 136 primary TWAs and 16 revision TWAs, both studies with prospectively collected data. Six fresh frozen cadaveric wrist specimen were used for biomechanical analysis. The RHWA was evaluated clinically in a pilot series of 20 cases.

Results: Total implant survival was 92% but with high frequency of implant loosening of surviving Re-Motion implants. None of the surviving Maestro implants were considered radiographically loose. Implant survival following revision arthroplasty was 75%, considerably lower than following primary TWAs. However, none of the patients with surviving revision implants had pain at rest and little or no pain in activity. The surgical procedure and placement of the RHWA was feasible. Overall, the kinematic and functional changes appeared acceptable compared to the native wrist. None of the patients underwent revision following RHWA but reoperation was performed in 7 patients on the indication of persistent pain. However, patients reported relief of pain and improvement of patient-reported outcome measures.

Conclusion: High long-term implant survival and no signs of radiographic loosening was found for the Maestro implant. However, the Maestro implant is no longer available on the market and we believe there is a need for new TWA designs. Revision arthroplasty is a valid option in the management of failed TWA. However, implant survival is lower than for primary TWAs and as many as 25% require additional surgery. Promising results were found using the new RHWA design but the implant needs modification before further testing.

Keywords: Rheumatoid arthritis, Wrist, Arthroplasty, Implant survival, Biomechanics

Per Fischer, School of Medical Science
Örebro University, SE-701 82 Örebro, Sweden, per.fischer@oru.se