

## The 14<sup>th</sup> DGORh-JSRAS combined meeting

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### **Mid-term results of cementless vs cemented total elbow arthroplasty by J-alumina ceramic elbow (JACE) in patients with rheumatoid arthritis**

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*Aims:* To investigate the clinical and radiographic outcome of unlinked surface replacement elbow prosthesis (J-alumina ceramic elbow, JACE) implanted with or without bone cement for the reconstruction of rheumatoid elbows.

*Methods:* Between 1997 and 2007, 92 patients (104 elbows) with rheumatoid arthritis (RA) were managed with a JACE total elbow arthroplasty (TEA). The clinical and radiographic data were available from 83 patients (95 elbows) who had been followed for more than 6 months. Twenty elbows in 20 patients (aged 44-71, average 57.1 years old) were replaced without bone cement (Group I), and 75 elbows in 67 patients (aged 46-78, average 61.2 years old) were replaced with bone cement (Group II). The mean follow-up period and follow-up rate in Group I and II were 70 months and 95%, and 37 months and 99%, respectively. The clinical condition of each elbow before and after operation was assessed according to the scoring system of Japanese Orthopaedic Association (JOA) elbow scoring system (up to 100 points), made up of scores of pain, activity of daily life, muscle strength, range of motion, instability, and deformity of the joint. The radiographs were reviewed carefully, and loosening was defined as a progressive radiolucent line of more than 2 mm that was completely circumferential around the prosthesis.

*Results:* In Group I, the average postoperative JOA score improved from 49 to 71 points. However, loosening was noted in 13 elbows (65%) and revision surgery was required in 6 elbows (30%). In contrast, the average postoperative JOA score of elbows of Group II improved from 51 to 91 points, with marked pain relief. Dislocation was seen in one elbow (1.3%), and revision surgery had done in one elbow (1.3%) due to deep infection. No radiographic loosening was seen in Group I elbows. With revision defined as the end point, the likelihood of survival of the prosthesis of Group I and II was 48.4 and 97.5%, respectively, for as long as 5 years by Kaplan-Meier analysis.

*Conclusions:* JACE total elbow prosthesis, the third generation alumina ceramic elbow, has been originally designed for cementless fixation. However, the clinical results of JACE without bone cement showed deterioration of outcome and increased loosening. In contrast, the clinical performance of JACE was excellent when fixed with bone cement.