

## Hybrid versus Cemented Fixation in Total Knee Arthroplasty: Mid-Term Follow-Up

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**Abstract :** Introduction: Total Knee Arthroplasty (TKA) has contributed to improvement of patient's quality of life, although it has been associated with some complications including component loosening and polyethylene wear. To prevent these complications various fixation techniques have been employed. Hybrid TKA with cemented tibial and cementless femoral components have shown favourable outcomes, although it still lack of consensus in the literature. Objectives: To evaluate the clinical and radiographic results of hybrid versus cemented TKA with an average 5 years follow-up and analyse the survival rates. Methods: A retrospective study of 125 TKAs performed in 92 patients at our institution, between 2006 to 2008, with a minimum follow-up of 2 years. The same prosthesis was used in all knees. Hybrid TKA fixation was performed in 96 knees, with a mean follow-up of  $4,8 \pm 1,7$  years (range, 2-8,3 years) and 29 TKAs received fully cemented fixation with a mean follow-up of  $4,9 \pm 1,9$  years (range, 2-8,3 years). Selection for hybrid fixation was nonrandomized and based on femoral component fit. The Oxford Knee Score (OKS 0-48) was evaluated for clinical assessment and Knee Society Roentgenographic Evaluation Scoring System was used for radiographic outcome. The survival rate was calculated using the Kaplan-Meier method, with failures defined as revision of either the tibial or femoral component for aseptic failures and all-causes (aseptic and infection). Analysis of survivorship data was performed using the log-rank test. SPSS (v22) was the computer program used for statistical analysis. Results: The hybrid group consisted of 72 females (75%) and 24 males (25%), with mean age  $64 \pm 7$  years (range, 50-78 years). The preoperative diagnosis was osteoarthritis (OA) in 94 knees (98%), rheumatoid arthritis (RA) in 1 knee (1%) and Posttraumatic arthritis (PTA) in 1 Knee (1%). The fully cemented group consisted of 23 females (79%) and 6 males (21%), with mean age  $65 \pm 7$  years (range, 47-78 years). The preoperative diagnosis was OA in 27 knees (93%), PTA in 2 knees (7%). The Oxford Knee Scores were similar between the 2 groups (hybrid  $40,3 \pm 2,8$  versus cemented  $40,2 \pm 3$ ). The percentage of radiolucencies seen on the femoral side was slightly higher in the cemented group 20,7% than the hybrid group 11,5%  $p=0,223$ . In the cemented group there were significantly more Zone 4 radiolucencies compared to the hybrid group (13,8% versus 2,1%  $p=0,026$ ). Revisions for all causes were performed in 4 of the 96 hybrid TKAs (4,2%) and 1 of the 29 cemented TKAs (3,5%). The reason for revision was aseptic loosening in 3 hybrid TKAs and 1 of the cemented TKAs. Revision was performed for infection in 1 hybrid TKA. The hybrid group demonstrated a 7 years survival rate of 93% for all-cause failures and 94% for aseptic loosening. No significant difference in survivorship was seen between the groups for all-cause failures or aseptic failures. Conclusions: Hybrid TKA yields similar intermediate-term results and survival rates as fully cemented total knee arthroplasty and remains a viable option in knee joint replacement surgery.

**Keywords :** hybrid, survival rate, total knee arthroplasty, orthopaedic surgery

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