

A randomized controlled double blinded study of oxidized zirconium and cobalt chrome Genesis II prosthesis in total knee replacement. Results at 5 years

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INTRODUCTION

This study was performed to accurately compare the outcome of total knee replacement with either oxidised zirconium or cobalt chrome genesis II prosthesis. All patients included in this study were undergoing simultaneous bilateral TKR and received one of each prosthesis, thereby acting as their own control.

METHODOLOGY

Between January and December 2003 40 patients who were undergoing bilateral TKR under the care of the senior surgeon (LAP) consented to participate in the study. There were 15 males and 25 females. The average age at the time of surgery was 68 years (55-84). All patients were assessed prior to surgery, at 5 days post-operatively, and 6 weeks and 12 and 24 months post-operatively.

The outcome measures included the KOOS, Knee Society Score, BOA Patient Satisfaction Scale, and radiographs at 6 weeks, 1, 2 and 5 years. In 2 patients polyethylene exchange was performed at 56 months from surgery during patellofemoral resurfacing. The 4 retrieved polyethylene liners were studied for wear with the aid of a stereo zoom microscope and an environmental scanning electron microscope (ESEM).

RESULTS

There were no significant differences in any subjective or objective assessments prior to surgery.

Of the 40 patients enrolled in the study, 3 died of unrelated causes and 2 had developed senile dementia. All of the remaining 35 patients all were assessed at 2 years from surgery and 33 (94%) were assessed at 5 years.

Figure 1 demonstrates the mean and 95% confidence interval for the ROM of the 2 groups pre-op, 5 days, 12 and 24 months from surgery.

	Cobalt Chrome	Oxidised Zirconium	p
No of knees	40	40	
Side			
Left	16	24	
Right	24	16	
Preferred Knee (%)	26	18	0.01
KOOS Score/100			
Pain	93	93	0.20
Symptom	82	84	0.54
Daily activities	87	87	0.72
Effusion (%)	42	24	0.78
Walking Unlimited	78	78	0.99
Mean Flexion range			
Day 5	92	95	
24 months	114	114	
60 months	119	118	0.73
5 yr Knee Society Score Mean	181	177	0.37

At 5 years from surgery the CC knee was preferred by 41% of patients compared to 13% who preferred the OZ knee (p=0.009). There was no significant difference in range of motion between the 2 prostheses at any time, or any of the other variables assessed. The 4 retrieved polyethylene inserts showed similar patterns of wear in terms of wear types and patterns. There was no difference in the grade or incidence of radiographic lucencies between the 2 prostheses at 5 years.

CONCLUSION

No significant differences have been identified when comparing the Genesis II oxidised zirconium prosthesis to the cobalt chrome prosthesis in the early post-operative period. In this group of patients there was no significant difference

in the early return of flexion in contrast to reports by previous authors and advertising by the manufacturers. No comment can be made, however, on differences in the wear properties of the two implants at this stage.

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