

The outcome at 10 years of lateral closing wedge high tibial osteotomy: Preoperative predictors of survivorship and determinants of functional outcome

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INTRODUCTION

High tibial osteotomy (HTO) is an established surgical technique for the management of medial compartment osteoarthritis of the knee. The biomechanical principle of HTO is to move the lower limb mechanical axis laterally to redistribute weight-bearing forces away from the worn medial compartment and through the preserved lateral compartment to relieve pain and slow disease progression. The aim of this study was to prospectively examine the outcome at 10 years following lateral closing wedge HTO, examine preoperative predictors of survivorship and determinants of functional outcome.

METHODS:

100 patients who underwent HTO for medial compartment osteoarthritis under the care of A/Prof Leo Pinczewski between 2000 and 2002 were prospectively enrolled in the study. Patients were assessed preoperatively, and at 5 and 10 years after surgery.

RESULTS

Of the 100 subjects, 95 were reviewed at 10 years, 3 were lost to follow up and 2 were de-

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When compared to those who had no further surgery, those who proceeded to further surgery had significantly lower mean preoperative WOMAC score (47 v 65, $p=0.0001$), a higher mean age (54 v 49, $p=0.006$) and a higher mean BMI (30.2 v 27.9, $p=0.005$).

For those with no further surgery, the overall WOMAC score (maximum 100) improved from a mean of 61 preoperatively to 88 at 5 years ($p=0.001$) and 84 at 10 years after HTO ($p=0.001$). Age was found to influence patient reported outcomes (WOMAC and KSS) with a greater effect size from HTO seen in patients older than 55 who had not gone on to further surgery at 10 years compared to those <55.

72 of the 74 patients (97%) were satisfied or enthusiastic with the outcome of their surgery at 10 years and 66 of the 74 (89%) would undergo the same procedure again under the same circumstances.

CONCLUSION

Overall survivorship of HTO in this series was found to be 87% at 5 years and 79% at 10 years. This is comparable to previous results from the

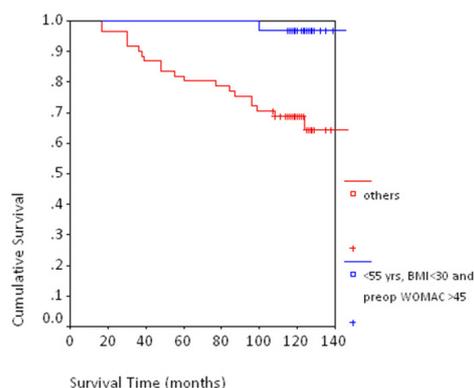
Variable		N	5 year survival (%)	10 year survival (%)	Hazard Ratio	95% confidence interval	P
Age	<55 years	63	97	87	6.5	2.4-17.7	0.001
	55 or more	32	69	63			
Preop WOMAC Score	45 or less	19	63	42	10.7	4.0-28.6	0.001
	>45	74	93	88			
BMI	<30	61	90	84	3.0	1.2-7.6	0.017
	30 or more	34	82	71			
"Ideal" Candidate	<55yrs & BMI <30 & Preop WOMAC >45	34	97	97	13.6	1.8-101.8	0.011
	All others	61	80	69			

ceased. Of the 95 patients included in the analysis, at the time of surgery the mean age was 50 years (range 26-66), the mean BMI was 28 kg/m² (range 21-39) and the mean preoperative biomechanical axis alignment was 6.0 degrees varus. The median review period was 124 months, range 107 to 147.

For all subjects the 5 and 10 year survival was 87% at 5 years and 79% at 10 years. At 10 years 74 of 95 patients had no further surgery and 21 subjects had undergone a total knee replacement at a mean of 5 years.

wider published literature. Functional outcome following surgery was also demonstrated to be good, with WOMAC and Knee Society Scores improving significantly from preoperatively and being maintained over 10 years.

Favorable longevity of HTO was associated with higher preoperative patient reported outcome scores, age < 55 and BMI <30.



In patients over 55 years of age with adequate preoperative functional scores, survivorship can be good and functional outcomes can be significantly better than their younger counterparts. We recommend the routine use of preoperative functional outcome scores to guide decision-making when considering patient suitability for HTO.