

The Use of Bone Wedge Allograft in High Tibial Osteotomy: A Prospective Study of Pain and Time to Union

RS Khakha, SK Yasen, J Belsey, DL Rawaf, MJ Risebury, AJ Wilson

Hampshire Hospitals NHS Trust, Basingstoke, UK | Correspondence: raghbir.khakha@gmail.com



High Tibial Osteotomy
Tomofix – no graft



High Tibial Osteotomy
Newclip – with graft

Introduction

- Medial opening wedge high tibial osteotomy (MOWHTO) is commonly used to treat patients with medial osteoarthritis secondary to varus malalignment.
- It has traditionally been associated with high pain scores, complications with union and hardware prominence.
- Modern techniques have improved clinical outcomes, however, pain and swelling remains an issue for some patients.

Aims

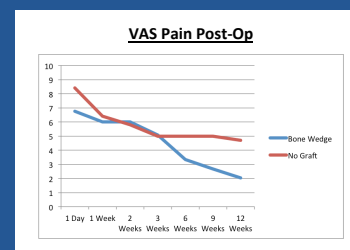
- To identify whether the use of a cancellous bone wedge allograft improves clinical outcomes and time to union.

Methods

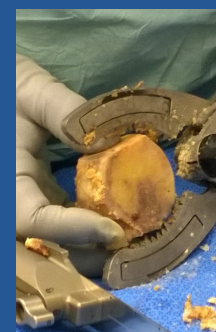
- A prospective cohort study with three interventions was designed.
- Group 1: HTO using a Tomofix plate (Depuy-Synthes) with no bone graft.
- Group 2: HTO using a Tomofix plate with bone graft.
- Group 3: HTO using a Activmotion plate (Newclip Technics) with bone graft.
- Outcomes:
- KOOS, OKS, EQ-5D and APQ scores collected pre-operatively and 12 weeks.
- Opioid use and pain scores were measured in the first 48 hours post-operatively, with repeat scores at weeks 3,6,9 and 12.
- Union was assessed radiologically at 3 months.

Results

- There was a significant reduction in pain scores, opioid use and swelling in groups using bone graft in the immediate post-operative period up to 2 weeks, compared to those without ($p < 0.05$).
- These scores became equivocal at 2-4 weeks.
- There were no associated complications using allograft.



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Femoral head allograft preparation

Mean PROMs Post-Op

OKS	OKS APQ	KOOS Total	KOOS Sym	KOOS Pain
35.6	20	68.304	62.5	71.527

KOOS ADL	KOOS Sport	KOOS WOMAC	KOOS WOMAC	VAS Health
80.698	41.875	51.563	20.37	83.62

Conclusion

- Bone wedge allograft can be safely used in high tibial osteotomy surgery with the benefits of reduction of pain and swelling in the immediate post-operative period.