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Paper #168

Anterior Cruciate Ligament Reconstruction with or without a Lateral Extra-Articular Tenodesis: Assessment of Failure at Two Years from the ISAKOS Sponsored Stability Study

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Summary:
The addition of LET to a hamstring autograft ACLR in young active patients significantly reduces graft failure and persistent anterolateral rotatory laxity at 2 years post operatively.

Abstract:

Introduction

Persistent anterolateral rotatory laxity following anterior cruciate ligament reconstruction (ACLR) has been correlated with poor outcome and graft failure. We hypothesized that anterolateral complex reconstruction by way of a Lateral Extra-articular Tenodesis (LET) in combination with single bundle ACLR would reduce the risk of persistent rotatory laxity in young individuals who are deemed as being at high risk of failure.

Methods

This is an ISAKOS sponsored pragmatic, multicenter, randomized clinical trial comparing standard hamstring tendon ACLR with combined ACLR and LET, utilizing a strip of iliotibial band (Modified Lemaire). Patients aged 25 years or less with an ACL deficient knee were included. They also had to have two of the following three criteria: 1) Grade 2 pivot shift or greater; 2) Returning to high risk/pivoting sports; 3) Generalized ligamentous laxity. The primary outcome was graft failure defined as either the need for revision ACLR or symptomatic instability associated with a positive asymmetric pivot shift, indicating persistent rotational laxity. Secondary outcome measures included the P4 pain scale, KOOS, IKDC. Patients were followed for two years with visits at 3, 6, 12 and 24 months postoperatively. A sample size of 300 per group was calculated based on a relative reduction in graft failure by 40%, with type 1 error of 5%, 80% power and 15% loss to follow-up rate.

Results

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624 patients were randomized with a mean age of 18.9 (range: 14-25), 293 male. 436 (87.9%) patients presented pre-operatively with high-grade rotatory laxity (grade 2 pivot or greater) and 215 (42.1%) were diagnosed as having generalized ligamentous laxity (Beighton Score of 4 or greater). 523 of the 624 patients are at least 2 years postoperative; 29 lost to follow-up (~5%). In the ACLR group 104/252 (41%) of patients suffered the primary outcome compared to 61/252 (25%) of the ACLR+LET patients (RR=0.61, 95%CI 0.47 to 0.79), p<0.0001. 39 patients suffered graft rupture, 28/252 (11%) in the ACLR group compared to 11/242 (4.5%) in the ACL+LET group (RR=0.41, 95%CI 0.21 to 0.80, p<0.001). At 3 postoperative, patients in the ACLR group had less pain (p=0.004); at 3 and 6 months all KOOS subdomains, the IKDC favored the ACLR alone group (p=0.03). At 12 and 24 months, no important between-group differences were observed in any patient reported outcome.

Conclusions

The addition of LET to a hamstring autograft ACLR in young active patients significantly reduces graft failure and persistent anterolateral rotatory laxity at 2 years post operatively.