Hamstring Tendon Autograft Should Be Avoided in High-Risk Patients Undergoing ACL Reconstruction: A New Zealand ACL Registry Study

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INTRODUCTION:
Younger patients are at the highest risk of repeat injury after anterior cruciate ligament (ACL) reconstruction. The hamstring tendon autograft remains the most popular choice of graft in the world, but its use in these high-risk patients is controversial. This study aimed to compare revision rates between the bone-patellar tendon-bone (BTB) and hamstring tendon autografts in a high-risk patient population.
METHODS:
Prospective data recorded in the New Zealand ACL Registry were analyzed. Primary ACL reconstructions performed between April 2014 and March 2022 were included, allowing for a minimum follow-up of two years. High-risk patients were analyzed using the following criteria: Age between 14-25 years, ACL rupture sustained during sporting activity, time from injury-to-surgery within 12 months, grade 2 pivot shift and a minimum preinjury Marx activity score of 8. The rate of revision was compared between the BTB and hamstring tendon autografts using Chi-square test. Cox regression survival analysis was performed to calculate hazard ratios (HR) with 95% confidence intervals (95% CI) adjusted for gender.
RESULTS:
A total of 3482 primary ACL reconstructions met the eligibility criteria and were analyzed. The rate of revision was 11.4% (238/2091) with the hamstring tendon autograft versus 4.3% (60/1391) with the BTB autograft ($p<0.001$). The hamstring tendon autograft had a 2.5 times higher risk of revision when compared with the BTB autograft (adjusted HR = 2.5, 95% CI 1.9 – 3.3, $p<0.001$). The number needed to treat with a BTB autograft to prevent one revision was 14 patients.
DISCUSSION AND CONCLUSION:
The hamstring tendon autograft has a high rate of revision and should be avoided in high-risk patients.