

Impact of Choice of St/G or BPTB Grafts in ACL Reconstruction, Results From the Danish Registry of Knee Ligament Reconstruction

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Summary:

Graft choice in ACL reconstruction has limited impact on ACL revision surgery, a national clinical database study.

Abstract:

Objectives:

The choice of graft for Anterior Cruciate Ligament reconstruction (ACLR) remains controversial, though the two most widely used grafts for ACLR are hamstring tendon (HT) and bone-patellar tendon-bone (BPTB). Despite numerous studies comparing ACLR using these two grafts, there is still controversial about difference in outcome. The Danish registry of Knee ligament reconstruction (DKRR) has monitored the quality and development in ACLR since 2005. This database contains data from all clinics in Denmark performing ACLR. The objective of this study was to report the revision rate and patient related outcome measures when comparing the use of HT and BPTB grafts in primary ACLR.

Methods:

This prospective cohort study investigated 13,647 primary ACLR from DKRR registered in the period from 2005 to 2011 using, 11,676 HT grafts and 1,971 BPTB grafts. The survival of the two different graft types was determined using revision ACLR as primary endpoint and positive pivot shift test and instrumented side-to-side difference as secondary endpoint. Further, we assessed the one year Knee Osteoarthritis Outcome score (KOOS) and Tegner score, according to graft type as well as knee instability tests.

Results:

The use of HT graft in ACLR increased from 68% of all grafts in 2005 to 85 % of all grafts in 2011. The cumulative revision rate after 2 years when using HT graft and BPTB graft was 2.1 % and 1.1%, respectively. HT graft use was associated with an increased risk of revision of 1.41 (CI: 1.03-1.91) compared to BPTB graft. A minor difference was observed in pivot shift test and side-to-side difference 1 year post operatively. One year postoperatively the KOOS score was comparable between the two groups for pain, symptoms, and quality of life. However, the HT group had a slightly higher score for sports and ADL.

Conclusion:

The use of HT graft in ACLR has increased considerably over the last years. Despite of numerous studies, the literature remains controversial concerning outcome after either the use of HT or BPTB grafts. Our results on a national clinical database of more than 13,000 operated knees show a higher graft failure when using HT compared to BPTB graft, although this association is not strong. However in literature there is consistent data that BPTB results in more anterior knee pain than HT grafts.

The data from present study is the first national cohort study to suggest reduced risk of revision with the use of BPTB graft.

Our study suggests limited, although significant impact of graft choice for the risk of revision after primary ACLR.