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Increased Risk of Revision for Femoral Fixation Endobutton Combined with Tibial Fixation BiosureHA After ACL Reconstruction – A Prospective Cohort Study from the Norwegian Knee Ligament Registry 2004-2013

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Summary:

In a registry-based prospective cohort study from the Norwegian Knee Ligament registry the risk of revision after primary ACL reconstruction was found to be higher for femoral fixation with Endobutton, especially combined with tibial fixation with BiosureHA.

Abstract:

BACKGROUND

Recent studies have showed an increased risk of revision for Hamstring Tendon autograft (HT) compared with Patellar Tendon autograft (PT) after Anterior Cruciate Ligament Reconstruction (ACLR). There are no studies analyzing if this could be explained by inferior fixation devices used in HT reconstructions.

PURPOSE

To compare the risk of revision and revision rate between the most common combinations of fixation for HT and PT.

STUDY DESIGN: Prospective cohort study.

METHODS

The study included all patients who underwent primary ACLR registered in the Norwegian Knee Ligament Registry from 2004 through 2013 with no concomitant ligament injury and known fixation in both femur and tibia. Combinations of fixations used less than in 500 patients were excluded. Revision rate at 2 years were calculated using the Kaplan-Meier analysis, and hazard ratios (HRs) for revision at 2 years were calculated using multivariate Cox regression models.

RESULTS

926 primary ACLRs were identified with a mean follow-up of 4.6 years, 3 806 patients with PT and 6120 patients with different combinations of fixations for HT. Amongst the HT grafts, 5 different fixation combinations (femoral/tibial) were used in more than 500 patients; Endobutton/RCI screw (n=2 339), EzLoc/WasherLoc (n=1 352), Endobutton/ BiosureHA (n=1 209), Endobutton/Intrafix (n=687) and Transfix/Metal interference screw (n=533). The crude 2 year revision rate for PT grafts were 0.7 (95% CI, 0.4-1.0) and for the different combinations of fixation for HT grafts it ranged from 1.5 (95% CI, 0.5-2.6) for Transfix/Metal interference screw to 5.5% (95% CI, 4.0-7.0) for Endobutton/ BiosureHA. When adjusted for detected confounding factors, the HR for revision at 2 years was 7.4 (95% CI, 4.5-12) for Endobutton/BiosureHA, 4.3 (95% CI, 2.7-6.9) for Endobutton/RCI screw and 2.7 (95% CI, 1.6-4.7) for EzLoc/ WasherLoc compared with PT.



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CONCLUSION

In our study population combinations of fixations with femoral fixation Endobutton had increased risk of revision, in particular combined with tibial fixation BiosureHA. No combination of HT fixations had a similar revision rate as PT.