

Best National Paper – The Netherlands

Clinical Study / Free Papers

Reconstruction Or Primary Non-Operative Treatment For Anterior Cruciate Ligament Rupture? A Multicenter Randomized Trial

Orthopaedics / Knee & Lower Leg / Joint Preserving Surgery & Soft-tissue Repair

Vincent Eggerding¹, Duncan Meuffels¹, Eline Van Es¹, Ewoud Van Arkel², Igor Van Den Brand³, Joost Van Linge⁴, Jacco Zijl⁵, Sita Bierma-Zeinstra⁶, Max Reijman⁶

1. Erasmus MC, Rotterdam, The Netherlands
2. Mc Haaglanden, The Hague, The Netherlands
3. ETZ, Tilburg, The Netherlands
4. RdGG, Delft, The Netherlands
5. Saint Antonius Hospital, Nieuwegein, The Netherlands
6. Erasmus University Medical Centre, Rotterdam, The Netherlands

Keywords: Anterior Cruciate Ligament, Rupture, Treatment, Reconstruction, Non-Operative, Rehabilitation, Randomized Controlled Trial

Background

Anterior cruciate ligament (ACL) injury is a common and devastating disease, with an acute trauma leading to a painful, swollen knee, with secondary instability complaints, meniscal and chondral damage and, at long term, a tenfold increased risk of osteoarthritis. The personal, and socioeconomic burden is enormous with more than 200.000 reconstructions per year in the U.S.A. There is evidence that non-operative treatment of an ACL rupture is justifiable in half of these patients. Ten years have passed since this was shown, but no change has been seen in the treatment of ACL injury, the number of reconstructions is not decreasing, but is still increasing. It is vital that this disorder is treated appropriately, soon after its traumatic onset either by operative treatment or by exercise therapy. This study was performed to elucidate the timing of operative versus non-operative treatment.

Objectives

To assess whether there is a clinical relevant difference in patients' perception of symptoms, knee function and ability to participate in sports activities, as measured with the International Knee Documentation Committee (IKDC) Score over a period of two years for patients after ACL rupture for two commonly used treatment regimens.

Study Design & Methods

Open-labelled, multicentre, parallel randomized controlled trial. Patients were recruited at 6 hospitals (one university hospital and 5 non university hospitals) in the Netherlands. 167 patients 18 to 65 years of age with an acute ACL rupture were included. Patients were randomized to early ACL reconstruction, or to rehabilitation plus optional delayed ACL reconstruction after a three months period (primary non-operative treatment). An independent person performed the randomization (block randomization, stratified for orthopedic surgeon and per age). Patients were evaluated at 3, 6, 9, 12 and 24 months. The main outcome was patients' perception of symptoms, knee function and ability to participate

in sports activities assessed with the IKDC at each time point during 24 months.

Results

Of the 167 included patients, 85 patients were randomized to early ACL reconstruction and 82 to rehabilitation plus optional delayed ACL reconstruction. Forty-one (50%) patients of the rehabilitation plus optional delayed ACL reconstruction group were eventually reconstructed during the two years of follow-up. Both treatment groups improved in IKDC score during the follow-up period of two year. We found a significant difference in course in IKDC score over 2 year follow-up period. After three months follow-up the IKDC score was significantly better for rehabilitation plus optional delayed ACL reconstruction group (between group difference of -9.3 with 95% CI -14.6 to -4.0). After nine months follow-up this difference in IKDC score changed in favour of the early ACL reconstruction group which became smaller thereafter. In the early ACL reconstruction group four re-ruptures and three ruptures of the contralateral ACL occurred during follow-up. In the rehabilitation plus optional delayed ACL reconstruction group these numbers were two re-ruptures and one rupture of the contralateral ACL.

Conclusions

Both treatment regimens for ACL rupture lead to a comparable recovery after ACL rupture. Patients who succeed with rehabilitation alone perform as well patients with an early ACL reconstruction. Patients who fail the rehabilitation and are in need of an eventual ACL reconstruction have a worse knee function for almost two years. These possible outcomes of different treatment options need to be discussed with patients before treatment commences.