

SWISS ORTHOPAEDICS

Expertengruppe Knie (EGK)

Die Expertengruppe Knie (EGK) der Swiss Orthopaedics wurde auf Antrag vom Vorstand von Swiss Orthopaedics gebeten, Empfehlung für die Behandlung einer VKB-Ruptur bei Erwachsenen für die Schweiz zu schreiben.

Indications for treatment of isolated ACL injuries in adults: a current review of the literature

The Knee Expert Group (KEG) of Swiss Orthopaedics

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Introduction

Despite the excessive number of studies about the management of ACL injuries, many questions remained unanswered. There is controversy about operative versus non-operative treatment, duration of physiotherapy, classification of copers and noncopers, factors influencing surgical decision making, type of surgical procedure, and interpretation of the according results.

To improve the approach towards the management of these injuries, the present knowledge and available evidence were focused.

History of patient's injury

Mechanism (flexion/valgus, hyperextension, high/low velocity) and symptoms (pain, swelling, instability) should be asked.

To assess patient's activity, complete anamnesis of recreational sports activity and professional activity should be evaluated as well as his expectations after an ACL treatment.

KEG recommendation: Anamnesis of injury mechanism and symptoms, sports and work activities, patient's expectations.

Diagnostic tools

Lachman test and pivot shift are the most valid stability tests at the physical examination (1,2). Using instrumented testing, KT-1000 arthrometer has the highest value. MRI is accurate in diagnosing ACL injuries and additional lesions.

KEG recommendation: Physical examination with Lachman test and pivot shift. MRI as additional investigation.

Patient-related outcome measures

The IKDC subjective and the KOOS as patient-related outcome measures are supplemented by the Tegner score for activity (3).

KEG recommendation: Use of IKDC and Tegner score.

Criteria for successful outcome

Consensus was achieved for defining successful outcome in operative and non-operative management for the following measures: absence of giving way, patient return to sports, quadriceps and hamstrings' strength greater than 90% of the uninvolved limb, absence knee joint effusion, and patient-reported outcomes (4).

KEG recommendation: Use of above mentioned criteria to assess the outcome.

Copers versus noncopers

Individuals respond differently to ACL rupture. About 30% of the injured population doesn't need ACL surgery. They are called copers and do not suffer from subjective instability or disability. They resume excellent dynamic stability with a torn ACL, but only 14%-58% of them go back to their uninjured level.

In contrast to them, noncopers continue to have persistent episodes of dynamic instability despite progressive rehabilitation (5).

Testing to determine copers classification can identify potential copers early after ACL rupture. The injured persons complete a 10-session neuromuscular and strength training (NMST) over approximately 5 weeks. They undergo a screening test consisting of timed 6-

m hop, Knee Outcome score, Global Rating score, and recent episodes of giving way during activities of daily life before and after the training program. Noncopers failed to meet at least 1 of these criteria.

KEG recommendation: Testing to determine copers classification to identify potential copers early after ACL rupture and performing NMST for at least 5 to 12 weeks. This minimizes the risk of operating on an asymptomatic patient. This delay helps to discriminate best patients which do not need surgery.

In cases with additional injuries (meniscus, cartilage, multiligament tears, aso), early surgery may be necessary.

Decision making aspects

The decision to perform operative or nonoperative treatment depends on the following aspects: (1) patients activity (sports, profession); (2) subjective complaints (instability, giving way, fear, pain); (3) objective findings (instability, pivot shift, restricted range of motion, joint effusion); and, (4) imaging results (type and location of tear, additional injuries). Age in itself is not a main factor affecting the decision to operate.

KEG recommendation: Patients with symptomatic instability and giving way after physiotherapy/NMST program and adjustment of their activities should be considered for ACL surgery.

ACL surgery

There exist two groups of surgical technique to treat ACL ruptures: (1) primary ACL repair, and (2) ACL reconstruction (ACLR).

Primary ACL repair

Different techniques were developed: Dynamic Intraligamentary Stabilization (DIS, Ligamys), Bridge-Enhanced Repair (BEAR), Internal brace, and refixation with suture anchors.

Good indications for the DIS technique are proximal ACL tears, intact synovial sheath, and surgery during the first 2-3 weeks after injury. Negative predictors are mid-substance ACL tears, competitive sports, and multiligament tears (6,7).

ACL reconstruction

Relevant parameters for ACLR are: (1) patients activity level (sports, profession), (2) symptomatic instability with giving way (after physiotherapy and adjustment of activity), and (3) objective findings (instability, positive pivot shift, restricted ROM, additional injuries) (3). Painful locking, repairable meniscal tears, multiligament injuries, and competitive athletes represent absolute indications. ACLR aims to „restore“ the anatomy and stability.

Timing

Early (1 week to 5 months) and delayed (10 weeks to 24 months) ACLR showed comparable clinical outcomes (including stiffness). Overall, early reconstruction before additional injuries to meniscus or cartilage occur, is to be preferred and results in good clinical outcomes (8). The ACLR should be performed in a „quiet“ knee with improved ROM (3).

Contradictions

ACL surgery should not be performed in the first weeks after trauma in order to minimize the risk of operating on an asymptomatic patient (copers). That's conflicting with the timing of primary ACL repair. Long time physical therapy contradicts the recommendation for early ACLR before injuries to meniscus and/or cartilage occur.

Summary

There exist a variety of approaches for treatment of ACL injuries. Many questions remain unanswered. Despite the excessive number of publications on ACL injuries, additional studies are needed to clarify.

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