

Correspondence

Overtreatment of cruciate ligament injuries

Sir—In an editorial in the October issue of Acta Orthopaedica 2010, Per Aspenberg (Aspenberg 2010) comments on the article recently published in New England Journal of Medicine (Frobell et al. 2010). We congratulate the authors on this well performed randomized controlled trial on the treatment of ACL injuries where they found that rehabilitation + ACL reconstruction was not superior to rehabilitation + optional delayed ACL reconstruction when using the mean of 4 of the 5 subscales of the KOOS score at two years as the primary outcome variable. Aspenberg concludes in his editorial that most patients who are operated on early after ACL injury undergo the procedure in vain. However, in our opinion the difference in meniscal surgery between the groups in Frobell's study may indicate the opposite. Preservation of the menisci is a key factor in preventing later osteoarthritis in ACL-deficient knees as previously shown in another study, also from Lund University, Sweden (Neumann et al. 2008). As shown in table D in supplementary material (Frobell et al. 2010) the total number of treated menisci at baseline was 34 in the early ACL reconstruction group versus 21 in the rehabilitation + optional delayed ACL reconstruction group. During follow up these numbers were 6 versus 29 respectively (<0.001). The authors say that meniscal tears were managed more aggressively in the subjects assigned to early ACL reconstruction and were more likely to be left untreated in the subjects assigned to rehabilitation plus optional delayed ACL reconstruction, and believe that this difference probably explains the greater frequency of meniscal surgery during follow-up in the latter group. In our view another possible explanation could be that meniscal tears that were small and non-symptomatic in the early phase became larger and symptomatic with time in the non-reconstructed knees. Thus, an injury that could be treated with either repair, or a small resection or left untreated at the time of an early ACL-reconstruction could end up as a large bucket handle tear leading to a subtotal meniscectomy in an unstable knee. Secondly, the risk of developing new injuries to the menisci and articular cartilage may be higher in a non-reconstructed knee. This is supported by registry data (Granán et al. 2009). Finally, the difference in the frequency of meniscal injuries between the groups may increase further with longer follow-up time. In summary, Frobell's study could just as well support early reconstruction to protect the menisci. We look forward to the long term follow-up in this study. If the frequency of meniscal tears continue to accumulate at the same rate in the non-reconstructed knees this study may end

up showing that most early ACL reconstructions are not performed in vain.

Sverre Løken, Asbjørn Årøen, Lars Engebretsen

Orthopaedic Department, Oslo University Hospital, Oslo, Norway

Sir—The main goal of cruciate ligament reconstruction in the sports medicine community has been to enable the patients to go back to a high functional level (often sports activities) in a short time. The study by Frobell et al. shows that, for this end, surgery is need-less for most patients if appropriate physiotherapy is provided. In that respect, I maintain that most patients may be operated on in vain, and that beginning with a structured training program is the treatment of choice for a vast majority.

The letter from Løken et al. now brings up the subject of long-term results, i.e. the risk of osteoarthritis. This is a commendable and much awaited change of focus in the cruciate ligament replacement field. It remains to see whether reconstruction can prevent – or possibly cause – osteoarthritis. Acta Orthopaedica has asked Drs Lohmander and Frobell to answer the letter regarding this point.

Per Aspenberg

*Department of Orthopaedics, IKE, Faculty of Health Sciences, Linköping University, Sweden
per.aspenberg@liu.se*

Sir—We thank Dr. Løken and colleagues for their interest in our study on anterior cruciate ligament (ACL) injuries. At 2 years of follow-up our randomized controlled study showed no advantage of early ACL reconstructive surgery with structured rehabilitation over that of structured rehabilitation only with optional reconstruction 'as needed', as monitored by

KOOS (Frobell et al. 2010). Moreover, we found no difference in any of the secondary outcomes, or in the number of meniscal surgeries during the 2-year follow-up. We share the concern of Løken and colleagues for the long-term outcome after injury to the anterior cruciate ligament (ACL), in particular the development of osteoarthritis, and continue to monitor this patient group long term by patient-reported outcomes, activity level, plain radiographs, magnetic resonance imaging, and biomarkers. Results for these outcomes will be reported.

Løken and colleagues raise three points. Firstly, they suggest that the literature shows that a functionally intact meniscus may be important to prevent future osteoarthritis in the ACL-injured knee. We agree on the likely importance of a functionally intact meniscus to prevent the development of knee osteoarthritis, but note that not all reports on the ACL-injured knee are consistent with this hypothesis.

Secondly, they suggest that the risk of re-injury may be increased in the non-reconstructed knee. This is certainly possible, but all studies published so far with the exception of one (Frobell et al. 2010), are confounded by indication. We agree that the registry study of Granan (Granan et al. 2009) shows that the frequency of observed cartilage and meniscal damage increases with time after injury. This is to be expected, has been reported (Roos et al. 1995, Lohmander et al. 2007), and may be interpreted as early-stage osteoarthritis development. In the Granan study, no results were provided to report later cartilage and meniscus status by follow-up of those already reconstructed, so we are unable to draw any conclusions on the benefit of reconstruction on these outcomes from their study. Further, no data are available for those not included in the registry, and meniscus injury caused by the initial trauma is not reported. Recent observational studies find no difference in later osteoarthritis between those reconstructed or not (Lohmander et al. 2007, Meuffels et al. 2009).

Thirdly, Løken and colleagues suggest that a difference in meniscal surgery rate between our study groups may develop with time. This is certainly possible. We found no difference between the two study groups in the number of meniscal surgeries at two years. Whether differences will show at later times remain to be reported. Until then we can only speculate.

A high proportion of those with an ACL tear become 'young patients with old knees'. The rate of osteoarthritis development after these injuries remains a major clinical challenge: with regard to preventing these injuries, preventing osteoarthritis

developing after the injury, and treating severe osteoarthritis in the young and active patient. We encourage further basic research on disease mechanisms, randomized trials to identify the best treatments, and large and long-term registry studies with minimal loss to follow-up to monitor long-term outcome and complications. In these studies, patient reported outcomes are central, other outcomes such as radiographic changes or numbers of surgeries are at best surrogates.

L Stefan Lohmander

Department of Orthopedics, Clinical Sciences Lund, Lund University, Sweden, and Research Unit for Musculoskeletal Function and Physiotherapy and Department Orthopaedics and Traumatology, University of Southern Denmark

Richard B Frobell

Department of Orthopedics, Clinical Sciences Lund, Lund University, Sweden

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