Arthoscopic surgery provides no additional benefit over physiotherapy and medication for the treatment of knee osteoarthritis

Synopsis


**Question:** What is the effect of the addition of arthroscopy to physiotherapy and medication in patients with osteoarthritis (OA) of the knee? **Design:** Randomised, controlled trial with blinded outcome assessment and intention-to-treat analysis. **Setting:** A university sports medicine clinic in Ontario, Canada. **Participants:** Adults with idiopathic or secondary moderate-to-severe OA of the knee (Grade 2, 3, or 4 radiographic severity on the modified Kellgren-Lawrence classification). Key exclusion criteria were large meniscal tears, inflammatory arthritis, previous arthroscopic treatment for knee OA and more than 5 degrees of lateral deformity. Randomisation of 188 participants allotted 94 to an intervention group and 94 to a control group. **Interventions:** The intervention group underwent arthroscopy within 6 weeks after randomisation and a standard physiotherapy and medication regimen was initiated within 7 days after surgery. The control group initiated the same physiotherapy and medication regimen at an equivalent time. Physiotherapy was provided for 1 hour once a week for 12 weeks. It included range-of-motion and strengthening exercises to be performed at home twice daily, information about activities of daily living, instruction in the use of heat and cold, and an educational video. Exercises were individualised according to the severity of OA and age. After the 12-week period, participants were advised to continue the exercise program. Medications (potentially including paracetamol, non-steroidal anti-inflammatory drugs, hyaluronic acid, and glucosamine) were prescribed according to standard guidelines. **Outcome measures:** The primary outcome was the WOMAC score at 2 years follow up. The WOMAC is scored from 0 (worst) to 2400, with subscales for pain, stiffness, and physical function. Secondary outcomes included the Physical Component Summary Score of the Short Form-36 (0 to 100); the McMaster Toronto Arthritis patient preference (MACTAR) questionnaire (0 to 500); and the Arthritis Self-Efficacy Scale (ASES) (10 to 100). **Results:** 168 participants completed the study. After 2 years, the mean (SD) WOMAC scores were 874 (624) in the intervention group and 897 (583) in the control group, mean difference 23 (95% CI –208 to 161). The groups differed on the SF-36 by only 0.2 (95% CI –3.2 to 3.6), on the MACTAR questionnaire by only 6 (95% CI –37 to 49), and on each of the ASES subscales by less than 6 (all non-significant). **Conclusion:** The addition of arthroscopy to a regimen of physiotherapy and medication does not improve physical function, pain, or health-related quality of life in patients with moderate-to-severe OA of the knee.

Commentary

Currently, evidence-based treatment of knee OA is based on updated guidelines, which recommend medical management and exercise therapy (Walsh et al 2009, Fransen et al 2008). Evidence in support of arthroscopic surgery has been lacking although the procedure remains in wide use. Randomised controlled trials (RCTs) of arthroscopic surgery are therefore needed to determine both its effect on clinical outcomes and its cost-effectiveness. This RCT (Kirkley et al 2008) is well performed and therefore provides important knowledge to physiotherapists, orthopaedic surgeons, other health care practitioners, and patients regarding the clinical effects of arthroscopy. Unfortunately, cost was not examined, but the authors were able to improve upon several methodological limitations in the previous RCT of arthroscopy by Moseley et al (2002).

Patients with substantial malalignment were not included. The conclusion of the study should therefore have specified that the results apply to individuals with mild-to-moderate knee OA, not to knee OA in general. It is also worth noting that patients with Kellgren-Lawrence Grades 3 and 4 demonstrated a significant benefit from arthroscopy after 3 months compared with those receiving exercise therapy only. However, the groups did not differ significantly thereafter. The sham effect of surgery must be considered (Zhang et al 2008). Furthermore, a statement regarding whether the study was intended as a non-inferiority trial should have been included (Piaggio et al 2006). Hypotheses are, however, not included in the article, and therefore it is not obvious if the authors intended this as a superiority or non-inferiority trial. Non-inferiority trials require different sample size calculations.

It is also worth noting that this RCT started in 1999 and was therefore based on current guidelines at that time. New guidelines have been published during recent years, improving exercise therapy (Walsh et al 2009, Fransen et al 2008) and commentaries on the recommendations for medical treatment for individuals with knee OA used in the study have been published (Brandt 2001).

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References


