Arthroscopic surgery is ineffective in knee osteoarthritis and results in high costs

Summary

Arthroscopic removal of loose bodies and debridement of degenerated meniscal tissue and joint cartilage has not been shown to be effective in treatment of osteoarthrosis (OA) of the knee. The procedure is associated with increased risk of joint infection, haematoma in the knee joint, deep vein thrombosis and effusion. Moreover, the financial burden on health services is relatively high.

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What is arthroscopic surgery?

In arthroscopic surgery, the joint is irrigated with saline (lavage) and degenerated meniscal and cartilage tissue is removed/resected [1] to reduce pain and improve knee function.

The method is used in Sweden

Knee OA affects 12.5 per cent of the Swedish population aged 45 years or more (95% CI, 12.4 to 12.6) [7]. This means that more than half a million people in Sweden suffer from knee OA.

Degenerative meniscal injuries are seen in about one-third of the population over the age of 50. The incidence increases with age and is higher in patients with degeneration of the knee cartilage: three out of four patients with knee OA have concomitant degenerative meniscal lesions. However, such meniscal lesions are not strongly associated with knee pain in patients with OA [5,6].

According to data for 2012, 9,884 arthroscopic procedures were undertaken on patients over the age of 40 who had been diagnosed with knee OA (ICD code: M17) and/or meniscal injury/lesion (ICD code: M23, S83) [10]: 2,186 were procedures on patients with a primary diagnosis of OA. However, the number of patients with OA undergoing this procedure is probably underestimated, as there is reason to believe that many of the patients diagnosed with 'M23 other knee disorder' actually have early stage knee OA [5,6].

Arthroscopic surgery in cases of knee OA has no effect on pain, function and quality of life, but does involve risks

The national guidelines for musculoskeletal diseases, issued by The Swedish Board of Health and Welfare in 2012, included a review of the literature on the effects of arthroscopic surgery with joint lavage and meniscal resection [1]. Four systematic reviews and three randomised controlled trials were identified. Subsequently, two more studies have been published [8,9]. Altogether, the data comprise about 1,000 subjects, with an average age of 50 to 60. The review concluded that in patients with a diagnosis of knee OA, arthroscopic surgery with joint lavage and meniscal resection has no greater effect on pain (high quality evidence), function (high quality evidence) and quality of life (moderate quality evidence) than placebo surgery, joint lavage, physiotherapy with physical training or a combination of physiotherapy with physical training and medication.

According to a registry study of 14,391 participants, the most common side-effects of arthroscopic knee surgery are deep vein thrombosis (0.6%), surgical complications (0.5%), infections (0.5%), cardiovascular events (0.3%) and death within three months (0.1%) [1].

Accordingly, The National Board of Health and Welfare guidelines classify arthroscopic surgery with joint lavage and meniscal resection in patients with knee OA as "do not use", i.e. the Board does not recommend the procedure at all [1].

Arthroscopic knee surgery is a high cost procedure

The resources required for arthroscopic knee surgery include the cost of pre-operative workup, surgical equipment, consumable items and any subsequent post-operative recall. Arthroscopic procedures are usually undertaken as day surgery. According to the 2013 county council lists of fees for extracounty care, the cost of diagnostic arthroscopy (treatment item H45O), other knee procedures (treatment item H12O) and other surgery on muscle/bone/connective tissue (treatment item H49O) is SEK 15,000–16,000 [3,4].

Thus, the 2,186 arthroscopic procedures undertaken in 2012, for cases with a primary diagnosis of knee OA, are estimated to have cost about SEK 33 million (based on the cost of operations without complications; 15,000 × 2,186) [10]. The following formula can be used to estimate the cost for each county council:

County council's cost (SEK) = (number of arthroscopic interventions for knee OA within the county council) × 15,000

Major resources are being allotted to a procedure which is not only ineffective but also involves risk of complications

Arthroscopy for knee OA does not have any effect on the patients' symptoms, yet can involve risks. Moreover, the financial burden on health services is relatively high. These resources could be redistributed to provide more urgent and effective treatments, thus facilitating more efficient use of resources.

Currently, patients who undergo arthroscopy for treatment of knee OA are unevenly distributed, both geographically and socioeconomically. Geographic distribution, according to county, ranges from 21 to 95 interventions per 100,000 inhabitants over 40 years of age [11]. Socioeconomically, the distribution is also uneven: patients receiving this treatment comprise fewer women than men and poorly-educated people (compulsory schooling only) are less likely to undergo the procedure [2]. Abandoning this method could lead to greater equality in the use of resources.

Other treatment for knee OA

The National Board of Health and Welfare has issued guidelines with recommendations for treatment of knee OA, on a ratings scale from 1 to 10, where a rating of 1 indicates the most highly recommended treatment. A rating of 10 indicates that benefit to patients is considered to be only minor or moderate and that more cost-effective treatments are to be preferred. The following methods have a higher rating than arthroscopy:

- long-term regular supervised condition, strength and function training (National Board of Health and Welfare's recommendation 3)
- weight loss (5)
- education (6)
- naproxen (6)
- electroacupuncture (7)
- injection of cortisone into the joint (7)
- transcutaneous electrical nerve stimulation (7)
- non-selective COX inhibitor (7)
- selective COX inhibitor (7)
- paracetamol (8)
- tramadol (9)
- strong opioids (10)
- low-energy laser therapy (10)
- balneotherapy (10)
- diclofenac gel or ibuprofen cream (10).

References

References are available on www.sbu.se.

Project group

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In clinical studies, the result of an intervention is presented as the mean value at group level. The effects can vary among individuals in the group; thus there may be individual patients who benefit from the intervention.

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