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Editorial

Evidence update: A summary of new evidence to inform treatment decisions for patients with meniscal lesions

This month, to support treatment decisions for patients with meniscal lesions, the British Association for Surgery of the Knee (BASK) Meniscal Working Group reports new national guidance in *The Bone & Joint Journal* [1]. This is the culmination of more than two years of work supported by BASK, the NHS Getting It Right First Time (GIRFT) programme, and National Institute for Health Research (NIHR). A summary of the new evidence produced from this programme is summarised in Table 1.

Although a number of randomised controlled trials (RCTs) have investigated the effectiveness of arthroscopic partial meniscectomy (APM) [2–10], the correct interpretation of the evidence has been controversial. There has been some decline in the rate of APM since 2013 in England but with a high level of regional variation in intervention rate [11]. APM is still commonly performed in patients over the age of 60 years but national data suggests variation in selection criteria and 10-fold regional variation in the proportion of patients receiving a subsequent knee arthroplasty within one year of APM [12].

To develop evidence-based guidance, a new systematic review was required to summarise the RCT evidence [13]. In this review, the evidence applicable to different groups of patients stratified according to important clinical and radiological criteria was determined [13]. This review was recently published in *The British Journal of Sports Medicine* [13]. Perhaps the most important finding was that no trial has been performed (or registered) in patients with a radiologically confirmed unstable meniscal lesion with corresponding meniscal symptoms, nor in patients failing a period of appropriate physiotherapy [13]. In all the published RCTs, relatively non-specific selection criteria were applied: patients with knee pain and any pattern of meniscal lesion. Nevertheless, a greater benefit from APM in comparison to physiotherapy was found at six to 12 months (pain, function, knee-specific quality of life) in patients with a meniscal lesion without osteoarthritis in comparison to patients with coexistent osteoarthritis [13]. In RCTs of APM versus physiotherapy, up to 30% of patients subsequently chose to undergo APM, confounding the intention-to-treat analyses, but suggesting that first line non-operative treatment may be appropriate for the majority of these patients [13]. Another systematic review of patient-reported outcome measures (PROMs), published in *BMJ Open*, concluded that current evidence is limited by the lack of a well validated PROM for use in this population [14]. The minimum clinically important difference (MCID) in outcome scores for these patients is still unknown and PROMs might not truly reflect the symptoms, function and quality of life of patients with meniscal lesions [14].

The balance of benefit and risk must be carefully considered in the context of shared-decision making [15]. Previous studies have attempted to investigate the short-term risk associated with undergoing knee arthroscopy but have had a number of limitations such as small patient numbers, combining major and minor arthroscopic procedures in a single cohort, a narrow range of complications evaluated, and inconsistent or limited data sources [16]. For low-risk procedures, it is also important to consider the possibility that any subsequent adverse events may be incidental and not directly attributable to undergoing the procedure itself. In *The Lancet*, we recently reported the risk of adverse events following APM in a cohort of 700,000 patients [17]. At least one serious adverse event (pulmonary embolism [PE], myocardial infarction, stroke, fasciotomy, neurovascular injury, infection requiring surgery, or death) occurred in 0.3% of patients within 90 days of APM but few of these complications occurred more frequently than in comparative general population data [17]. PE and septic arthritis were observed at a higher rate following APM than in the general population: corresponding to one attributable PE and two infections for every 1500 APM procedures performed [17].

To standardise treatment selection decisions, it is important that consistent terminology is used when describing different patients. This was not previously possible for patients with meniscal lesions as there was no agreement on the terminology to be used, nor the important symptoms, signs, and radiological findings in this population. The delivery of standardised terminology was one of the first priorities of the BASK Meniscal Working Group and the output from this consensus work was published recently in *The Knee* [18]. The clinical and radiological findings believed to be important when considering treatment selection for patients with meniscal lesions were generated, refined, and agreed [18]. These terms were the foundation for the evaluation of all the clinical evidence and development of the new guidance.

Evidence-based treatment guidance should inform on treatment "appropriateness" in clearly defined clinical scenarios. No formal "treatment appropriateness" exercise had previously been performed for patients with meniscal lesions. In part, this is because such

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Table 1
Summary of new evidence.

Aim/research question	Reference	Summary of key findings
What were the trends in APM intervention rate over the last 20 years? How might this have been influenced by the publication of new evidence? In which age-groups is APM most commonly performed?	[11]	• Overall, APM rates increased 130% over the last 20 years. • There has been a partial decline in intervention rate since 2013, likely in response to the publication of new clinical trial evidence. • APM was most commonly performed in patients aged 40–59 years, followed by 60–79 years, in 2016/17.
What is the 1 year rate of arthroplasty following APM, by patient age-group, and is there regional variation in this treatment outcome?	[12]	• In patients who underwent APM over the age of 60 years, 10% subsequently underwent arthroplasty within one year. • There was greater than 10-fold variation in the rate of subsequent arthroplasty by CCG.
What is the clinical trial evidence for the effectiveness of APM in patient groups stratified according to the important clinical and radiological patient selection factors?	[13]	• Greatest improvement in pain, function, and quality of life was observed following APM (versus physiotherapy) in patients without osteoarthritis. • Patients meeting the latest, strict, clinical and radiological selection criteria for APM are not represented by the current evidence. • No study has been limited to the inclusion of patients who have failed non-surgical treatment.
Are available PROMs valid for use in patients with meniscal tears?	[14]	• The evidence supporting the validity of PROMs in patients with meniscal tears is of poor quality and incomplete. • Further work is required to determine the best PROMs to record pain, function, quality of life, in this population.
What is the true risk associated with undergoing APM?	[17]	• Risk associated with undergoing APM is low. • No attributable risk of mortality, myocardial infarction, stroke. • Some rare but serious complications must be considered: including pulmonary embolism and infection.
Is there expert agreement on the clinical and radiological selection criteria that are important when considering treatment options for patients with meniscal tears? How should these criteria be consistently defined?	[18]	• Standardised terminology was agreed. • Symptoms were defined and classified into three groups: (1) strongly suggestive of a treatable meniscal lesion, (2) potentially suggestive of a treatable meniscal lesion, (3) osteoarthritic. • Meniscal lesions and tear patterns on MRI imaging were defined and classified with reference to potential treatability: (1) target, (2) possible target, (3) no target.
From the latest evidence, when is arthroscopic meniscal surgery appropriate? When should alternative treatments be recommended?	[1]	• Arthroscopic meniscal surgery should not be performed in patients with advanced osteoarthritis except in rare special cases. • Most patients presenting with a meniscal lesion and symptoms should first undergo at least 3 months of non-operative treatment. • For patients not responding to this non-operative treatment, meniscal surgery may be beneficial and should be considered. • Urgent surgery may be indicated for patients with a locked knee. Meniscal repair should be considered in patients with a repairable meniscal tear following an acute injury.

APM = arthroscopic partial meniscectomy; PROMs = patient reported outcome measures.

an exercise requires standardised terminology and a clear understanding of the evidence for anticipated benefits and harms that may be associated with undergoing the intervention. With this new information, the BASK Meniscal Working Group used the established RAND/UCLA Appropriateness Method (RAM) [19] to produce treatment recommendations that form the basis of the new guidance. The document stratifies patients based upon symptoms, signs, radiological findings, duration of symptoms, and previous treatment history. Forty-five simulated clinical scenarios were refined to five common clinical presentations and corresponding treatment recommendations. The guidance developed was found to be acceptable to the members of BASK (following consultation of the BASK membership, 97% of respondents agreed to practice according to the document recommendations) and also members of a patient involvement group. The document is endorsed by both BASK and the NHS Getting It Right First Time (GIRFT) programme. Adoption and validation in clinical practice is now required.

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