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Original Article

Responsiveness of the Knee Injury and Osteoarthritis Outcome Score (KOOS) and the Oxford Knee Score (OKS) in Japanese patients with high tibial osteotomy

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ABSTRACT

Background: To assess responsiveness of the Japanese Knee Injury and Osteoarthritis Outcome Score (KOOS) and the Oxford Knee Score (OKS) in patients undergoing open-wedge HTO to treat knee osteoarthritis and/or osteonecrosis.

Methods: Patients completed a set of questionnaires before HTO surgery (baseline) and 1 year after surgery. The questionnaires comprised the validated Japanese versions of the KOOS, the OKS, and the SF-36v2 and a visual analogue scale (VAS) for local knee pain and general pain. The treating surgeon completed the Japanese Orthopedic Association (JOA) score for osteoarthritic knees. The study included 119 patients aged 64.7 ± 8.3, 116 were followed at 1 year. 90 patients had knee osteoarthritis (OA) solely. 28 patients suffered from both OA and osteonecrosis (ON); one patient had ON only.

Responsiveness to change was assessed using the effect size (ES) between the baseline and the 1-year postoperative assessment and standardized response mean. A distribution-based approach was used to determine the minimally detectable change (MDC95) for the KOOS subscales, and the OKS.

Results: All instruments demonstrated statistically significant changes between the preoperative assessments and one year after surgery. All changes showed an improvement in score, but the condition-specific measures revealed higher responsiveness than the generic measures. All KOOS subscales, the OKS, the local pain VAS, and the JOA score showed large ESs (ES > 1.24) and SRMs (SRM>1.04). At a 95% confidence level, the respective MDCs were 15.83, 18.94, 15.22, 18.99 and 17.23 for the KOOS-Pain, KOOS-Symptoms, KOOS-ADL, KOOS-Sport/Rec, and KOOS-QOL subscales, respectively. The MDC95 for the OKS was 8.29.

Conclusions: Both, the KOOS and OKS are responsive for use in Japanese-speaking patients with knee osteoarthritis and/or osteonecrosis who are undergoing HTO.

1. Introduction

The challenge of knee osteoarthritis (OA) is larger in Japan because of high numbers of patients [1], most likely due to predisposing lifestyle factors such as kneeling [2], but also anatomic predisposition due to varus deformity [3]. High tibial osteotomy (HTO) is one of the most common surgical procedures used to correct this predisposition [4].

Patient-reported outcomes (PROs) are widely established in assessing function, pain and quality of life following surgical interventions such as arthroplasty or osteotomy [5–8]. Validated instruments are required to demonstrate the effect or monitor the outcome of interventions, allowing comparisons between different populations and facilitating clinical decision-making. Despite the high burden of knee OA, no validated, internationally accepted PRO

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