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Original research

Prospective quality of life assessment after hip and knee arthroplasty: short- and mid-term follow-up results

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ABSTRACT

Background: Hip and knee arthroplasty aims to restore the joint function and to improve health-related quality of life (HRQoL) in patients with articular damage. It is important to quantify the HRQoL improvement and when this is achieved. The Oxford knee score and the Oxford hip score were developed to evaluate patients after knee and hip arthroplasty. We sought to evaluate HRQoL changes in the short and mid term following either primary or revision hip and knee arthroplasty.

Methods: Prospective cohort study during a 20-month period (August 2013 to March 2015) in a tertiary referral hospital. Primary arthroplasties secondary to osteoarthritis and any-cause revisions were included (328, 160 knees, and 88 hips). They were divided into 4 groups: (1) primary knee replacement, (2) primary hip replacement, (3) revision knee replacement, and (4) revision hip replacement. Oxford knee and hip scores were obtained prior the surgery and compared with the short- and mid-term follow-up scores.

Results: Follow-up in the short term and mid term was: 75.6% and 67.4%, respectively. Improvement was found in both short-term and mid-term follow-up for each group and for the overall group in HRQoL as measured by the Oxford knee and hip scores ($P < .001$). The greatest improvement was seen in the short term with an increase of 21 points for primary knee arthroplasty; 24 points for primary hip arthroplasty; 22 points for revision knee arthroplasty; and 23 points for revision hip arthroplasty.

Conclusions: Improvement in HRQoL in patients following primary or revision hip or knee arthroplasty is crucial and can be achieved early after the surgery.

Introduction

Hip and knee osteoarthritis (OA) are frequent chronic degenerative conditions that usually cause pain and physical disability, thus altering health-related quality of life (HRQoL) [1,2]. Its increasing prevalence and its growing impact on public health may prove critical for health systems in the near future [3]. Arthroplasties are common orthopaedic procedures to treat OA that emerged in the last century as a cost-effective alternative to conservative management [4-8]. As an elective surgery, it is necessary, however, to assess, with a quantitative instrument, joint functionality restoration and improvement in HRQoL, which are the main patient-related outcomes of interest after an arthroplasty.

Aside from the technical aspects of arthroplasties that have been the focus of outcome assessment for many years in orthopaedics, patient-reported outcome measures (PROMs) now play an increasingly important role in the determinants of clinical success, these providing valuable information regarding HRQoL and patient satisfaction after the intervention. HRQoL is, however, only one part of overall quality of life, which corresponds to the physical, psychological, and social factors that affect the overall health

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condition of an individual. It is, therefore, important to keep in mind that this component can provide information on only one chapter of a complete quality of life assessment.

Currently, in hip and knee replacement patients, HRQoL is evaluated through different scores and questionnaires, meaning that there is a lack of uniformity, which makes it challenging to understand the diverse literature [9,10]. Most of these tests have been validated and show proven reproducibility [11-13]; however, research shows that hip and knee replacement patients prefer pen-and-paper questionnaires to other types of questionnaires [14]. The Oxford knee score (OKS) and Oxford hip score (OHS) are short and practical pen-and-paper tests which were developed to assess patient perspectives of HRQoL outcomes following a hip or knee arthroplasty [15,16]. The OKS has also been validated in outpatients with knee OA [17]. These scores have shown reliability in different languages [18-21].

Clinical consensus recommends that the optimal time point to start assessing PROMs is within the first 6 months post surgery [22]; and it is well known that changes in HRQoL could be achieved at this point and, later, after surgery [22-25]. There is scarce information of PROMs using OKS and OHS before the first 6-month period. We sought, therefore, to evaluate whether significant improvement could be achieved in an earlier follow-up stage for overall hip and knee arthroplasties, in the primary and revision subgroups using OKS and OHS.

Material and methods

A prospective cohort study was performed at a tertiary referral hospital in Cali, Colombia, during a 20-month period between August 2013 and March 2015. Enrolled patients were obtained from the Hip and Knee Arthroplasty Registry prospective cohort at Fundacion Valle del Lili. The hospital ethics committee and its institutional review board approved the study protocol and the Arthroplasty Registry used.

All patients undergoing hip or knee arthroplasty (primary or revision) in the hospital during the study period were included in the registry, and in this study. Prior to their arthroplasty, patients included in the registry were asked to complete the OKS or OHS questionnaire to assess their levels of pain and disability over the previous 4 weeks for the specific symptomatic joint. The OKS and OHS are 12-item multiple-choice questionnaires, giving a score from 0 to 4 for each question, thus giving a range that goes from 0 for the worst joint status to 48 for a normal joint. Only patients with OA were included; other indications of arthroplasty such as musculoskeletal cancer, acute femoral neck fracture, and periprosthetic fractures were excluded. These groups were excluded because in these patients, the HRQoL assessment by the OKS or OHS might be not affected, given their other conditions, leading to an asymptomatic state for their hip or knee prior to the surgery; furthermore, the validation of this score in such groups of patient is unknown.

Enrolled patients were divided into 4 groups regarding the type of arthroplasty performed: (1) primary knee replacement (PKR); (2) primary hip replacement (PHR); (3) revision knee replacement (RKR); and (4) revision hip replacement (RHR). Figure 1 shows the study population and its distribution. Patients were assessed in 2 periods: the first was named the short-term follow-up, which was defined as the period between 2 and 6 months after the surgery; and the second was named the mid-term follow-up, which was defined as the period between 10 and 14 months after the surgery.

During the short-term and mid-term follow-up periods, patients were asked to complete the OKS/OHS during each visit at the consulting room. Patients that missed the appointment in this period of time were called on their contact telephone and were assessed by phone. Before including a patient in the lost to follow-up group, at least 5 different attempts of contacting them by

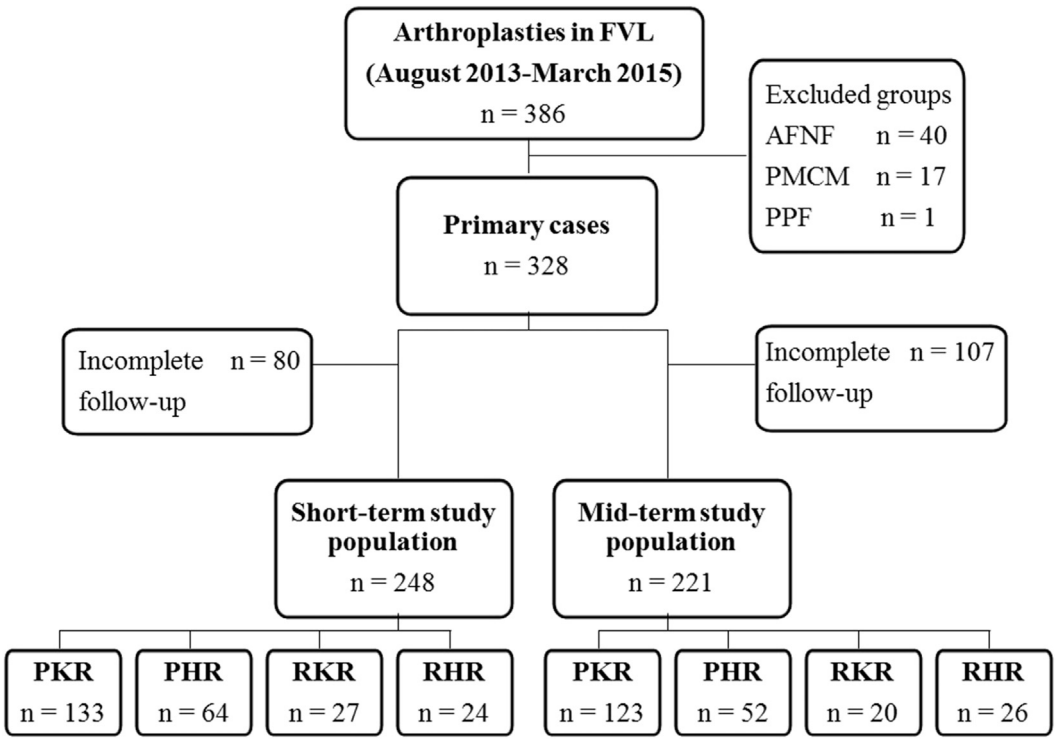

Figure 1. Study population. FVL, Fundación Valle del Lili Joint Registry; AFNF, acute femoral neck fracture; PMCM, primary musculoskeletal cancer or metastasis; PPF, periprosthetic fracture; PKR, primary knee replacement; PHR, primary hip replacement; RKR, revision knee replacement; RHR, revision hip replacement.

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