to accomplish activities of daily living, to make the most of life (taking care of relatives, mainly grand-children, having a full social life), to be able to do what matters most. About personal integrity, patients expected a TKA that does not show, to forget having a TKA, a TKA that is not fragile and will last for a long time. Physicians had a quite realistic representation of what patients' expectations usually are which does not mean that they fulfill these expectations especially those concerning care providers. Care providers had also expectations about patients which are classified in two main categories “the good patient” (cooperative, understanding, mature, as patients) and those potentially posing problems (over informed, asking for a personal relationship, who do not want to ear or understand, asking for surgery at once).

Conclusions: Our results suggest that patients' satisfaction about TKA could be increased by better analyzing and discussing patients' expectations with them in order to make these expectations more realistic and individualized.

Clinical Trials

Tissue Structure Modification in End-stage Knee Osteoarthritis by Use of Joint Distraction

F. Intema, K. Wiegant, P.M. van Roermund, A.C. Marijnissen, S. Cotofana, E. Felix, S.M. Mastbergen, F.P. Lafeber


Purpose: End-stage knee osteoarthritis (OA) is frequently treated by total joint replacement (TKR). In 40% of the cases this relative expensive treatment is performed under the age of 65 years, while the procedure has a higher risk of failure in younger patients, due to higher physical demands. Knee joint distraction (KJD) is an experimental treatment for end-stage knee OA, aimed at unloading the joint cartilage and subchondral bone by use of an external fixation frame. The technique proved to be clinically effective for end-stage ankle OA. The present study describes an exploratory, open, uncontrolled trial to verify whether KJD has the potency to postpone a TKR by inducing clinical improvement and cartilage repair.

Methods: Twenty patients, under 60 years of age, with end-stage knee OA were treated with KJD for 2 months. Two monotubes with internal coil springs were placed parallel on the medial and lateral side bridging the knee joint and subsequently lengthened for 2 mm. In the following three days the joint was distracted twice a day for 0.5 mm, bringing the total distraction to 5 mm for the remaining time. Patients were encouraged to load the knee during distraction.

After 2 months, tubes and pins were removed. At home, under supervision of a physiotherapist, function was practiced, without imposed restrictions. Most patients (n=17) suffered from single or multiple pin tract infections, all being successfully treated with antibiotics. The primary structural outcome was cartilage thickness by use of quantitative MRI and digital analyses of standardized X-rays. Primary clinical outcome was pain and function by use of the WOMAC questionnaire. Secondary outcome parameters were, MRI determined decrease in area of denuded bone, increase in cartilage area and volume as well as biochemical markers of cartilage collagen type II synthesis and breakdown. For secondary clinical outcome VAS pain was documented.

Results: Quantitative MRI analysis, at one year after distraction, showed an increase in cartilage thickness of the most affected compartment from 2.4 to 3.0 mm (p<0.01). The total area of denuded bone decreased from 22% to 5% (p<0.01); Cartilage area and volume increased from 15.6 to 18.9 cm² and 2.3 to 2.8 cm³ (both p<0.05).

X-ray analysis, at one year, corroborated the MRI findings by an increased mean JSW from 2.7 to 3.6 mm (p<0.05). The minimum JSW increased accordingly from 1.0 to 1.9 mm (p<0.01).

Long term changes in biomarkers (6 and 12 months follow-up) showed a trend towards a decrease of collagen type II breakdown marker CTX II (-11%; p=0.07) and an increase of collagen type II synthesis marker PIIPAN (+103%; p=0.06). The average change in the ration of PIIPAN/CTXII of each patient was in favor of synthesis (p<0.056).

Increase in cartilage thickness and decrease in denuded bone area correlated with the increase in collagen type II synthesis biomarker.

One year after distraction the total WOMAC score improved significantly from 45% at baseline to 77% (p<0.001). This improvement is supported by a decrease in VAS pain score from 73 to 31 mm (p<0.001).

Conclusions: Joint distraction in treatment of end-stage knee osteoarthritis is able to induce significant intrinsic joint cartilage repair, based on MRI, X-ray and biochemical marker analyses. These significant tissue structure changes are accompanied by clinical improvement in pain and function.

322

Long Term Effect of a Supervised Exercise Program and Patient Education for Patients with Hip Osteoarthritis. A Randomized Controlled Trial

L.C. Svege, L. Fernandes, L. Nordsletten, M. Risberg

1Dept. of Orthopaedics, Oslo Univ. Hosp., Oslo, Norway; 2Hjelp24NIMI, Oslo, Norway; 3Faculty of Med., Univ. of Oslo, Oslo, Norway; 4Dept. of Sport medicine, Norwegian Sch. of Sport Sci., Oslo, Norway

Purpose: The objective of the study was to evaluate the long term effect of a three months supervised exercise program in addition to patient education, compared to patient education only, for patients with hip osteoarthritis, not eligible for total hip replacement surgery (THR) at time of inclusion.

Methods: One hundred and nine patients were included in the study between April 2005 and October 2007. Inclusion criteria were age 40-80 years, hip pain for three months or more, radiographically verified hip osteoarthritis (Danielson criteria), and Harris Hip Score between 60-95 points, i.e. their impairments were not severe enough for considering THR at time of inclusion. All patients initially went through three sessions of patient education. After completing the education program baseline assessments were conducted, and the patients were then randomized to 1) a supervised exercise group (EG, n=55) who went through a 12-week exercise program, or 2) a control group (CG, n=54). Both groups were recommended to follow the information giving during the patient education. The EG performed exercises 2-3 times weekly supervised by a physical therapist. The exercises consisted of strength training, functional exercises, and flexibility exercises. All patients were followed-up at four months (FU4m), ten months (FU10m), 16 months (FU16m), and 29 months (FU29m) after inclusion. The main outcome measurement was the Western Ontario and McMaster Universities Arthritis Index (WOMAC VA3.1), an osteoarthritis specific questionnaire with subscales of pain, stiffness and function, expressed best to worst on a 0-100 scale. Secondary outcome measurements were the 36-item Short-Form health related quality of life questionnaire (SF-36v2) with subscales of physical function, role physical, bodily pain, general health, vitality, social functioning, role emotional, and mental health, and the modified Physical Activity Scale for the Elderly (mPASE). Linear mixed model analyses were used for between group differences over time.

Results: There were no significant differences between the groups at baseline. Drop-outs were 0% at FU4m, 15% at FU10m, 22% at FU16m and 36% at FU29m. Twenty-six of the drop-outs at FU29m (10 in EG and 16 in CG) were due to THR. As shown in Table 1, the WOMAC Physical Function subscale showed a significantly improved score for the EG compared to the CG over the follow-up period. No significant differences between groups over the follow-up period were found for the WOMAC Pain or WOMAC Stiffness subscales. The SF-36 Bodily Pain showed significantly improved score for the EG compared to the CG (p=0.008) over the follow-up period, but no significant differences between groups were found for any of the other SF-36 subscales, or for the physical activity level (mPASE) over the follow-up period.

Conclusions: The EG showed a significant improvement in physical function (WOMAC) and pain (SF-36 Bodily Pain subscale) compared to the CG over the follow-up period, but there were no significant differences between the two groups for other WOMAC or SF-36 subscales, or for physical activity level (mPASE). Based on the results in this study, access to both patient education and supervised exercise may be favourable for improving physical function and pain in patients with hip OA.