AB0601

COMPARISON OF THE EFFECT OF DIFFERENT PHYSICAL THERAPY PROGRAM IN THE REHABILITATION OF KNEE OSTEOARTHRITIS PATIENTS

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Background: Knee osteoarthritis (OA) is an increasingly common and disabling problem in worldwide. Exercises are considered the cornerstone of non-surgical management of knee OA and is recommended in all current clinical guidelines. The diversity of exercise programs determines the need to compare their efficiency, in order to recommend the best option for the patient.

Objectives: The aim of the present study was to compare the effect on knee functionality of conventional exercises program and combine with manual therapy in patients with knee osteoarthritis.

Methods: 164 patients that fulfilled the ACR classification criteria for knee osteoarthritis (127 females and 37 males) ranging in age from 42 to 84 years (mean 62.2 SD 8.76), participated in a 10 days two-arm randomized trial. One group (Gr.1) received an exercises program, the other group additionally manual therapy methods (Gr.2). Pain and function were measured with a Visual Analogue Scale (VAS, mm) and Knee Injury and Osteoarthritis Outcomes Score (KOOS) with 5 domains (Pain, Symptoms, Activity in Daily Living (ADL), Sport and recreation (Sport/rec.) and Quality of life (QoL)).

Results: In the Gr.1 were 82 patients mean age 61.8±9.2 years and in Gr.2 – 82 patients 62.7±8.3 years (p>0.05). The initial level of pain (63.4±14.2 vs 60.2±18.8mm) and knee functionality according to KOOS (Tab1.) were similar in both groups, p>0.05. After 10 days rehabilitation program, VAS in Gr.1 was 39.6±14.8mm, in Gr.2: 28.5±11.6mm, (p<0.01). The KOOS results at the end of the rehabilitation program were with improvement, statistically significative in the Gr.2 (p<0.05).

Table 1. The KOOS results at baseline and after 10 days of rehabilitation program.

KOOS scales (M±SD), %	Group 1		Group 2	
	Baseline	After 10 days	Baseline	After 10 days
Pain	55.5±13.8	63.4±13.6	53.0±22.3	64.3±19.1
Symptoms	59.0±18.7	65.6±18.1	56.6±19.0	69.0±15.9
ADL	46.3±15.5	54.5±16.0	43.0±19.9	55.1±18.2
Sport/rec	15.6±17.3	23.1±19.6	16.0±24.3	30.5±23.6
QoL	29.3±22.2	36.5±22.9	34.8±23.9	50.6±18.9

Conclusion: The reduction of pain and recovery of function were found in both groups, with better results in patients who received manual therapy and exercises program. This study supports the routine manual therapy in rehabilitation program in patients with knee osteoarthritis.

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AB0602

IMPACT OF SOCIOECONOMIC FACTORS ON PAIN AND FUNCTION IN KNEE OSTEOARTHRITIS: A SYSTEMATIC LITERATURE REVIEW

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Background: The personal and societal burden of knee osteoarthritis (KOA) urges the research community to identify factors that predict its onset and progression. A mechanistic understanding of disease is currently lacking but needed to develop targeted interventions. Traditionally, risk factors for KOA are termed 'local' to the joint or 'systemic' referring to whole-body systems. There are however clear indications in the scientific literature that contextual factors such as socioeconomic position merit further scientific scrutiny, in order to justify a more biopsychosocial view on risk factors in KOA.

Objectives: The aims of this systematic literature review were to assess the inclusion of socioeconomic factors in KOA research and to identify the impact of socioeconomic factors on pain and function in KOA.

Methods: Major bibliographic databases, namely Medline, Embase, CINAHL, Web of Science and Cochrane, were independently screened by two reviewers (plus one to resolve conflicts) to identify research articles dealing with socioeconomic factors in the KOA population without arthroplasty. Included studies had to quantify the relationship between socioeconomic factors and pain or function. Main exclusion criteria were: a qualitative design, subject age below 16 years and articles not written in English or Dutch. Methodological quality was assessed via the Cochrane risk of bias tools for randomized (ROB-II) and non-randomized intervention studies (ROBIN-I) and the Newcastle-Ottawa Scale for assessing the quality of non-randomised studies. Due to heterogeneity of studies with respect to outcomes assessed and analyses performed, no meta-analysis was performed.

Results: Following de-duplication, 7639 articles were available for screening (120 conflicts resolved without a third reader). In 4112 articles, the KOA population was confirmed. 1906 (25%) were excluded because of knee arthroplasty and 1621 (21%) because of other issues related to the population definition. Socioeconomic factors could not be identified in 4058 (53%) papers and were adjusted for in 211 (3%) articles. In the remaining papers covering pain (n=110) and/or function (n=81), education (62%) and race (37%) were most frequently assessed as socioeconomic factors. A huge variety of mainly dichotomous or ordinal socioeconomic outcomes was found without further methodological justification nor sensitivity analysis to unravel the impact of selected categories. Although the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) was the most popular instrument to assess pain and function, data pooling was not possible as socioeconomic factors estimates were part of multilevel models in most studies. Overall results showed that lower education and African American race were consistent predictors of pain and poor function, but those effects diminished or disappeared when psychological aspects (e.g. discrimination) or poverty estimates were taken into account. When function was assessed using self-reported outcomes, the impact of socioeconomic factors was more clear versus performance-based instruments. Quality of research was low to moderate and the moderating or mediating impact of socioeconomic factors on intervention effects in KOA is understudied.

Conclusion: Research on contextual socioeconomic factors in KOA is insufficiently addressed and their assessment is highly variable methodologically. Following this systematic literature review, we can highlight the importance of implementing a standardised and feasible set of socioeconomic outcomes in KOA trials¹, as well as the importance of public availability of research databases including these factors. Future research should prioritise the underlying mechanisms in the effect of especially education and race on pain and function and assess its impact on intervention effects to fuel novel (non-)pharmacological approaches in KOA.

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AB0603

THE NEW POSSIBILITIES OF USING CHONDROITIN SULFATE IN PATIENTS WITH KNEE OSTEOARTHRITIS

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Background: Administration of Chondroitin Sulfate for treatment of osteoarthritis included treatment types include systemic and parenteral therapies. The benefits of local therapies between difference route is ambivalent.

Objectives: To evaluate effectiveness and safety of Chondroitin Sulfate (CS) by intramuscular and concomitant (intramuscular and intraarticular) route of administration in patients with knee osteoarthritis (OA).

Methods: In total 150 patients with knee OA according by ACR criteria and with radiological stages 2 and 3 according to Kellgren-Lawrence were enrolled. Patients were divided by 2 groups: 75 patients (R) received course of 25 intramuscular injection every other day: at the first 3 injection's in dose 100 mg, and in continue in dose 200 mg. 75 patients in 2nd group (N) received 5 intra-articular injections in target knee in dose 200 mg once per 3 days, in continue 16 intramuscular injections every other day in dose 200 mg. All patients received NSAID - meloxicam in stable dose 15 mg per day. All patients were checked by WOMAC, pain by visual analog scale (VAS), McGill Pain Questionnaire (MPQ).

At the baseline, standard clinical examination for all patients were blood tests, urine test, coagulation panel and ECG.

Results: After comparing of two groups by the end of course the intensity of pain by VAS was significantly greater in R group ($21,88 \pm 13,24$ vs $16,81 \pm 13,49$; $p < 0,0001$). There were no significant differences between groups in improvement of WOMAC, WOMAC subscales and MPQ from baseline. Serious adverse events (AE) were absent. 11 AE's were detected 3,3% (5/150), but in 100% of cases AE's were resolved by the end of course.

Conclusion: CS is effective decreased intensity of pain and stiffness, improved functional ability of joints both intramuscular and concomitant route of administration. However, significantly greater results at pain intensity by VAS shows combination: pain intensity by the end of course was significantly lower in group with concomitant intramuscular and intra-articular injections. Probably, it was associated with faster resolution of synovitis by intra-articular route of administration, that leads to choose this route for patients with comorbidity.

Evaluation of pain by VAS in groups

Disclosure of Interests: None declared.

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AB0604 FACTORS ASSOCIATED WITH PAIN IN EARLY KNEE OSTEOARTHRITIS (PRELIMINARY DATA)

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Background:

Objectives: To identify factors associated with pain in patients with early knee osteoarthritis fulfilling ESKOA criteria [1].

Methods: 50 patients (46 women (92%); 4 men (8%)) fulfilling ESKOA criteria were enrolled in the trial, every participant signed up the consent form. Median age of patients was 47 ± 8 yrs (36 – 63 yrs), body mass index (BMI) was 28.5 ± 4.9 kg/m² (40% of patients had obesity). Every patient, after signing the standard informed consent form, was addressed to a physician, who would fill in an individual case report form (CRF), including anthropometric parameters, history of OA, comorbidities and physical examination data. Knee pain was also assessed with the use of visual analog scale (VAS). All participants underwent knee X-ray according to the standardized fixed flexion protocol with the use of positioning frame [2].

Results: Most of the patients (70%) were between the ages of 35 and 50 and only 15 of them (30%) were older than 50 years. Median knee pain duration was found to be 16 (12-20) weeks, intensity of VAS – knee pain was 46 mm (42-50). Median number of episodes of knee pain (in the last 6 months) was 3 (2-6); 30 participants (60%) had episodes of knee pain lasting less than a week, 8 of them (6%) had pain lasting for around a week, 12 of them (24%) had episodes of pain lasting more than one week. In most patients (74%) pain relieved with time, without any additional therapy. Most of the patients had episodes of knee pain linked to increased overload (48 (96%)), when squatting (41 (82%)), most of the patients also reported pain when climbing up and down the stairs (80%) and short joint stiffness when starting movement (76%). Knee pain after sitting was reported in 54% of cases and 20 participants (40%) also reported some walking limitations due to knee discomfort.

Knee X-ray revealed that most of the patients had I Kellgren&Lawrence (K&L) stage knee OA (picture 1). All the included participants had ESR (7 (5-10 mm/hr)) and CRP (1.24 (0.8-2.2 mg/l)) within normal range.

Picture 1 – Radiological knee OA stage (K&L) distribution in the study group

In the Spearman correlation analysis, we have estimated the factors, which may be associated with more severe pain in patients with early knee OA fulfilling the ESKOA criteria. We found out that higher BMI ($r=0.38$, $p=0.02$), presence of metabolic syndrome ($r=0.37$, $p=0.008$) and hypertension ($r=0.29$, $p=0.04$), as well as walking limitations ($r=0.33$, $p=0.008$) are associated with knee pain.

Conclusion: The use of ESKOA criteria in patients with short duration of knee pain can facilitate diagnosis of osteoarthritis on an early stage. In addition, the acquired data show that timely diagnosis and correction of certain components of metabolic syndrome may be beneficial for the course of knee pain intensity in patients with early knee OA, further continuation of this trial is necessary.

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AB0605 ACTIGRAPHY-BASED PHYSICAL ACTIVITY MONITORING IN PATIENTS WITH KNEE OSTEOARTHRITIS AND COMORBID FIBROMYALGIA

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Background: Low physical activity (PA) levels are common in patients with diseases associated with pain syndrome, such as osteoarthritis (OA) of the knee joints. Recent studies show that OA may be accompanied by concomitant fibromyalgia (FM) – a chronic pain syndrome associated with sedentary behavior [1]. As far as low PA levels are associated with poor quality of life and higher all-cause mortality, PA measurement in patients with knee OA and concomitant FM is of considerable interest [2,3].

Objectives: The aim of this study was to investigate and compare physical activity measured by an actigraph in knee OA patients with and without comorbid FM.

Methods: A total of 70 patients with painful knee osteoarthritis (OA) – 35 subjects - (30 females and 5 males) with concomitant fibromyalgia (FM) aged 59.8 ± 14.9 (M $\pm$ SD) years and 35 patients (30 females and 5 males) without concomitant FM aged 58.5 ± 15.7 (M $\pm$ SD) years were enrolled in the study. 35 healthy controls of the same age and gender underwent the same investigation. OA diagnosis was established according to ACR 1986 Osteoarthritis Knee Criteria. FM was diagnosed if both modified 2010 ACR diagnostic criteria and 2016 Fibromyalgia Diagnostic Criteria were met. All participants wore an actigraph (GT3X model accelerometer) on the wrist for the period of 5 working days. Average daily minutes in light, moderate and vigorous PA were calculated.

Results: All OA patients with and without FM spent significantly less time in vigorous PA compared to controls. Obtained results did not indicate significant difference between time in vigorous activity in OA patients with and without FM. Patients with OA alone showed insignificant decrease in time in moderate activity in comparison with healthy subjects. OA patients with comorbid FM showed significantly less time in moderate activity compared to OA patients without FM and healthy individuals.

Conclusion: Our study results revealed that patients with painful knee OA and comorbid FM have greater activity limitations than patients with painful knee OA alone and healthy individuals.

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