

Osteoarthritis and Cartilage



No evidence for the effectiveness of a multidisciplinary group based treatment program in patients with osteoarthritis of hands on the short term; results of a randomized controlled trial



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SUMMARY

Objective: To examine the efficacy of a multidisciplinary non-pharmacological intervention in patients with hand osteoarthritis (OA).

Method: Parallel group randomized controlled trial was performed in three participating rheumatology outpatient clinics in the Netherlands. Block randomization was performed using a computer generated permuted block scheme (blocks of four). An independent person randomly assigned 151 participants with clinical hand OA to four sessions of multidisciplinary non-pharmacological treatment, or 30 min education followed by 3 months waiting time. Participants and therapists were not blinded to the assigned intervention. The research assistant who assessed all outcomes was blinded to the assigned intervention. Subscale limitations in activities of the Australian Canadian Osteoarthritis Hand Index (AUSCAN) and OARSI responder criteria (primary outcomes) and secondary outcome measures, were assessed at baseline and 12 weeks. Linear or logistic regression analyses were used, where appropriate, with the outcome as dependent and the intervention group as independent variable. The analyses were adjusted for baseline values.

Results: At 3 months no significant and no relevant differences were observed between the experimental ($n = 76$) and control group ($n = 75$) in any of the primary or secondary outcome measures. In both groups about one-third of patients were classified as responder.

Conclusion: There is insufficient evidence to confirm a clinically relevant treatment effect on the short term, between patients who followed a multidisciplinary treatment program and those who received only written information. Since hand OA causes a range of impairments and limitations in activities, programs with more guidance to formulate and implement individually tailored treatment plans could be probably more effective. Furthermore, more research is needed on the efficacy of single treatment elements.

(Dutch Trial Register trial number NTR1191).

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Background

Osteoarthritis (OA) is the most common arthritic joint disease frequently affecting the joints of the hands¹. In elderly people (>70 years) the prevalence of symptomatic hand OA is estimated to be

26% for women and 13% for men². Subjects with hand OA have difficulties in carrying, writing and fingering small objects, resulting in limitations in activities and restrictions in participation^{2,3}.

The European League Against Rheumatism (EULAR) recommends to treat all patients with hand OA with a combination of pharmacological and non-pharmacological treatment options⁴. However, no evidence and no guidelines are available about the optimal content and mix of non-pharmacological components. It has been suggested to combine non-pharmacological treatment options focussing on multiple dimensions (impairments, limitations in activities, and

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personal factors)³. These recommendations are based on research findings, indicating that perceived limitations in activities in patients with hand OA are closely associated with hand impairment of grip strength and joint mobility³, and that satisfaction with the performance of activities are associated with personal factors as self-efficacy and coping strategies³.

Research on the effectiveness of non-pharmacological treatment programs in hand OA is scarce and of poor quality. Recent reviews concluded that there is currently insufficient high quality evidence regarding the effectiveness of non-pharmacological interventions for hand OA^{5–8}, due to lack of methodological quality of studies included in these reviews. Furthermore, interventions scrutinized in these reviews were not multidisciplinary and did not simultaneously focus on impairments, limitations in activities, and personal factors such as self-efficacy and coping strategies as recommended³. Therefore, we developed a non-pharmacological multidisciplinary and multidimensional treatment programme for patients with hand OA. Treatment components of the programme included self-management, daily home exercises to enhance joint mobility and grip strength and education about ergonomic principles⁹. The objective of the current study is to determine the effectiveness of a multidisciplinary treatment program in patients with hand OA on limitations in activities and pain.

Methods

Design overview

One University based rheumatology outpatient centre and two community based rheumatology outpatient centres participated in this multicentre parallel group randomized controlled study. All patients followed a nurse-led educational session. Then patients were randomly assigned to the intervention group (multidisciplinary treatment) or a waiting time of 3 months (allocation ratio 1:1). Patients were assessed at baseline (prior to the monodisciplinary educational session) and at 13 weeks follow-up by a research assistant who was blinded for treatment allocation. The study was conducted according to good clinical practice and in compliance with the Helsinki declaration. Each institutional research ethics board approved the study protocol and all patients gave signed informed consent. The trial is registered in the Dutch Trial Register (trial number NTR1191). A copy of the trial protocol (in Dutch) can be requested at the authors.

Setting and participants

Patients were recruited between December 2007 and January 2010. Patients who visited the outpatient clinic due to complaints of hand OA and referral to multidisciplinary treatment was indicated, were informed about the study by their rheumatologist. If patients orally indicated to be interested in participating in the study, the medical record of each patient was screened by the research assistant for eligibility. Patients were excluded on the basis of medical records if they suffered from other rheumatic diseases, previous joint replacement surgery in one of the hand joints, or previous participation in a multidimensional multidisciplinary group treatment program for hand OA. After written information was sent to eligible patients, the researcher contacted patients within 2 weeks by telephone to establish willingness to participate in the study and plan a final eligibility screening at one of the participation centres.

Included during the final eligibility screening were patients with hand OA according to the clinical classification criteria of the American College of Rheumatology (ACR)¹⁰; of whom complaints

due to OA of hands were the most or second most important problem; who had self-reported limitations in activities due to hand OA (measured as a score of at least 9 on the Australian Canadian Osteoarthritis Hand Index – LK3 (AUSCAN) physical functioning subscale¹¹). Excluded were patients who were not willing to participate in a group treatment program; not able to write and/or understand the Dutch language.

Interventions

Single mono-disciplinary educational session

Both study groups received the same nurse-led educational session consisting of a 30-min explanation of written information about OA. The written information was an adapted version of the information leaflet published by the Dutch Arthritis Association for generalized OA, and included information about the disease and exercises to enhance mobility and grip strength.

Multidisciplinary treatment program

The multidisciplinary treatment program (experimental intervention) started within a week after baseline assessments. The program, consisted of an intake by an occupational therapist, followed by four group based sessions (6–8 patients) of 2½–3 h duration supervised by a specialized nurse and occupational therapist. During an intake session an occupational therapist made an inventory of patient specific problems in daily living, following a semi-structured interview by means of the Canadian Occupational Measurement Scales (COPM)^{12,13}. After discussion with the therapist, patients prioritized their own specific problems.

Elements of the multidisciplinary group treatment sessions were: (1) self-management to enhance self-efficacy to cope with pain, fatigue, limitations in activities and participation; (2) ergonomic principles (elements of joint protection); (3) daily home exercises to improve strength and joint mobility; (4) referral for a splint if considered necessary by an occupational therapist.

During the multidisciplinary treatment sessions discussions among patients were encouraged to utilize patients' expert opinions. Each treatment element was repeated and built upon during several sessions. Furthermore, each session included three to four clearly stated take home messages; such as "use of hands and exercises will not damage your joints". The treatment program comprised eight exercises to enhance joint mobility of wrist and finger joints and muscle strength of the intrinsic muscles and extensor muscles of the fingers. All exercises were practiced with an occupational therapist during the first treatment session. Then patients performed the exercises daily at home for a week and registered the number of repetitions, intensity and resistance (colour of putty used). During the second treatment session patients set up an individual scheme with an individual built up for each exercise together with the occupational therapist and specialized nurse. This scheme was based on the registrations of the performance of exercises during the first week. Patients recorded the progress at home daily. During the third and fourth treatment session the progress on the exercise program was discussed and adjusted if considered necessary. For more information about the multidisciplinary treatment program, see Appendix 1. A detailed description of the development and content of the multidisciplinary treatment program, including the exercise program is described elsewhere⁹. To standardize the treatment program a slide presentation for all treatment sessions was developed. Furthermore, manuals for both therapists and patients were developed. Before the start of the trial all participating nurses and occupational therapist followed an education and standardization session. During the study, meetings were planned to perpetuate standardization.

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