Rehabilitation

SAT0258 DISEASE RELATED CHARACTERISTICS DO NOT INFLUENCE WILLINGNESS TO PARTICIPATE IN A LARGE CLINICAL TRIAL IN RHEUMATOID ARTHRITIS (RA)

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Background A major problem in the incorporation of results from clinical trials in daily practice is that demographic and clinical characteristics of patients who participate in clinical trials differ significantly from those of non-participants. It is not known if this limited generalizability of trial results is also present in trials with RA patients.

Objectives To investigate whether demographic or clinical characteristics of RA patients are a barrier to participation in a trial. In order to detect such an effect we investigated the recruitment of RA patients for a trial on the effectiveness of a long-term high intensity weight-bearing exercise programme.

Methods Medical records of all known RA patients from four cooperating centres were screened for eligibility (ARA 1987 revised criteria, 20–70 years, ACR functional class I–III, stable DMARD in the past 3 months, no prosthesis of a weight bearing joint, no serious comorbidity). Eligible patients received extensive written information and were invited for an information meeting. The investigators subsequently screened all patients who wished to participate to ensure the eligibility and a personalised approach. Participants as well as non-participants were mailed a questionnaire containing questions on socio-demographic and disease-related characteristics, comorbidity and experience with participation in clinical trials in the past. Questionnaires concerning functional status (HAQ), utility (EuroQol) and quality of life (RAQol) were added. Differences between participants and non-participants were tested with Mann-Whitney test or Chi-square test where appropriate.

Results 299 of the 300 participants (99.7%) and 892 of the 1191 non-participants (74.9%) returned the questionnaires completed. Participants were younger (median 54 vs. 57 yrs, $p < 0.005$), more often female (79 vs. 73%, $p < 0.05$) and the disease duration was slightly shorter (median 6 vs. 8 yrs, $p < 0.005$). Participants and non-participants did not differ with respect to the presence of rheumatoid factor and erosions, previous and current use of medication, perception of burden of illness, comorbidity, experience with participation in clinical trials in the past, functional status, utility, and quality of life measures.

Conclusion Disease related characteristics do not influence the willingness to participate in a clinical trial on the effect of long-term high intensity exercise therapy. The slight differences in sociodemographic characteristics between participants and non-participants do not seem clinically relevant. The recruitment strategy in which all eligible patients were approached in a non-selective, unbiased way may have contributed to this favourable result.

SAT0259 THREE-DIMENSIONAL (3-D) MEASUREMENT OF SHOULDER MOVEMENT PATTERNS IN PATIENTS WITH A FROZEN SHOULDER

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Background 3-D movement analysis with electromagnetic tracking systems proved to be a reliable tool in measuring range of motion (ROM) in healthy shoulders. 3-D analysis of movement patterns in subjects with pain and movement limitations of the shoulder has not yet been performed.

Objectives To investigate 3-D movement patterns of the affected and non-affected shoulder in patients with a frozen shoulder before and after physical therapy.

Methods Patients with a unilateral frozen shoulder were assessed before and after 3 months of intensive passive end-range of motion mobilisation techniques. 3-D movement analysis was performed with the 'Flock of Birds' electromagnetic tracking device while the patient elevated the arms in 3 directions. Using segmented linear regression, the characteristic slope of the upward part of the curves of glenohumeral elevation angle (x-axis) versus scapular laterorotation angle (y-axis) was approximated. Within this analysis determining the turning point of the curve was essential. Additional measures included ROM with a goniometer and a VAS(0–100 mm) for shoulder pain. Mean differences between affected and non-affected side and mean changes of the slope of the regression line before and after 3 months were studied by paired t-tests.

Results Eight women and 2 men with a unilateral frozen shoulder were included. Mean age was 49.1(sd 5.6) yrs, mean duration of complaints 11.4(sd 8.2) months. Mean active ROM in forward flexion, abduction and external rotation of the frozen shoulder before treatment was 97°(sd 17), 75°(sd 21) and 22°(sd 13). Mean scores for pain during movement was 63(sd 25). Mean slopes of the curves of the scapular laterorotation angle in forward flexion, scapular abduction and abduction were 0.725, 0.719 and 0.958 for the affected side and 0.458, 0.504 and 0.494 for the unaffected side, respectively ($p < 0.005$). After 3 months mean active ROM in the affected shoulder increased to 127°(sd 21) in forward flexion, 127°(sd 33) in abduction and 37°(sd 14) in external rotation (all $p < 0.005$). Mean pain score decreased to 37 mm (sd 12)($p = 0.013$). Mean changes of the slopes were 0.063($p = 0.202$), 0.048($p = 0.169$) and 0.264($p = 0.008$) for forward flexion, scapular abduction and abduction, respectively.

Conclusion This study shows that with a 3-D electromagnetic tracking system the abnormal movement pattern of a frozen shoulder, characterised by the earlier laterorotation of the scapula during shoulder elevation, can be described and quantified. Moreover, the system was sensitive to clinical improvements. Therefore, the system may be a useful tool for the evaluation of treatment of the frozen shoulder. Its value in other shoulder disorders remains to be established.

SAT0260 EFFECT OF ELECTRICAL STIMULATION ON CLOSED KINETIC CHAIN EXERCISES

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