Improvements Following Short Term Home Based Physical Therapy Are Maintained at One Year in People with Moderate to Severe Rheumatoid Arthritis

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ABSTRACT. Objective. We previously demonstrated the efficacy of a 6 week home based physical therapy (PT) intervention for people with moderate to severe rheumatoid arthritis (RA). This followup study determined if short term improvements were maintained to one year.

Methods. Participants in the short term study were randomly assigned to receive a PT intervention (education, exercise, and pain relief modalities) delivered by physiotherapists with advanced rheumatology training (Weeks 0 to 6) or to a wait list control group. The control group received the intervention between Weeks 6 to 12. Outcome measures included the Stanford Arthritis Self-Efficacy Scale (SES), the Arthritis Community Research and Evaluation Unit Rheumatoid Arthritis Knowledge Questionnaire (KQ), and a visual analog scale for pain. Disease activity measures (tender joints, grip strength, and morning stiffness) were also included. MANOVA was used to compare within-subject scores at baseline and at 12 and 52 weeks. Paired t tests were used to determine if 12 week changes were maintained at 52 weeks.

Results. Of the 127 protocol completers, 117 (92.1%) were available for the one year followup. For those measures that showed significant improvement in the randomized controlled trial (SES, KQ, morning stiffness), improvements at 12 weeks were maintained at 52 weeks (p > 0.010).

Conclusion. Subjects who participated in a short term home based PT intervention delivered by specially trained therapists reported improved outcomes following treatment, and these improvements were maintained at one year followup. Future studies need to explore the relative contributions of education, exercise, home based care, therapist training, and reinforcement strategies in improving longterm outcomes in RA. (J Rheumatol 2001;28:165–8)

Key Indexing Terms:
PHYSICAL THERAPY  RHEUMATOID ARTHRITIS  HOME BASED THERAPY  OUTCOMES

Longterm studies have shown that, in general, patients with rheumatoid arthritis (RA) deteriorate over time1,2. Home based physical therapy (PT), particularly exercise interventions, may improve short term outcomes3-7; however, only one longterm (one year) study of home based exercise was identified and results were modest6. We reported a randomized controlled trial (RCT) to evaluate the short term efficacy of a 6 week (mean 4 hours) home based PT program of education and exercise for 150 patients with moderate to severe RA7. For 127 patients who adhered to the study protocol, there were significant improvements in self-efficacy, knowledge about self-management strategies, and morning stiffness in the treatment group compared to the control group at 6 weeks. By 12 weeks, both groups had received the intervention and both reported similar improvements from baseline. We report here the outcomes for the 117 patients who received the intervention and were available for one year followup. We investigated whether short term improvements were maintained at one year. The design was a prospective uncontrolled cohort study of all patients who received the intervention according to protocol.

MATERIALS AND METHODS
Details of the methods have been reported1. Briefly, adults with a diagnosis
of RA were randomly allocated to receive home based PT for 6 weeks (experimental group) or no treatment (wait list control group). The control group received PT during Weeks 6 to 12 and the experimental group continued with PT treatment as required. Therefore, at the 12 week assessment, all study participants had received the PT intervention.

Treatment was provided by Arthritis Society physical therapists trained in the treatment of arthritis using a self-management model. The intervention was standardized to include education about the disease and its management and individual goal setting.

Trained interviewers blinded to group assignment administered questionnaires at 0, 12, and 52 weeks. Outcome measures for the RCT included: (1) the Stanford Arthritis Self-Efficacy Scale (SES), (2) the Arthritis Community Research and Evaluation Unit (ACREU) Rheumatoid Arthritis Knowledge Questionnaire (KQ), and (3) a visual analog scale for pain (VAS(P)). Other outcomes were included to monitor longer term changes in health status [Arthritis Impact Measurement Scales 2 (AIMS2), Sickness Impact Profile (SIP)], but were not reported in the previous article7. Disease activity (tender joints, grip strength, and morning stiffness) was also assessed.

MANOVA was used to compare scores at baseline and 12 and 52 weeks. Paired t tests were used to compare 0 to 12 week scores (short term change) and 12 and 52 week scores (maintenance of short term change). To adjust for multiple analyses a priori, a p value ≤ 0.001 was considered significant.

RESULTS

Of 150 randomized participants, 127 (84.6%) completed the study protocol, and of those 117 (92.1%) were available for followup at one year. There were no significant differences between patients followed to one year and those who were lost to followup (n = 10; p > 0.05) (Table 1).

During the study intervention, all participants received education about RA and its management and an individualized exercise program. The average number of visits was 4 and 39.4% of the participants required at least 2 additional visits beyond the study time frame.

Baseline and 12 and 52 week scores are given in Table 2. For those measures that showed significant improvement in the RCT (SES, KQ, morning stiffness), improvements at 12 weeks were maintained at 52 weeks (p > 0.010). Longterm measures (SIP and AIMS2 subscales for mobility, walking and bending, hand and arm function, self-care and household activities, pain, tension, mood, satisfaction, perception, disease impact, physical symptoms, affect) improved between baseline and 12 weeks (p ≤ 0.001). At 52 weeks, these improvements were maintained or continued to improve (AIMS2 pain subscale and the SIP). The VAS(P), grip strength, and number of tender joints were also improved at 12 weeks (p < 0.001) and continued to improve over time.

DISCUSSION

We describe the longterm outcome for a cohort of patients enrolled in a randomized controlled trial of home based PT. This cohort includes the patients in the experimental and control groups (all of whom had received the intervention by Week 12 and who were followed to Week 52). Outcomes showing significant changes in the RCT (self-efficacy, knowledge about self-management strategies, and morning stiffness) showed significant changes from baseline to 12 weeks for the combined cohort and these changes were maintained at one year. The VAS(P) and other measures, included to monitor outcomes over the longer term and not part of the short term trial protocol (SIP and subscales of the AIMS2), also showed improvements at 12 weeks, and these changes were maintained or continued to improve at one year.

Treatment in the home may facilitate learning and increase the relevance of the interventions provided. As well, studies of educational interventions in RA have revealed improved outcomes, with some being maintained to one year and beyond. As in this study, those interventions using a self-management or goal-setting approach have been particularly effective. It has been suggested that increased self-efficacy may be the mediating factor resulting in improved health outcomes.

Ronen, et al suggest that addressing psychosocial issues and involving the family may reinforce self-management strategies. Arthritis Society therapists addressed psychosocial issues and involved the family in treatment, and patients could self-refer for further treatment when needed. However, the role of reinforcement strategies in maintaining the benefits of educational interventions remains unclear.

It has been suggested that the experience of the provider may influence outcomes of treatment. Arthritis Society physiotherapists are specially trained in the assessment and management of inflammatory polyarthritis and exclusively treat patients with arthritis. Further studies are required to establish the importance of therapist training and experience in treating this population.
A few studies have evaluated the longterm benefits of exercise, particularly aerobic exercises, and suggest that they may improve physical and psychosocial outcomes and decrease health care costs without exacerbating joint symptoms. Although exercise was prescribed for all participants in this study, the number who exercised regularly at an aerobic level is not known.

When interpreting the results of this study, possible alternative explanations need to be considered, particularly as there was no control group between Weeks 12 and 52. Other explanations for the sustained good outcomes include regression to the mean (patients had moderate to severe disease), the natural history of RA, and other co-interventions, including medications. A control group would help address these issues in future studies.

In conclusion, patients with moderate to severe RA who participated in short term home based physiotherapy emphasizing self-management strategies reported improved outcomes, and these improvements were maintained at one year followup. Future studies need to explore the relative contributions of education, exercise, home based care, specialist training for therapists, and reinforcement strategies in improving longterm outcomes for patients with RA.

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REFERENCES


