Effects of disease management programs on functional status of patients with rheumatoid arthritis


CRD summary
This review assessed the effect of disease management programmes on the functional status of patients with rheumatoid arthritis. The authors' conclusion, that there was limited evidence to support or refute the effectiveness of such programmes, is likely to be reliable.

Authors' objectives
To assess the effect of disease management programmes on the functional status of patients with rheumatoid arthritis (RA).

Searching
MEDLINE, Healthstar, EMBASE, and the Cochrane Library were searched from 1966 to September 2001 for articles published in the English language; the search terms were stated. The references in identified reports and reviews were checked and physicians and researchers in the field were contacted for additional studies.

Study selection
Study designs of evaluations included in the review
Studies that include a control group and were either randomised clinical trials (RCTs) or quasi-experimental non-randomised studies with a before-and-after design were eligible for inclusion. The duration of follow-up in the included studies ranged from 11 days to 24 months.

Specific interventions included in the review
Studies of disease management programmes were eligible for inclusion. The review defined a disease management programme as a multidisciplinary intervention with a systematic approach to care, which was provided by health care professionals from at least two disciplines that incorporated patient education. Studies that did not use a multidisciplinary team or did not involve patient education were excluded. All but one of the included studies were set in an out-patient department. In most of the included studies, the multidisciplinary team included a rheumatologist, nurse, physiotherapist, occupational therapist and social worker. All of the included studies used usual care as the control intervention.

Participants included in the review
Studies that focused on adult patients with RA were eligible for inclusion. Studies that only included paediatric patients were excluded. In the included studies, the mean duration of RA was 8.4 years. One study appeared to include some patients with osteoarthritis.

Outcomes assessed in the review
Studies that assessed the patients' functional status were eligible for inclusion. The review defined functional status as the ability to carry out activities of daily living and the ability to participate in life situations (recreational, leisure and/or vocational) appropriate for age and gender. The included studies used the following measures to assess functional status: Health Assessment Questionnaire (HAQ), modified HAQ, Sickness Impact Profile, Functional Status Questionnaire, Arthritis Impact Measurement Scale, and patient-reported deterioration in activities of daily living.

How were decisions on the relevance of primary studies made?
Two reviewers independently reviewed samples of the titles, abstracts and reviews, and resolved any disagreements through discussion. Inter-rater agreement was assessed using the kappa statistic.
Assessment of study quality
The authors did not state that they assessed validity.

Data extraction
Two reviewers extracted data from unmasked reports onto a standardised data extraction form. For each study, the mean and standard deviation (where reported) were extracted for measures of functional status for each treatment group. Effect sizes (ESs) and 95% confidence intervals (CIs) were calculated for each study. Variances were estimated where these values were not reported in the individual studies (details of the methods used were stated). For each study, the number of units of the intervention (defined as the number of times the patients were exposed to the intervention) was calculated.

Methods of synthesis
How were the studies combined?
The studies were combined in a meta-analysis. Pooled ESs and 95% CIs were calculated using a random-effects model. The possibility of publication bias was explored using a funnel plot.

How were differences between studies investigated?
Forest plots of the eight studies included in the meta-analysis, and of studies using the HAQ or modified HAQ to assess outcomes, were presented. Studies that assessed functional status using the HAQ or the modified HAQ were analysed separately. The one study that was not set in an out-patient department was excluded from the sensitivity analysis. Subgroup analyses were used to explore the influence of duration of the intervention (5 weeks or less versus more than 5 weeks) and the number of units of the intervention (6 units or less versus more than 6 units). The duration of the intervention was defined as the time from the start to the end of the intervention.

Results of the review
Eight RCTs (495 patients) and three non-randomised studies (189 patients) were included in the review. Of these, seven RCTs (477 patients) and one non-randomised controlled study (66 patients) were included in the meta-analysis; the other three studies had insufficient data.

Four of the eight studies included in the meta-analysis showed that disease management programmes significantly improved functional status.

The meta-analysis showed that disease management programmes increased functional status, but the ES was small and not statistically significant (ES 0.27, 95% CI: -0.01, 0.54). Similar results were obtained when studies assessing functional status using the HAQ or the modified HAQ were pooled; the ES (6 studies) was 0.16 (95% CI: -0.13, 0.44).

The subgroup analysis showed that longer programmes significantly improved functional status, but found no significant effect with short programmes; the ES was 0.49 (95% CI: 0.12, 0.86) for programmes lasting more than 5 weeks (3 studies) and 0.13 (95% CI: -0.25, 0.52) for programmes lasting 5 weeks or less (4 studies).

Studies showed that interventions with 6 units or less improved the ES more than programmes with more than 6 units of the intervention, but neither subgroup of interventions showed a statistically significant effect; the ES was 0.39 (95% CI: -0.03, 0.82) for 6 units or less (4 studies) and 0.17 (95% CI: -0.10, 0.44) for more than 6 units of the intervention (3 studies).

The funnel plot was asymmetrical, thus suggesting the possibility of publication bias.

Authors’ conclusions
There was limited evidence about the effect of disease management programmes on functional status in patients with RA.
CRD commentary

The review question was clear in terms of the study design, participants, intervention and outcomes. Several relevant sources were searched and the search terms were stated. Limiting the included studies to those published in the English language might have resulted in the omission of some relevant studies. Two reviewers selected the studies and extracted the data, which reduces the potential for bias and errors. Validity was not formally assessed and only some aspects of validity were mentioned briefly in the text of the review.

Some relevant information on the individual studies was tabulated, while additional details were reported in an appendix of the review. There were no details on the functional status of patients at study entry or the drug treatments, thus the differences between studies in terms of patient characteristics and cointerventions could not be assessed. The ESs from RCTs and non-randomised controlled studies were combined in a meta-analysis and a forest plot suggested statistical homogeneity. The authors’ conclusions appear to follow from the evidence presented.

Implications of the review for practice and research

Practice: The authors did not state any implications for practice.

Research: The authors stated that further research is required to confirm that disease management programmes of longer duration have a greater effect, and to determine the characteristics of patients most likely to benefit from disease management programmes. They also stated that the effectiveness of disease management programmes in patients treated with more effective drugs should be studied.

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This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract
contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.