In- and out-patient rehabilitation in rheumatoid arthritis: a controlled open, longitudinal, cost-effectiveness study

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Record Status
This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

Health technology
The rehabilitation of rheumatoid arthritis (RA) patients using an intensive, 21 day, multidisciplinary, community sponsored in-patient programme or a standard out-patient physiotherapy programme designed by the patient’s rheumatologist.

Type of intervention
Rehabilitation.

Economic study type
Cost-effectiveness analysis.

Study population
Patients with RA who fulfilled the 1987 ACR criteria (i.e. the American Rheumatism Association classification system). No socio-economic characteristics were reported.

Setting
An arthritis rehabilitation unit. The economic study was carried out at the Helsinki University Central Hospital, Division of Rheumatology, Finland.

Dates to which data relate
The dates to which the effectiveness data, resource use and price data refer were not reported.

Source of effectiveness data
Clinical evidence was derived from a single study.

Link between effectiveness and cost data
The costing approach was prospective and was undertaken on the same patient sample as that used in the effectiveness study.

Study sample
A sample of 26 RA patients was obtained, 20 in the in-patient group and 6 in the out-patient group. All subjects fulfilled the American Rheumatism Association’s 1987 ACR criteria. Randomisation of the patients to the two treatment alternatives was not carried out due to local public health regulations (Social Insurance Institution, KELA) and ethical considerations. No power calculations were performed to determine sample size.
Study design

The study was a nonrandomised, single centre trial with concurrent controls. For the clinical assessment, all patients were followed from immediately before treatment to six months after rehabilitation. Additionally, patients participating in the study were followed for a further two years to see if they applied for and were given medical retirement due to RA. No loss to follow-up was reported.

Analysis of effectiveness

The analysis of the clinical study was based on intention to treat. The health outcomes of the study included the following quality of life measures; functional classification, the joint score index, the subjective Visual Analogue Scale (VAS) of pain, the Health Assessment Questionnaire (HAQ), the Pain Disability Index (PDI) and the Comprehensible Psychopathological Rating Scale (CPRS). These clinical assessments took place prior to, immediately after and 6 months after the rehabilitation programmes. Laboratory values for haemoglobin and CRP were included also. Age, sex and prognostic characteristics were not reported.

Effectiveness results

At the start of the study no significant difference was found when comparing the in and out-patient rehabilitation groups in terms of the different clinical and laboratory measurements undertaken.

One month after the rehabilitation programme significant differences, in favour of the in-patient group, were found between the groups:

- mood: in-patient 13.6 (+/- 14.9); outpatient 35.8 (+/- 36.2) (p= 0.0386),
- tension: in-patient 10.2 (+/- 8.0); outpatient 36.2 (+/- 29.4) (p=0.003),
- total CPRS index: in-patient 11.6 (+/- 9.3); outpatient 30.8 (+/-28.4) (p=0.0144).

Pain, PDI and HAQ values did not differ and neither did prescribed medication between the two groups. Six months after the rehabilitation programme, pairwise comparison of the 2 groups revealed no advantages in the use of in-patient as opposed to out-patient mode of treatment. Two years after the treatments took place, the in-patient group were more likely to be medically pensioned (1 in 4 as compared with 1 in 6 for the out-patient group).

Clinical conclusions

After the 6-month follow-up no significant differences were found in any of the outcome measures used. The authors argued that, at the one month post-rehabilitation stage, the improvement in mood, tension and CPRS index experienced by those undergoing the in-patient programme may result from the combined effect of the in-patient group's approval of the rehabilitation programme and the discontent of the out-patient group with their treatment. The action of selecting patients into the more intensive in-patient rehabilitation programme may, in itself, promote psycho- or biopathological processes affecting the patients' well-being, functional ability or disease activity. Hence at this stage it is difficult to attribute the enhanced value of the in-patient programme to the benefits of the intervention alone.

Measure of benefits used in the economic analysis

Since no clear-cut advantages emerged between the in-patient and out-patient groups, the main economic assessment was based on costs (cost-minimisation).

Direct costs

Costs were not discounted due to the short duration of the study (6 months). Quantities and costs were not stated separately. Direct costs included only the costs for rehabilitation consisting of out-of pocket costs to the patient and costs paid by the Social Insurance Institution (KELA). The average cost per patient was reported. No marginal costs were reported.
Statistical analysis of costs
The mean, standard deviation and P values of the two treatments were provided to compare the costs of the rehabilitation programmes.

Indirect Costs
Costs were not discounted. Quantities and costs were not reported separately. The human capital approach to costing was used and a societal perspective was adopted. Both the quantities of sick days, and the patients’ salaries used to value them, were based on actual data from KELA. The date to which the price data refer was not specified. Indirect costs also included the compensation paid to the patient's employer by KELA during the sick leaves.

Currency
Finnish markka (FIM). A conversion rate to US dollars was provided (1FIM = US$ 0.22).

Sensitivity analysis
No sensitivity analysis was performed.

Estimated benefits used in the economic analysis
Not applicable.

Cost results
Total in-patient costs amount to FIM 23,078.10 (+/- 5,699.14) per patient as against FIM 3,648.33 (+/- 2,813.70) per patient for the out-patient rehabilitation programme. Apart from one patient in the in-patient group who gained medical retirement for RA, no difference in working capacity or sick-days during follow-up occurred between the 2 groups over the six-month period. However, 2 years post rehabilitation, one in four (5/20) of the in-patient group and one in six of the out-patient group were medically pensioned off.

Synthesis of costs and benefits
Not applicable.

Authors’ conclusions
The two treatment modes showed improvements in different areas but, on balance, no clear differences emerged. The authors stated that patients with higher education levels and often less joint-disturbing work activities may benefit more from an intensive in-patient rehabilitation programme whereas those with less education and often more manually-orientated jobs are less likely to benefit from this procedure. Patients within the study who had manually-orientated jobs had a higher tendency to seek medical pensioning even after rehabilitation. As the total costs for the outpatient mode of treatment were 15.8% of the in-patient costs within the study, the tentative conclusion was that out-patient rehabilitation was an acceptable alternative to in-patient care for a select patient grouping, and that this type of care does not compromise clinical or vocational outcomes.

CRD COMMENTARY - Selection of comparators
A justification was given for the comparator used. The out-patient physiotherapy designed by the patient's rheumatologist was stated as a standard approach. You, as a user of this database, should consider whether this is a widely used technology in your setting.

Validity of estimate of measure of benefit
The selection process for the sample population was not explained, so it is not clear whether, for example, the patients within the study are representative of the RA population as a whole. It appears that patients were enrolled in the study because they attended the Helsinki University Central Hospital. Treatment received in training hospitals may be different to treatment obtained at other hospitals, the outcome being that the results obtained may not be externally valid. As the authors noted, blinding was not possible and this may result in biased estimates. The open selection of some of the patients to the in-patient programme, and the refusal of the social insurance institution to provide this treatment to all the patients may introduce a selection bias, and thus cause confounding. This problem was exacerbated due to the fact that randomisation was not possible. An attempt to avoid confounding was made by restricting the inclusion criteria for subjects entering the study (the 1987 ACR criteria). Also intergroup randomisation into sociodemographically similar groups was undertaken. The sample size was small and uneven between groups. Since a power calculation was not undertaken to ensure the adequacy of sample size, it is possible that a true difference was undetected due to lack of power (type II error). Overall, the internal validity of the benefit estimation appears to be low.

**Validity of estimate of costs**

Resource quantities were not reported separately from prices. The economic assessment was limited, and details on quantities and costing methodology were inadequate. Direct costs of programmes were not reported separately from indirect production losses, inclusion of which is a controversial issue. Also, it seems that, in addition to the human capital value of lost production due to sick leave, the related transfer payments from the Social Insurance Institution to the employers were included, which may lead to double counting and serious overestimation of indirect costs.

**Other issues**

The authors’ conclusions may not be fully justified. Although it may appear intuitively possible that the costs of the in-patient programme are higher than for out-patient care, masking the estimated direct costs with (possibly inappropriately estimated) indirect costs decreases the value of the empirical evidence supporting this conclusion. Also, there are serious concerns about both the internal and external validity of the clinical results.

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