Non-drug treatment (excluding surgery) in rheumatoid arthritis: Clinical practice guidelines

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Abstract

Objectives: Because drugs do not halt joint destruction in rheumatoid arthritis (RA), non-drug treatments are an important adjunct to drug treatment. Establishing rules governing their use is difficult because treatment is multidisciplinary, complex, and difficult to assess. The aims of these guidelines were to (a) establish the indications for physical therapies and for educational, psychological, and other non-drug interventions, (b) address social welfare, occupational, and organizational issues.

Methods: A systematic literature search (MEDLINE, EMBASE, CINAHL, Pascal, Cochrane Library, HTA database) (1985–2006) was completed with information obtained from specialty societies and the grey literature. A review of the studies meeting inclusion criteria, with evidence levels, was used by a multidisciplinary working group (18 experts) to draft guidelines. Consensus was reached when evidence was lacking on key topics. The draft guidelines were scored by 60 peer reviewers, amended when necessary, and then validated by the HAS Board.

Results: Of the 1819 articles retrieved, 817 were analysed and 382 cited in the report. Low-power randomized clinical trials constituted the highest level of evidence. Grade B guidelines (intermediate evidence level) concerned aerobic activities, dynamic muscular strengthening, and therapeutic patient education. Grade C (low evidence level) concerned use of rest orthoses or assistive devices, balneotherapy and spa therapy, self-exercise programmes, and conventional physiotherapy. Professional agreement (no scientific evidence) was reached for orthotic insoles and footwear, chiropody care, thermotherapy, acupuncture, psychological support, occupational adjustments, and referral to social workers.

Conclusion: Aerobic activities, dynamic muscular reinforcement, and therapeutic patient education are valuable in non-drug management of RA.

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Keywords: Exercise; Rehabilitation; Therapeutic patient education

1. Introduction

Rheumatoid arthritis (RA) is a chronic, inflammatory rheumatic condition that results in joint destruction. Recent progress has led to the use of drugs that curb the onset and progression of structural lesions but that do not halt the disease. Physical management is therefore potentially useful as an adjunct to medical and surgical treatment. Its main aim is to reduce pain, prevent and contain joint destruction, prevent the loss of function in daily activity and at work, and optimise quality of life [1].

Many non-drug treatments of RA are available but there are few rules governing their use. Because these treatments are difficult to assess, the literature is sparse. Our aim was to establish practice guidelines based on a systematic review of the available literature and the consensus opinion of a multidisciplinary
working group of experts. These guidelines should help patients with RA gain access to appropriate and coordinated management, whether relating to treatment or to social welfare and employment issues, and should facilitate the harmonization of the organisation of care.

2. Method

The guidelines were produced using a method developed by the Haute Autorité de Santé (HAS) [2]. A working group drafted the guidelines, which were submitted to external peer review and then validated by the HAS Board.

The following databases were searched over the period 1985–2006: MEDLINE, EMBASE, CINAHL, Pascal, Cochrane Library, National Guideline Clearinghouse, HTA database, and PEDRO. The keywords were “arthritis OR rheumatoid, rheumatoid arthritis” AND “guidelines OR practice guidelines OR health planning guidelines OR recommendations OR consensus development conference OR consensus conference OR meta-analysis OR systematic review OR controlled trial OR cohort study, longitudinal study OR follow up study”. These general keywords were combined with specific keywords relating to electrotherapy, nutrition, alternative medicines, spas, care networks, orthopaedics, quality of life, health economics, epidemiology, and patient-relationships. Further references were provided by specialty societies and working group members. The grey literature was also searched.

To be selected, an article had to concern a randomized controlled trial (RCT), be published between 1985 and 2006 (in French or English), be cited in systematic reviews, refer to adult RA patients (or a sundry population as long as the relevant subpopulation could be distinguished), and comply with the selection criteria of non-drug trials [3]. These criteria are an intention-to-treat analysis or a trial where the number lost-to-follow up is small and similar in both groups, a double-blind design, no difference between the groups in any treatments (in particular drug treatments) which were combined with the treatment under study, and the use of the following end-points: disease activity, pain, deficits in joints, muscles or bones, functional capacity, and quality of life.

The literature was reviewed and used to draft an evidence report (JAV and PG). Priority was given to RCTs included in clinical practice guidelines, systematic reviews, and meta-analyses that had been updated with the most recent RCTs. If no RCT was found on a specific topic, all available clinical trials were reviewed.

Each study was allocated an evidence level [4]. The grade of a guideline depended on the evidence levels of the studies (Table S1; see the supplementary material associated with this article online). When no grade could be allocated, working group members attempted to reach “professional agreement” on specific topics.

The working group was chaired by a university hospital clinician (AMB). Its 18 members were from either the hospital or independent sector (rheumatologists, physicians specializing in physical medicine and rehabilitation, physicians specializing in occupational health, general practitioners, physiotherapists, occupational therapists, a chiropodist-podologist, psychologists, a social worker, and a representative of a patient association).

The working group drafted a first version of the guidelines on the basis of the supporting evidence in the report [5] and by consensus voting (at least 15 out of the 18 members in agreement). These draft guidelines were submitted to 60 peer reviewers who scored each recommendation on a Likert scale from 0 (completely disagree) to 9 (completely agree). Recommendations allocated scores between 7 and 9 by fewer than 85% of the peer reviewers, as well as those prompting many comments, were revised by the working group (either modified or deleted). In particular, those with a higher than 10% rate of 1 to 3 scores were deleted. The final guidelines were validated by the Scientific Council of HAS.

After validation of the guidelines, a small group (n = 7) of working group members agreed on a list of 10 criteria for practice appraisal that would facilitate guideline implementation.

The plan of the evidence report and the presentation of the guidelines were the result of a common pragmatic choice.

3. Results

A total of 1819 articles were retrieved, of which 817 were analysed and 383 were cited in the evidence report. The main reasons for article rejection were: article not meeting one of the inclusion criteria, article that was a general review, article rejected in an earlier well-conducted systematic review, and article with no clinical data.

Recommended treatments are summarized in Table 1. A grade is given for each indication. The full evidence report is available on the HAS website (www.has-sante.fr) [6].

3.1. Global management of RA

There are a wide variety of non-drug treatments for RA including physical treatments, educational, psychological and dietary interventions, and less common treatments such as acupuncture or physiotherapy (Fig. 1).

Non-drug management depends not only on the stage and progression of the disease but on the patient’s personality, environment and objectives. It depends on clinical assessment and must be regularly adjusted (Table 1).

3.1.1. Physiotherapy: passive techniques

Massage should not be used on its own (professional agreement).

Passive mobilisations and postural exercises should be used to maintain or restore range of motion (professional agreement).

3.1.2. Physiotherapy: active techniques

Strengthening exercises are recommended at all stages of RA (grade B) [7–12].

Strengthening exercises should be adapted to the patient’s general health and to the joint defect. They are indicated in all patients with RA but in particular in patients with an isolated or global decrease in muscular strength. The following methods are effective (evidence level 2):
Table 1
Indications for non-drug interventions as a function of therapeutic objectives.

<table>
<thead>
<tr>
<th>Non-drug intervention</th>
<th>Interventions</th>
<th>For the purposes of analgesia</th>
<th>Targeting the joints</th>
<th>Targeting the muscles</th>
<th>For functional purposes</th>
<th>For educational purposes</th>
<th>For psychological purposes</th>
<th>For social welfare &amp; occupational purposes</th>
<th>With other objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommended(^a) in all patients</td>
<td>–</td>
<td>Self-exercise (hands++)(^d)</td>
<td>Aerobic activities(^B)</td>
<td>Aerobic activities(^B)</td>
<td>Information(^PA)</td>
<td>Assessment of psychological status(^PA)</td>
<td>–</td>
<td>Request for 100% insurance cover (long-term disease)(^PA)</td>
<td>Giving contact details of patients’ associations(^PA)</td>
</tr>
<tr>
<td>Orthoses(^C) Chiropody-podology including footwear</td>
<td>–</td>
<td>Techniques to increase amplitude(^e) including balneotherapy(^PA)</td>
<td>Orthoses(^C) Chiropody-podology(^PA)</td>
<td>Dynamic and/or isometric muscular strengthening(^B)</td>
<td>Adaptation of aerobic activities with or without load-bearing, including balneotherapy(^C)</td>
<td>Adaptation of aerobic activities(^B)</td>
<td>Occupational therapy(^PA)</td>
<td>Orthoses(^C) Global physiotherapy(^A) programmes(^C)</td>
<td>Orthoses(^C) Chiropody-podology(^PA)</td>
</tr>
<tr>
<td>Possible adjuvant treatment(^b)</td>
<td>Balneotherapy(^C) Massage(^PA) Physical therapy(^PA) Acupuncture(^PA)</td>
<td>Massage(^PA) Physical therapy(^PA) Posture therapy(^PA)</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) Grading of the recommendations: A: grade A; B: grade B; C: grade C; PA: professional agreement.

\(^b\) Adjuvant treatment: medicinal or non-medicinal treatment combined with the recommended treatment in the case of insufficiency, failure or intolerance of the latter, or if it facilitates the use of the recommended treatment.

\(^c\) Techniques to gain amplitude: autopostures, active aided mobilisations, passive mobilisations; postures if the former have failed.
Fig. 1. Use of techniques in treatment strategy according to disease activity and stage.

<table>
<thead>
<tr>
<th>ACTIVE RA</th>
<th>Inflammatory flare-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Priority goal: prevent joint deformities and loss of muscle strength</td>
<td></td>
</tr>
<tr>
<td>- physiotherapy</td>
<td></td>
</tr>
<tr>
<td>- assisted active or passive joint mobilisation</td>
<td></td>
</tr>
<tr>
<td>- isometric strengthening against manual resistance, below pain threshold</td>
<td></td>
</tr>
<tr>
<td>- occupational therapy</td>
<td></td>
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<tr>
<td>- red splints</td>
<td></td>
</tr>
<tr>
<td>- +/- assistive devices</td>
<td></td>
</tr>
<tr>
<td>- heat treatment</td>
<td></td>
</tr>
<tr>
<td>- psychological management</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STABLE RA</th>
<th>Established RA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Priority goal: help patients accept their disease and prevent functional repercussions</td>
<td></td>
</tr>
<tr>
<td>- psychological management</td>
<td></td>
</tr>
</tbody>
</table>
| - therapeutic patient education (joint protection +++)
| - physical activities |
| - home exercises |
| - +/- preventive plantar insoles |
| - +/- social worker and workplace doctor |
| - +/-: increase joint amplitude, isometric or dynamic strengthening and aerobic activities |
| - postural adaptation, balneotherapy |
| - occupational therapy |
| - assistive devices |
| - +/- adaptation of environment |
| - functional orthoses |
| - thermotherapy: insoles and toe spirts, chiropody and footwear |
| - therapeutic patient education |
| - psychological management |
| - +/- social worker and workplace doctor |
| - +/-: spa treatment |
| - +/-: analgesic physiotherapy |

At all stages
- propose contact details of patients' associations

<table>
<thead>
<tr>
<th>In forms with complications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Priority goal: improve autonomy in daily life</td>
</tr>
<tr>
<td>- occupational therapy</td>
</tr>
<tr>
<td>- assistive devices +/- adaptation of the environment</td>
</tr>
<tr>
<td>- palliative functional orthoses</td>
</tr>
<tr>
<td>- chiropody-orthotic: palliative insoles and toe spirts and adapted footwear, chiropody</td>
</tr>
<tr>
<td>- +/-: spa treatment</td>
</tr>
<tr>
<td>- physiotherapy: reduce the consequences of joint destruction</td>
</tr>
<tr>
<td>- social worker: invalidity and assistance in the home</td>
</tr>
<tr>
<td>- +/-: psychological management</td>
</tr>
</tbody>
</table>

- analytical or global strengthening exercise programme;
- isometric or dynamic, including isokinetic, strengthening;
- moderate or high-intensity strengthening (50–80% of the maximum voluntary contraction).

Dynamic strengthening is well tolerated. It does not reactivate RA nor accelerate radiological joint destruction (evidence level 2). However, mechanical strain should be placed with caution on severely damaged joints as adequate data, especially long-term data, are lacking on this point (professional agreement). Thus, when a joint is the site of major destruction or of an inflammatory flare-up, the peri-articular muscles should be strengthened (professional agreement):

- under isometric conditions;
- against light or moderate resistance;
- with load alleviation in the case of weight-bearing joints;
- taking account of the pain threshold.

All patients with RA should carry out regular aerobic physical activities for cardiopulmonary endurance (grade B), adapted to their general health and to the condition of their heart and joints [13–15]. Moderate or high-intensity aerobic activities (60–85% of maximum heart rate), including weight-bearing activities with a moderate impact on the joints, are recommended for patients with stable RA (grade B) and even for patients with active RA (professional agreement).

Aerobic activities contribute to lessening comorbidity, in particular cardiovascular comorbidity. They have no impact, in particular no negative impact, on disease activity nor on radiological joint destruction (evidence level 4) [19,20].

When the RA is very active or when there is severe involvement of the joints of the lower limbs, aerobic activities with low impact on the joints or with load alleviation should be preferred. In the event of flare-up, these restrictions are only temporary and are adjusted to the patient's clinical status (professional agreement).

Physiotherapy techniques to maintain mobility (transfers, walking) are recommended for all severe cases with restricted daily life activities (grade C) [16,17].

3.1.3. Balneotherapy and spa therapy

Balneotherapy may be offered as an adjunct to active (grade C) or passive physiotherapy techniques, in particular when load alleviation is required.

Balneotherapy uses the physical properties of water. It covers all passive or active rehabilitation techniques that are carried out during immersion in warm water. It is well tolerated, at least outside of episodes of highly inflammatory flare-up. The pool should be deep enough for total immersion of the body so that exercises are performed without load-bearing. A balneotherapy course has proven efficacy on functional capacity and several quality of life criteria (evidence level 2) [18]. However, even though pain, muscular force, and aerobic capacity have been shown to improve after balneotherapy, these effects were inconsistent in group comparisons (evidence level 4).

Spa therapy appears to provide an analgesic and functional benefit to patients with stable or long-established and non-
3.1.4. Use of physical agents

Physical agents should not be used on their own. They should be used as adjuvant treatment to physiotherapy or to symptomatic analgesic treatment, after assessment with the patient of the ‘expected benefit versus constraints’ ratio (professional agreement).

Physical agents should not be prescribed without considering their rather modest and short-lasting benefits, and their disadvantages (compliance constraints, equipment cost, potential side-effects).

Heat treatment and ultrasound have low levels of evidence (level 4) [19,20]. Transcutaneous analgesic electrostimulation using very-low frequency high-intensity currents exerts a short-term analgesic effect on the hands (evidence level 2) [21,22], but is less well tolerated by the patient than conventional TENS type currents (evidence level 4). The only electromagnetic waves therapy that has been studied is laser therapy [23]. Its effect on pain and morning stiffness of the hands is modest and of short duration after 4 weeks of treatment (evidence level 2). Ionisation therapy should not be used because of the increased risk of burns due to skin fragility secondary to corticosteroids (professional agreement).

3.1.5. Treatments for the hand and wrist

Every patient with RA should benefit from an educational programme on joint protection that is adapted to the disease stage, patient, and environment (grade B).

Most of these educational programmes on joint protection, but not all, deal with manual activities. They are effective on morning stiffness, pain, and functional capacity (evidence level 2) [24,25]. They include:

- movement training to facilitate daily manual work by decreasing pain and reducing strain on the joint, prevent deformity, and maintain functional capacity;
- a self-exercise programme for hands;
- provision of information on assistive devices, means of adapting the environment, and the value, use, and handling of orthoses.

Every patient whose hands are affected by RA should do regular exercises for the hands (grade C) [26].

The exercises are taught by a health professional and then carried out by the patients on their own (professional agreement). Hand exercises are indicated in order to:

- maintain articular range of motion (evidence level 4);
- improve muscle strength (evidence level 2) [31];
- prevent ankylosis of reducible deformities (professional agreement);
- reduce functional incapacity (professional agreement).

Assistive devices should be used to facilitate the carrying out of daily activities that are painful or difficult (grade C).

Adapting the environment is recommended in cases of severe and definitive functional incapacity (professional agreement).

Rest orthoses should be prescribed for flare-ups involving local inflammation of the hands (grade C) [24], functional orthoses to facilitate the carrying out of daily activities (professional agreement), and corrective orthoses to correct deformities that may be reduced (professional agreement).

The most common rest orthosis is a global static orthosis for the wrist, hand and fingers. Its preventive effect on deformities has not been demonstrated outside of flare-ups.

Every patient with RA should be referred, if required, to an occupational therapist (professional agreement).

The occupational therapist will teach the patient how to protect joints (body movement, sparing joints), will choose or make assistive devices, and adapt patient environment.

3.1.6. Treatments for the feet

Every patient with RA should be informed of the rules of foot hygiene and of the potential benefit of referral to a chiropodist or podologist. Feet, footwear and orthoses should be regularly examined (professional agreement).

Customized orthotic insoles are recommended in case of weight-bearing pain or static foot problems (professional agreement).

Customized toe splints may be preventive, corrective or palliative to enable the wearing of shoes (professional agreement).

Patients should be advised about footwear (professional agreement). Extra-wide off-the-shelf shoes or therapeutic shoes thermoformed on the patient’s foot are recommended when the feet are deformed and painful, or if it is difficult to put on shoes (grade C) [27]. Such shoes reduce pain on walking and improve functional capacity (evidence level 4). Off-the-shelf therapeutic thermoformed shoes for prolonged use are indicated when other types of footwear have failed. Palliative customized therapeutic shoes may be prescribed when the feet are seriously affected.

A chiropodist-podologist should be consulted to treat nail anomalies and hyperkeratoses on the feet of patients with RA (professional agreement) [28].

3.2. Indications for therapeutic patient education and psychological management

3.2.1. Informing the patient

The patient should be informed as soon as the diagnosis of RA is made. The information should be personalised and coordinated by the rheumatologist and the GP in charge of the patient (professional agreement) [29].

3.2.2. Therapeutic patient education

Every patient with RA should be offered therapeutic patient education (grade B) [30].

Therapeutic patient education is complementary to medical management and, whenever possible, is carried out by a multidisciplinary team. It is carried out with the agreement of the rheumatologist and the GP. Therapeutic patient education helps patients:
• know and understand the disease and its treatment (drug and non-drug);
• acquire the movements that protect joints;
• establish changes in lifestyle (diet, physical activity programme, etc.);
• learn to cope with their disease and the problems it causes;
• involve relatives in disease management, treatment, and any repercussions.

Therapeutic patient education has proved its efficacy in improving quality of life in patients with RA (evidence level 2). However, the observed benefits with respect to pain, functional capacity, and coping are of weak clinical relevance.

3.2.3. Psychological interventions

Clinical management of any patient with RA should always take the psychological impact of the disease into account (professional agreement).

The patient decides whether to see a psychologist or psychiatrist, after taking advice from the GP or specialist (professional agreement). The choice of intervention must be tailored to the patient. Interventions indicated in RA are:

• cognitive and behavioural therapies to improve the patient’s perception of their disease and their ability to cope (evidence level 2) [31];
• psychodynamic interventions to take into account the affective impact of the disease (professional agreement).

3.3. Indications for other non-drug interventions

3.3.1. Dietetics

Diets to control pain or disease activity, including diets rich in omega 3 [32], are not recommended to patients with RA on account of their inconsistent and modest clinical efficacy on pain and stiffness and the risk of deficiencies induced by unbalanced diets (grade B). Exclusion diets to control pain or disease activity, in particular diets deficient in dairy products, are not advised (professional agreement).

Nevertheless, appropriate dietary measures are necessary to correct nutritional deficiencies and prevent or treat comorbidities (overweight, osteoporosis, cardiovascular disease, diabetes), some of which can be iatrogenic and due to corticosteroids (professional agreement).

3.3.2. Acupuncture

Acupuncture may be offered as an adjuvant treatment for chronic pain (professional agreement) [33].

3.3.3. Osteopathy

Osteopathy is not recommended in RA (professional agreement).

3.4. Social security benefits

No studies were found in the literature. All the recommendations in this section are the result of professional agreement and concern the French social welfare, employment, and health systems.

3.4.1. Request for relief from patient contributions

After discussion with the patient and their agreement, the GP should send off the request for relief from patient contributions as soon as a rheumatologist has confirmed the patient’s eligibility to the French chronic conditions (ALD) scheme.

The GP and rheumatologist should produce the care protocol together.

3.4.2. Informing the workplace doctor

An appointment should be arranged for the patient with the workplace doctor as soon as the RA has notable and persistent repercussions on the patient’s job, but only after discussion with the patient and her/his agreement.

3.4.3. Applying for disabled worker status

Patients should be advised to apply for disabled worker status as soon as they can no longer hold their job under the usual conditions or have to ask for adaptations because of a lasting deterioration in their physical abilities.

3.4.4. Invalidity or early retirement

When the stable state of the patient’s health requires total or partial cessation of work, an appointment should be made with a social worker before embarking on the procedures to obtain invalidity status, early retirement, or retirement due to incapacity.

3.5. Quality criteria for self-assessment and practice improvement

Quality criteria (Table S2; see the supplementary material associated with this article online) help practitioners identify the measures to be implemented for practice appraisal. A review of the patient’s file – the first self-assessment – will reveal strengths but also highlight the points that need to be improved with regard to good practice standards. The practitioner will identify what needs to be done to meet these standards and implement the chosen measures. A second self-assessment will enable the measurement of the impact of these measures on practice. The rationale underlying the quality criteria can be found on the HAS website [34].

4. Conclusion

The critical review of the literature has revealed the value of aerobic activity and active muscle strengthening in patients with RA [35]. These were not advised in France in the past but, in view of the evidence that has been generated, are now recommended. The review also revealed the value of patient therapeutic education.

The present recommendations for non-drug management of RA have considered therapeutic objectives, expected disease course, and disease progression. Physical treatments, dietary, educational and psychological interventions, and social welfare
and occupational measures are an adjunct to drug treatment and surgery, and should always be considered when drawing up a global treatment plan. A doctor specialising in physical and rehabilitation medicine should preferably coordinate the multidisciplinary management required, jointly with a rheumatologist and a general practitioner. As plan implementation is complex, care networks of medical and allied health professionals are valuable. Organisation of care presents shortcomings in France, despite efforts that are made locally. Future research and actions should target access to care, updates on the modalities of physical treatments for caregivers, and in particular the standardisation of therapeutic education programmes. Rigorous studies must also be carried out to validate non-drug interventions that are considered to be marginal because they have never been assessed.

Conflicts of interest

The authors have no conflicts of interest to declare.

Acknowledgements

The HAS thanks all the health professionals and patient representatives who helped develop these guidelines (see Appendix B, for list).

Appendix A. Supplementary data

Supplementary material (tables S1 and S2) associated with this article can be found at http://www.sciencedirect.com, at doi:10.1016/j.jbspin.2009.01.017.

References


