Guidelines and audit measures for the specialist supervision of patients with rheumatoid arthritis

REPORT OF A JOINT WORKING GROUP OF THE BRITISH SOCIETY FOR RHEUMATOLOGY AND THE RESEARCH UNIT OF THE ROYAL COLLEGE OF PHYSICIANS

Introduction

Rheumatoid arthritis is one of the major arthritic problems requiring specialist advice and treatment in the United Kingdom [1–3]. The guidelines in this report are based on the deliberations of a joint working group of the British Society for Rheumatology and the Research Unit of the Royal College of Physicians. The working group met on 5 July 1990 and considered two previously circulated background papers on rheumatoid arthritis (by Dr Hilary Capell and Professor Verna Wright) and two other background papers on the viewpoints of general practitioners and patients (by Dr Colin Leon and Mrs Jean Gaffin). Circulation of these papers in advance allowed adequate time for discussion at the meeting. Draft guidelines and audit measures were prepared and after circulation and subsequent correspondence between members of the group they were revised and are presented here.

Diagnosis of rheumatoid arthritis

The diagnosis of rheumatoid arthritis should be based on the revised criteria of the American College of Rheumatology [4] (Table 1). The early diagnosis of rheumatoid arthritis disease is important, although this may be difficult at the onset of symptoms. Early specialist referral is often advantageous. A variety of other potential diagnoses must be distinguished from rheumatoid arthritis (Table 2). The duration of the disease is important for determining the management of patients. In the early and middle term there is an opportunity to try and reduce joint destruction and control the disease process. In later cases, when extensive joint damage may be present, symptomatic control is more important, coupled with attempts to reduce or reverse disability and handicap by employing a team approach to management. In broad terms, early disease is that which occurs within the first three years of diagnosis, though some members of the working group thought early disease should be limited to within one year of diagnosis. The general principles of management are similar in both stages.

Table 1. Criteria for the classification of rheumatoid arthritis [4].

| Four or more of the following criteria should be present: |
|----------------------------------------------------------|
| Morning stiffness                                        |
| Arthritis of three or more joint areas                   |
| Arthritis of hand joints                                 |
| Symmetrical arthritis                                    |
| Rheumatoid nodules                                        |
| Serum rheumatoid factor                                  |
| Radiographic changes                                     |

Epidemiology

Rheumatoid arthritis is a common disorder. Population studies suggest that it occurs in at least 1% of the adult population [2,5–7]. It is three times more frequent in women than in men. Its prevalence increases with age and as many as 5% of women over the age of 70 may have rheumatoid arthritis.

Resources required for management

Patients should have access to consultant rheumatological advice. The treatment of definite active rheumatoid arthritis should be shared between general prac-

Table 2. Principal differential diagnoses of rheumatoid arthritis.

| Osteoarthritis                                      |
| Psoriatic arthritis                                |
| Crystal synovitis such as gout or pseudogout       |
| Systemic lupus erythematosus and other connective tissue diseases |
| Post-infectious arthritis, especially those seen after viral infections |
| Seronegative spondyloarthropathies such as ankylosing spondylitis |
| Rare forms of arthritis such as amyloid arthritis  |
tice and specialist units. There should be access to dedicated inpatient facilities where these are needed.

Specialist rheumatology nurses and paramedical staff play a significant part in the management of rheumatoid arthritis. They should act together as part of a multidisciplinary team which should include physiotherapists and occupational therapists with rheumatological skills. Access to orthopaedic surgery is also mandatory, and there should be close collaboration between rheumatologists and surgeons.

Basic clinical and laboratory information

To establish the diagnosis and assess disease severity and activity, it is important to collect a minimum set of clinical and laboratory data (Table 3). There was debate among the working group as to the best measures of functional ability to use but recording the Steinbrocker [8] grade is a minimal requirement. This grades patients from stage I (minimal disease) to stage IV (housebound). The Health Assessment Questionnaire [9] and the Arthritis Impact Measurement Scale [10] are both considered suitable as more detailed alternatives.

General principles of medical management

Patients with rheumatoid arthritis need a combination of pharmacological treatment and supportive therapy. The latter includes referral to appropriate voluntary organisations, education about the disease and its impact on family life, work, education and social opportunities, and the provision of appropriate aids and appliances, and physiotherapy.

During acute severe flares in the disease activity, patients may require hospital admission and even bed rest. There is also a need for surgical treatment in selected cases.

Symptomatic treatment

Most patients require non-steroidal anti-rheumatic drug therapy. The smallest dose of a non-steroidal anti-inflammatory drug that alleviates pain and stiffness should be used [11]. Many patients develop side-effects, especially related to the gastrointestinal tract [12]. Careful monitoring and encouraging patients to report side effects through easy access to the prescribing physician or rheumatology nurse is advantageous. There are special risks with these drugs in the elderly, particularly elderly women where they may best be avoided if possible. Early investigation of dyspepsia or iron deficiency is important in order to minimise symptoms or treat identifiable ulceration; either H2 antagonists or prostaglandin preparations such as misoprostol are appropriate for this purpose [13,14]. In some instances, renal impairment or fluid retention requires prompt attention.

There is no reason to prefer one anti-inflammatory drug over another in most patients with rheumatoid arthritis. Clinicians should use the agents with which they have most experience. Analgesics should be used as an adjunct to non-steroidal anti-inflammatory drugs. Either paracetamol alone or in a combination such as co-proxamol is appropriate therapy [15].

Treatment with slow-acting anti-rheumatic drugs

Slow-acting anti-rheumatic drugs, also known as second-line or disease-modifying drugs, include gold (given in injectable or oral formulations), penicillamine, sulphalazine, methotrexate, antimalarials and related compounds [16-18]. There are various schools of thought about their use and opinion among the working group was not unanimous on precise treatment policies. Aggressive disease or the early onset of erosions indicates a need for more rapid treatment with a slow-acting anti-rheumatic drug [19]. A minority opinion is that the earliest possible introduction of the slow-acting anti-rheumatic agent should be advocated [20], though this remains a controversial subject [21]. It has the drawback of giving potentially toxic drugs without adequate justification to many patients who might do well without needing them or who only have a transient synovitis. It may also exhaust the limited number of drug options at an early stage, with subsequent difficulties in controlling aggressive disease later. But early treatment with these drugs may control the disease before erosions develop, and limit its progression. Most members of the working group preferred a traditional approach, in which initial treatment to control symptoms with a non-steroidal anti-inflammatory drug is followed by treatment with a slow-acting anti-rheumatic drug in patients who have persistently active disease.

The choice of slow-acting anti-rheumatic drugs in early disease is difficult and the working group remain divided on the best agent to use. Meta-analysis of clinical trials [22] has shown that the antimalarials, hydrox-

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Table 3. Initial assessment of rheumatoid arthritis.

- Extent of joint pain
- Presence of joint swelling
- Distribution of joint involvement
- Presence of extra-articular features such as nodules
- Functional evaluation
- Radiography of hands and feet, and other joints with specific problems
- Full blood count
- Measurement of serum rheumatoid factor
- Measurement of acute phase response (ESR or equivalent)

Some members of the working group thought it appropriate to estimate plasma electrolytes and urea, and liver function.
chloroquine and chloroquine, and auranofin are less active drugs, especially in erosive disease; sulphasalazine, penicillamine, methotrexate or gold injections are appropriate for prompt introduction in patients with erosions and particularly those who are seropositive with a high ESR. Gold injections may give more adverse reactions than other drugs. This type of analysis is potentially biased by only reviewing small studies of some drugs. Recommended therapeutic regimens for these drugs are summarised in Table 4. Whichever therapy is chosen, it is important to be realistic about the degree of anticipated change [23,24]. While they produce short-term benefit, there is insufficient evidence to show that they control the long-term morbidity of rheumatoid arthritis which develops over 10–20 years [25,26], although patients benefit whilst receiving these drugs.

Monitoring treatment with slow-acting antirheumatic drugs

Patients taking these drugs require monitoring. This usually includes clinical assessment, urine analysis for blood and protein, and a full blood count including differential white cell count and platelet count. The exact monitoring policy varies from drug to drug (Table 4) but it is usually monthly. Hydroxychloroquine and chloroquine require assessment of potential ophthalmic toxicity [27]. Monitoring and continued prescribing may be shared between specialist units and general practitioners. Local systems of care should be devised so that there is no failure to follow up individual cases. Patients should be given information leaflets about these drugs when they first receive them. Copies of essential laboratory information may usefully be given to patients to help with effective liaison between hospitals and community-based health professionals.

Cytotoxic drugs and steroids

Most members of the working group thought cytotoxic drugs, such as azathioprine and cyclophosphamide, should not normally be used in early disease as their risk/benefit ratio may be less favourable than that of slow-acting drugs. Methotrexate may be an exception to this; it is considered to have a rapid onset of action with relatively few adverse effects [28], though they may be more frequent than initially anticipated [29]. Potent cytotoxic drugs such as cyclophosphamide are usually reserved for patients with extra-articular disease. Azathioprine is used to control the synovitis when other slow-acting drugs have not been effective. A minority of the working group thought cytotoxics could be used more frequently without any untoward risks.

The judicious use of intra-articular steroids to control the symptoms of individual active joints is a useful adjunct to other therapies. Some rheumatologists use systemic steroids (prednisolone 5–7.5 mg daily) during the induction phase of therapy with slow-acting antirheumatic drugs [30], but most do not take this approach. Most members of the working group felt that treatment with high doses of steroids, in the first two or three years of the disease, is not indicated in early disease, with the exception of elderly patients whose disease started after the age of 70 years [31]. A small number of rheumatologists advocate early and

| Drug                          | Usual dose               | Monitoring                                      | Effectiveness | Toxicity     |
|-------------------------------|--------------------------|-------------------------------------------------|---------------|--------------|
| Gold injections (sodium aurothiomalate) | 50 mg weekly – 50 mg monthly | Full blood count and urinalysis                  | Good          | Moderate to high |
| D-penicillamine               | 250–500 mg daily         | Full blood count and urinalysis                  | Good          | Moderate     |
| Sulphasalazine                | 0.5–2 g daily            | Full blood count                                | Good          | Moderate     |
| Methotrexate                  | up to 7.5 mg weekly      | Full blood count                                | Good          | Moderate     |
| Oral gold (auranofin)         | 6–9 mg daily             | Full blood count and urinalysis                  | Moderate      | Low          |
| Chloroquine                   | 125–250 mg daily         | Ophthalmic examination                           | Moderate      | Low          |
| Hydroxychloroquine            | 200–400 mg daily         | Ophthalmic examination                           | Moderate      | Low          |

Meta-analysis of Felson et al [22] was used as basis for defining effectiveness and toxicity. Some members of the working group use higher doses of some of these drugs such as penicillamine and methotrexate.
long-term treatment with low doses of steroids (less than 10 mg daily). There was not general support for this approach among members of the working group because of the risk of inducing iatrogenic Cushing's syndrome, though the risk/benefit ratio may be more favourable for corticosteroids than is often supposed.

Special problems in the management of late disease

Pain due to joint damage is more pronounced in late disease and functional impairment is also marked due to mechanical problems. Articular pain requires a greater use of analgesics. As in early disease, the most appropriate analgesics are either paracetamol alone or in combinations such as co-proxamol. There are also secondary problems due to anaemia, depression and malnutrition, with associated extra-articular complications such as scleritis or vasculitis.

Slow-acting antirheumatic drugs such as gold and penicillamine are equally effective in controlling disease activity in late rheumatoid arthritis as in the early stages of the disease [32] but it is unlikely that at this time they limit progression of joint damage [25,26,33]. Severe extra-articular features such as vasculitis may need to be treated with either systemic steroids or cytotoxic agents such as cyclophosphamide. Cytotoxic drugs such as azathioprine as well as cyclophosphamide may be used in refractory cases failing to respond to other forms of treatment [34]. This is more likely in severe disease requiring high doses of corticosteroids.

Supportive therapy and education

Patients need support, counselling and education from hospital medical staff, nurses, paramedical staff such as physiotherapists, occupational therapists and from their general practitioners. Information given to patients about their disease should be both verbal and written and should include details about the treatment and prognosis. Specialist units should have a defined policy for treating rheumatoid arthritis and this should be known by junior medical staff, specialist rheumatology nurses and paramedical staff. It should include understanding transport and access problems relating to hospital visits. Patient educational material from organisations such as the Arthritis and Rheumatism Council and Arthritis Care should be available.

Assessing disease progression

Patients should have formal assessments of their disease progression at least once a year at a specialist visit. (Table 5).

Provision of aids and appliances

Patients should have access to occupational therapists and chiropodists and should have appropriate aids and appliances, including footwear, after they have been assessed by these members of the paramedical staff either in hospital departments or within the community.

Audit measures for the supervision of rheumatoid arthritis

| Function (Steinbrocker or Health Assessment Questionnaire) |
|----------------------------------------------------------|
| Disease activity (record of swollen or tender joints; duration of morning stiffness; articular pain; measure of acute phase response) |
| Assessment of effectiveness of drug therapy and adverse effects |
| Determining presence of extra-articular disease such as vasculitis |

The place of surgery

Surgical intervention is indicated for pain and disability. There is a need for close collaboration between rheumatologists and orthopaedic and hand surgeons, together with physiotherapists and occupational therapists. Paramedical staff have a particularly important role in patients undergoing surgery to facilitate functional improvement. Before being given a general anaesthetic, patients should have their general health assessed, an X-ray of their cervical spine to check for atlantoaxial instability, a full blood count and significant skin ulcers excluded. Patients should have access to a range of appropriate surgical interventions, including replacement of major joints, hand surgery and foot surgery, and cervical spine surgery (for highly selected cases).

Outcome measures

A chronic disease such as rheumatoid arthritis can lead either to disability or to premature death [35-38]. The important causes of disability are destruction of the major joints such as the hip or knee, the destruction of multiple small joints, the presence of a significant extra-articular feature such as vasculitis, persisting uncontrolled disease activity, and drug toxicity [38]. Mobility is one aspect of function and can be assessed using standardised indices such as the Health Assessment Questionnaire. Patients’ views of their progress and their satisfaction with treatment are also important.

Medical audit

Appropriate audit measures are suggested in Table 6.

The place of guidelines

Clinical guidelines are published as they may help doctors by providing an analytical framework for the evalu-
Table 6. Suggested audit measures

**Structure**

- Availability of consultant rheumatologists (recommended that there should be at least one consultant in each district)
- Availability of specialist nursing, physiotherapy, occupational therapy, and chiropody staff
- Access to inpatient beds (should be at least 10–14 beds for rheumatology in each district)
- Access to surgery and combined rheumatology and orthopaedic clinics
- Collaboration established between GPs and hospital specialists, including jointly written protocols of shared management
- Physical accessibility of rheumatology department and associated departments such as physiotherapy and occupational therapy

**Process**

1. Does the patient diagnosed as having rheumatoid arthritis fulfil the diagnostic criteria listed in Table 1?
2. Were appropriate initial assessments made (see Table 3)?
3. Has there been rational use of analgesics and anti-inflammatory drugs?
4. Were slow-acting antirheumatic drugs used with appropriate monitoring policies?
5. Were cytotoxic drugs and steroids used in refractory cases?
6. Did patients receive educational advice?
7. Did patients see occupational therapists and physiotherapists?
8. Did patients see chiropodists and have the correct footwear?
9. Were splints and aids for daily living supplied?
10. Were patients referred for surgical review when necessary?
11. Were appropriate assessments made of progression (see Table 5)?
12. Was there delay in referral for specialist advice?
13. Was there delay in starting treatment with slow-acting antirheumatic drugs?

**Outcomes**

- Death
- Destruction of major joints (e.g., hip, knee)
- Development of major extra-articular complication (e.g., vasculitis leading to gangrene)
- Inability to work
- Loss of independence
- Serious drug reaction (e.g., renal failure, perforated ulcer and pancytopenia)
uation and treatment of some common clinical problems. They are not intended to replace a doctor’s clinical judgement, and are not necessarily the only way in which a particular condition can be managed. They do, however, provide a framework within which audit and review of clinical practice can take place. The guidelines reflect the views of the individual clinicians and other workers who attended the workshop.

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Members of the joint working group

Dr Hilary M. Capell, Consultant Rheumatologist, Centre for Rheumatic Diseases, Glasgow Royal Infirmary; Dr Nigel Cox, Consultant in Rheumatology and Rehabilitation, Royal Hampshire County Hospital, Winchester; Dr Peter Dawes, Consultant Rheumatologist, Haywood Hospital, Stoke-on-Trent; Professor Paul Dieppe, Consultant Rheumatologist, Bristol Royal Infirmary; Dr J. Gedney, Royal College of General Practitioners; Dr Ian Griffiths, Consultant Rheumatologist, Royal Victoria Infirmary and Freeman Hospital, Newcastle-upon-Tyne; Dr Ian Haslock, Consultant Rheumatologist, South Cleveland Hospital, Middlesbrough; Dr Anthony Hopkins, Director, Research Unit, Royal College of Physicians (Organiser); Dr John Kirwan, Consultant Senior Lecturer in Rheumatology, Bristol Royal Infirmary; Dr C. Leon, Adviser in General Practice, Felling Health Centre, Gateshead; Professor Tiny Maini, The Mathilda & Terence Kennedy Institute of Rheumatology, London; Dr David L. Scott, Consultant Rheumatologist, St Bartholomew’s Hospital, London (Organiser); Dr Tim Spector, Senior Registrar in Rheumatology, St Bartholomew’s Hospital, London; Professor Verna Wright, Consultant Rheumatologist, Rheumatism Research Unit, Leeds; Dr Adam Young, Consultant Rheumatologist, St Albans City Hospital; Ms K. Baillie, Executive Secretary, British Society for Rheumatology; Ms Victoria Frampton, Physiotherapist, Canterbury and Thanet Health Authority; Mrs Jean Gaffin, Chief Executive, Arthritis Care; Mrs Nora Price, Physiotherapist, Mid-Staffs Health Authority.

The background papers submitted to the working group are available from the Publications Department, Royal College of Physicians, 11 St Andrews Place, Regents Park, London NWI 4LE, on payment of £4.00 for the set to cover costs of photocopying and postage.

Audit measures for the supervision of rheumatoid arthritis

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