Patients diagnosed with rheumatoid arthritis face a lifelong condition that can be physically and emotionally debilitating. Moreover, the medications required for treatment can have serious and even life-threatening side effects. The role of nurses caring for patients with rheumatoid arthritis is to provide support through education about the disease process, treatment regimens, and identifying treatment response. A major goal for nurses must be assisting patients in forming a self-management plan. Patients should learn the difference between pharmacological and nonpharmacological treatment options, understand that rheumatoid arthritis is a lifelong, chronic illness that will need continual reassessment, and partner with their healthcare team to receive optimal benefit. Regularly documenting patients’ medications, pain scores, and ability to perform activities of daily living are only small parts of the nurse’s role. Counseling, case management, identification of psychosocial issues, and assisting patients with selecting appropriate complementary therapies and alternative treatment options are significant responsibilities of rheumatology nurses. Patients with rheumatoid arthritis require careful screening and laboratory testing prior to initiating drug therapy and while treatment continues. The advent of biologics has dramatically changed the prognosis for rheumatoid arthritis patients; however, these drugs come with significant risks.


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**INTRODUCTION**

The significance of joint damage in rheumatoid arthritis (RA) lies in its impact on function. Even with treatment, within a relatively short time, patients may become unable to perform activities of daily living. According to a study conducted before the introduction of biologic therapy, approximately 25% of US patients are unable to work within 6 years of disease onset, and up to 50% are disabled within 21 years. It is estimated that RA costs the average patient up to $8500 annually because of loss of employment and medical costs.

Quality of life in patients with RA is also commonly affected by pain, feelings of dependence on others, fatigue, and sleep disturbance. In a survey conducted in 2004 by the Arthritis Foundation, more than two thirds of 500 patients with RA reported that despite treatment with disease-modifying antirheumatic drugs (DMARDs), they experience pain, stiffness, and fatigue daily. One half reported that they continue to modify their daily household activities as a result of their arthritis.

This article discusses how nurses can help patients understand and manage RA as a chronic, life-altering disease. It also reviews how nurses can prevent and identify adverse effects of drug therapy.

**GOALS OF NURSING CARE IN RHEUMATOID ARTHRITIS**

According to the American College of Rheumatology (ACR), a physician’s goals during RA management should be to prevent or control joint damage, prevent loss of function, and decrease pain. Table 1 lists a number of relevant nursing goals.

For patients newly diagnosed with RA referral to a physical therapist, occupational therapist, and/or vocational counselor should be considered early on. Some
patients may also benefit from consultation with an orthopedic surgeon, podiatrist, social worker, health educator, or health psychologist. The nurse and other members of the multidisciplinary team need to share information about patients’ progress.

Evaluation of RA is a repetitive process. Nurses should participate in periodically reassessing patients for evidence of disease activity or progression, and for toxic effects of the drug regimen. They should also regularly document patients’ medications, pain scores, and ability to perform activities of daily living. For the latter, the Health Assessment Questionnaire is becoming commonly used in clinical practice (Table 2).

**HELPING PATIENTS LIVE WITH RHEUMATOID ARTHRITIS**

**PATIENT EDUCATION**

The ACR recommends that patients with RA participate in developing a long-term treatment plan that addresses their prognosis and treatment options. Educational sessions with a nurse should precede and follow the development of this plan. Nurses can help patients understand their pharmaceutical and nonpharmaceutical options, evaluate later whether treatment needs to be adjusted, and begin to accept RA as a chronic disease that can be treated but not cured. Two systematic reviews have determined that, at least in the short term, patient education in RA improves measures such as disability, the number of tender joints, patients’ assessments of their condition, psychological status, and depression. The Arthritis Foundation offers a wide range of materials and programs that can be helpful, including an online discussion group for patients with RA.

**PROMOTING ADHERENCE TO THERAPY**

Adherence to treatment by patients with RA is often suboptimal. Among adults participating in RA studies, adherence rates range from 16% to 84% for pharmaceutical regimens and from 25% to 65% for nonpharmaceutical treatments. Patients who are asymptomatic or in remission, and conversely, those with persistent symptoms, may see little reason to continue following recommendations.

In addition to educating patients early and often, nurses can take the following steps to promote adherence:

- Remind patients to “hang in there”; some medications need time to start working.
- Routinely ask patients about their adherence, in a nonjudgmental way, and discuss how they might overcome barriers. One suggestion may be to recommend the use of alarms (eg, on watches or cell phones) as reminders to take their medications.
- Make sure patients have the skills and knowledge they need for managing their RA.
- Refer patients to mental health professionals if needed.

Patients with chronic illness tend to accept treatment recommendations best when they are able to par-

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**Table 1. Nursing Goals in Rheumatoid Arthritis**

<table>
<thead>
<tr>
<th>Upon Diagnosis</th>
<th>Regularly During Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educate patients about rheumatoid arthritis, medications, and self-care, especially community resources for exercise and physical activity.</td>
<td>Verify the medication list (agent and dosage).</td>
</tr>
<tr>
<td>In collaboration with the physician, screen patients for contraindications to drug therapy and order baseline laboratory tests.</td>
<td>Assess patient compliance with drug therapy.</td>
</tr>
<tr>
<td>Arrange services of other healthcare professionals as needed.</td>
<td>Assess and document activities of daily living and pain scores.</td>
</tr>
<tr>
<td></td>
<td>Update the log on laboratory toxicity monitoring, if needed.</td>
</tr>
<tr>
<td></td>
<td>Provide psychological support and reminders about self-care.</td>
</tr>
<tr>
<td></td>
<td>Share information about the patient’s progress with other healthcare professionals.</td>
</tr>
<tr>
<td></td>
<td>In collaboration with the physician:</td>
</tr>
<tr>
<td></td>
<td>• Monitor the incidence and severity of drug side effects.</td>
</tr>
<tr>
<td></td>
<td>• Counsel the patient about preventing complications such as infection, osteoporosis, and cardiovascular disease.</td>
</tr>
<tr>
<td></td>
<td>• Monitor progression of rheumatoid arthritis, which may be signaled by such signs as joint deformity or development of extra-articular manifestations, including rheumatoid nodules.</td>
</tr>
<tr>
<td></td>
<td>• Encourage maintenance of mobility and protection of unaffected joints through exercise, rehabilitation, and use of supports/splinting.</td>
</tr>
</tbody>
</table>
participate in the decision-making process about their care. An interview study of 17 younger women with RA, ages 26 to 40, found that these patients wanted their doctors and nurses to be educators, partners, and supporters. The patients said they wanted to be able to negotiate about their treatment and to be included in treatment plans without fear of disapproval.

COUNSELING ABOUT NONPHARMACOLOGICAL INTERVENTIONS

EXERCISE AND PHYSICAL ACTIVITY

Of all physical modalities for arthritis pain relief, exercise appears to be the most consistently effective. Many patients with RA fear that exercise will cause pain or aggravate their existing level of pain. But, as shown in the Figure, reduced activity can actually create a vicious circle in which deconditioning leads to increased functional impairment, in turn leading to increased fatigue and accompanying problems such as increased pain. To minimize restrictions in work and leisure activities, exercise should be a key component of RA management from the start.

Nurses can help patients avoid pain exacerbation by encouraging them to:

- Accept delayed-onset muscle soreness as a normal consequence of starting an exercise program.
- Use heat or cold before and after exercise, along with warm-up and cool-down periods.
- Plan short periods of rest or non-weight-bearing activity.
- Move at a slower pace when needed.
- Use medications for pain management as appropriate.
- Use prescribed assistive devices or orthoses during exercise.

PHYSICAL THERAPY AND OCCUPATIONAL THERAPY

Physical therapy and occupational therapy are well established as being beneficial in the treatment of RA. Physical therapy most commonly involves supervision in aerobic, range of motion, and strengthening exercises; hydrotherapy; thermotherapy; and electrical stimulation. Services of occupational therapists include advice about joint protection and fatigue management, assessment of activities of daily living, environmental modification and assistive devices, hand and wrist splinting, and job rehabilitation.

### Table 2. The Health Assessment Questionnaire

<table>
<thead>
<tr>
<th>Possible Answers</th>
<th>RA, with much difficulty, or unable to do</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are you able to dress yourself?</td>
<td></td>
</tr>
<tr>
<td>Are you able to shampoo your hair?</td>
<td></td>
</tr>
<tr>
<td>Are you able to stand up from a straight chair?</td>
<td></td>
</tr>
<tr>
<td>Are you able to get in and out of bed?</td>
<td></td>
</tr>
<tr>
<td>Are you able to cut your meat?</td>
<td></td>
</tr>
<tr>
<td>Are you able to lift a full cup or glass to your mouth?</td>
<td></td>
</tr>
<tr>
<td>Are you able to open a new milk carton?</td>
<td></td>
</tr>
<tr>
<td>Are you able to walk outdoors on flat ground?</td>
<td></td>
</tr>
<tr>
<td>Are you able to climb up 5 steps?</td>
<td></td>
</tr>
<tr>
<td>Are you able to take a bath in the tub?</td>
<td></td>
</tr>
<tr>
<td>Are you able to get on and off the toilet?</td>
<td></td>
</tr>
<tr>
<td>Are you able to reach and get down a 5-lb object from just above your head?</td>
<td></td>
</tr>
<tr>
<td>Are you able to bend down to pick up clothing from the floor?</td>
<td></td>
</tr>
<tr>
<td>Are you able to open car doors?</td>
<td></td>
</tr>
<tr>
<td>Are you able to open jars that have been previously opened?</td>
<td></td>
</tr>
<tr>
<td>Are you able to turn faucets on and off?</td>
<td></td>
</tr>
<tr>
<td>Are you able to run errands and shop?</td>
<td></td>
</tr>
<tr>
<td>Are you able to get in and out of a car?</td>
<td></td>
</tr>
<tr>
<td>Are you able to do chores such as vacuuming or yardwork?</td>
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</tbody>
</table>


### Figure. The Chronic Illness Symptom Cycle

COMPLEMENTARY AND ALTERNATIVE MEDICINE

The use of complementary and alternative medicine (CAM) by patients with rheumatic diseases is increasingly common. Most patients use CAM as a supplement to standard medical care, rather than as a replacement, often because they want more complete pain relief. When discussing medications and treatment adherence, nurses should always ask in a nonjudgmental way whether the patient uses CAM and, if so, what types. According to well-designed studies or systematic reviews of multiple studies, promising CAM interventions for RA include Chinese thunder god vine (*Tripterygium wilfordii*), gamma-linolenic acid (borage seed oil, evening primrose oil, blackcurrant seed oil), omega-3 fatty acids (fish oil), spa therapy, Tai Chi, and vitamin E supplementation.

Nurses should inform patients that although herbs are natural, they are not necessarily safe in all cases. The US Food and Drug Administration does not regulate supplements or herbal preparations. *Tripterygium wilfordii* is commonly associated with gastrointestinal side effects and amenorrhea, and its use has been associated with death caused by myocardial damage, renal failure, and hypotension related to severe gastrointestinal effects. Some of the herbs used by patients with RA, including feverfew and devil’s claw, increase the risk of bleeding if used along with antplatelet or anticoagulant therapy. Others, including willow bark and ephedra, should not be used with immunosuppressive drugs such as methotrexate. Many patients expect clinicians to warn them about side effects of herbal remedies, but the long-term effects of these preparations have not been well studied.

SUPPORTING SEXUAL INTIMACY

More than 50% of patients with RA report problems with sexual relationships. Symptoms such as fatigue, pain, and reduced joint function are the chief limitations, but medication side effects, depression, altered body image, and the effects of a partner’s assumption of the caregiver role can also have an impact.

For most people, sexual activity is an integral part of life that contributes to their sense of well-being. Nurses can support patients’ sexual health by integrating relevant questions into routine care. To decrease embarrassment, it helps to open with a statement such as: “Many people with arthritis mention changes in their intimate physical relationship.” Some questions that can open lines of communication are: (1) Has arthritis put a strain on your relationship? (2) Have you had any difficulty with pain affecting your sexual relationship?

Table 3 lists suggestions for patients who want to improve their sexual function. Also, the Arthritis Foundation offers a “Guide to Intimacy with Arthritis,” available at its Web site or by calling 800-568-4045.

COUNSELING ABOUT CARDIOVASCULAR DISEASE

Cardiovascular disease accounts for most of the excess mortality associated with rheumatoid diseases. Atherosclerosis is now thought to be an inflammatory disorder, and recent studies suggest that the systemic inflammation in RA is linked to heart disease and an increased risk of myocardial infarction.
increased risk of early death.\textsuperscript{35–38} Other research has shown that the mere presence of inflammation does not cause atherosclerosis; cardiovascular risk factors must also be present.\textsuperscript{39} Nurses can do a great service to patients with RA by helping them identify and aggressively lower their risk factors for cardiovascular disease, such as hypertension, hypercholesterolemia, smoking, and use of corticosteroids.

Counseling about Pregnancy and Lactation

Methotrexate and leflunomide are potent teratogens. Nurses should periodically check that women of childbearing potential who use these medications are using reliable birth control.\textsuperscript{40,41} If a patient (male or female) taking leflunomide decides to conceive, the following drug washout protocol is necessary: oral cholestyramine, 8 mg three times daily, for 11 days. Complete elimination of the drug can take as long as 2 years, so simply discontinuing it is insufficient. Before conception is attempted, the plasma level of the drug should be below 0.02 mg/L on 2 separate tests performed at least 14 days apart.\textsuperscript{42}

Some experts advise that sulfasalazine and hydroxychloroquine can be maintained during pregnancy and lactation.\textsuperscript{41} The safety of biologic DMARDs in this

<table>
<thead>
<tr>
<th>Table 4. Monitoring Drug Toxicity in Rheumatoid Arthritis</th>
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</thead>
<tbody>
<tr>
<td><strong>Drug/Class</strong></td>
</tr>
<tr>
<td>NSAIDs</td>
</tr>
<tr>
<td>Corticosteroids</td>
</tr>
<tr>
<td>Hydroxychloroquine</td>
</tr>
<tr>
<td>Sulfasalazine</td>
</tr>
<tr>
<td>Methotrexate</td>
</tr>
<tr>
<td>Leflunomide</td>
</tr>
<tr>
<td>TNF inhibitors (etanercept, infliximab, adalimumab)</td>
</tr>
<tr>
<td>Anakinra</td>
</tr>
<tr>
<td>Rituximab</td>
</tr>
<tr>
<td>Abatacept</td>
</tr>
</tbody>
</table>

CBC = complete blood cell count (hematocrit, hemoglobin, white blood cell count, including white blood cell differential and platelet counts); COPD = chronic obstructive pulmonary disease; G6PDH = glucose-6-phosphate dehydrogenase; LFTs = liver function tests (aspartate aminotransferase [AST], alanine aminotransferase [ALT], albumin); MTX = methotrexate; NSAIDs = nonsteroidal anti-inflammatory drugs; TB = tuberculosis; TNF = tumor necrosis factor; and ULN = upper limit of normal.

* For minor elevations in AST or ALT (< twofold ULN), repeat testing in 2–4 weeks. For moderate elevations in AST or ALT (> twofold but < threefold ULN), closely monitor; with LFTs every 2–4 weeks and dosage reduction or drug discontinuation as necessary.

† For persistent elevations in AST or ALT (> twofold or threefold ULN), discontinue MTX and perform liver biopsy as necessary.

‡ For persistent elevations in AST or ALT (> twofold or threefold ULN), discontinue leflunomide and eliminate with cholestyramine therapy; perform liver biopsy as necessary.

Adapted with permission from American College of Rheumatology Subcommittee on Rheumatoid Arthritis Guidelines. Arthritis Rheum. 2002;46:328–346. Additional data from Furst et al.; Rituxan (rituximab) prescribing information; Leff; Olsen et al.
regard has not been established. Patients should talk with their physician while planning a pregnancy or immediately upon discovering they are pregnant.

**PREVENTING DRUG-RELATED TOXICITIES**

Patients with RA require careful screening before receiving drug therapy, and most need laboratory testing while treatment continues. Nurses have a responsibility to work closely with physicians to ensure that safety remains a foremost concern. When care is shared between a primary care physician and a rheumatologist, there should be a written plan about how the task of monitoring drug toxicity will be divided. Table 4 gives basic monitoring guidelines for commonly used drugs.

**NONSTEROIDAL ANTI-INFLAMMATORY DRUGS**

The major side effects of nonsteroidal anti-inflammatory drugs (NSAIDs) are renal toxicity and gastrointestinal toxicity, especially ulcers, perforation, and hemorrhage. Creatinine and potassium levels should be monitored in patients with pre-existing renal disease or diminished effective renal blood volume. Hemoglobin should be assessed periodically in patients on long-term NSAID therapy, to check for occult bleeding.

**CORTICOSTEROIDS**

Side effects of corticosteroids, even at low doses, can include osteoporosis, hypertension, weight gain, fluid retention, hyperglycemia, cataracts, and skin fragility, in addition to increased risk of infection and premature atherosclerosis. These risks need to be carefully explained to patients before therapy is initiated. According to the ACR, all patients receiving corticosteroids should receive supplemental calcium (1500 mg/day) and vitamin D (400–800 IU/day). Physicians also consider bisphosphonate therapy, as well as hormone-replacement therapy for postmenopausal women who have no contraindications. Bone densitometry to assess fracture risk should be performed at regular intervals, even in patients with no risk factors for osteoporosis.

**SYNTHETIC DISEASE-MODIFYING ANTIRHEUMATIC DRUGS**

Safe administration of synthetic DMARDs requires especially careful laboratory monitoring. In patients receiving methotrexate or leflunomide, the principal concern is liver dysfunction, especially if the 2 drugs are given together.

**BILOGIC DISEASE-MODIFYING ANTIRHEUMATIC DRUGS**

**INJECTION-SITE/INFUSION REACTIONS**

Minor redness and itching at the injection site, lasting a few days, is common among patients using etanercept and adalimumab. Approximately 20% of patients develop symptoms during infusion of infliximab, most commonly headache and nausea, which appear to be controllable by using antihistamines or slowing the infusion rate. Anakinra is associated with a dose-dependent incidence of injection-site reactions, affecting 70% of patients. These normally do not require treatment, and with continued use, they seem to moderate in some patients. Infusion reactions are the most common adverse event with rituximab, occurring with approximately 35% of first infusions and approximately 10% of second infusions. Intravenous corticosteroids are recommended to reduce the incidence and severity of infusion-site reactions with rituximab. In clinical trials of abatacept, only 1% of patients discontinued the drug because of an acute infusion-related event. Nurses involved in administering biologics should be prepared to treat acute hypersensitivity reactions.

**TUBERCULOSIS**

All biologic DMARDs are thought to increase patients’ susceptibility to tuberculosis, including reactivation of latent tuberculosis. The standard of care is for patients to be prescreened with tuberculosis skin testing and a history that evaluates the risk of latent infection (prior exposure, prior or active drug addiction, HIV infection, history of living in a region of high tuberculosis prevalence, and history of working in a high-risk setting such as a jail, homeless shelter, or drug rehabilitation center). Some practitioners choose to perform a chest X-ray along with a skin test; others choose to perform a chest X-ray only after a positive skin test. Patients who react positively are started on a 6-month course of isoniazid. After 2 months of isoniazid therapy, patients with RA may begin biologic therapy. Because isoniazid is also hepatotoxic, monitoring liver functions will be crucial during treatment, especially if methotrexate is continued concurrently.
OTHER INFECTIONS

Serious infections including sepsis have been described in association with all biologic DMARDs. These drugs should not be started in the presence of serious infection. At all follow-up visits, question patients receiving a biologic about symptoms of infection, and remind them to report symptoms of infection immediately so the drug can be discontinued if necessary. RA itself doubles the risk of infection, compared with the risk in age-matched controls. All patients with RA should have yearly influenza vaccinations and should receive the pneumococcal vaccine at appropriate intervals. In patients receiving an immunosuppressant drug (notably methotrexate or any of the biologics), it is best to vaccinate before DMARD therapy starts and to avoid live vaccines.

CANCER

One of the current controversies in rheumatology is whether the use of tumor necrosis factor (TNF) inhibitors increases the risk of cancer. According to a recent systematic review, the use of infliximab or adalimumab triples the risk of lymphoma and solid tumors. (Etanercept was excluded because it inhibits TNF slightly differently than infliximab and adalimumab.) However, even before TNF inhibitors were introduced, the incidence of lymphoma was increased among patients with RA. Analyses of Swedish and UK databases have shown no increased risk of solid cancer with TNF inhibitors. Until more is known, patients being considered for a biologic DMARD should be screened for a history of malignant disease, so the physician can decide whether to use the drug cautiously or even avoid it.

CONGESTIVE HEART FAILURE

Another controversy is whether TNF inhibitors increase the risk of new-onset congestive heart failure (CHF), worsening of existing CHF, and mortality. There is conflicting evidence, and adding to the uncertainty, RA itself increases the risk of CHF. An international expert panel has concluded that to date, only high-dose infliximab (10 mg/kg) seems to be risky in this regard. Still, some experts recommend that all TNF inhibitors be used cautiously, if ever, when mild heart failure is present and be avoided when heart failure is severe.

CONCLUSIONS

A patient diagnosed with RA faces a lifelong condition that can be physically and emotionally debilitating. Support and counsel from a knowledgeable nurse can help patients improve their quality of life, in addition to preventing or controlling joint damage, preventing loss of function, and decreasing pain. Nurses advocate for patients by educating them about the disease, helping them choose among their pharmaceutical and non-pharmaceutical treatment options, promoting adherence to treatment, and counseling them about how to reduce the risk of complications such as infection, osteoporosis, and cardiovascular disease. Most patients with RA require drug therapy that has the potential for serious or even life-threatening side effects; therefore, nurses should know how to screen patients for contraindications and monitor laboratory results. By continually evaluating patients’ responses to therapy, nurses play a pivotal role in improving RA outcomes.

REFERENCES


