What is rheumatoid arthritis (RA)?

Arthritis means inflammation of joints. There are many causes of arthritis and RA is just one cause – examples of others are osteoarthritis, and gout. RA is a common form of arthritis affecting about 1 in 100 people. RA can happen to anyone. It is not an hereditary disease. It can develop at any age, but most commonly starts between the ages of 40 and 60. It is about three times more common in women than in men.

Understanding joints

A joint is where two bones meet. Joints allow movement and flexibility of various parts of the body. The movement of the bones is caused by muscles which pull on tendons that are attached to bone. Cartilage covers the end of bones. Between the cartilage of two bones that form a joint there is a small amount of thick fluid called synovial fluid. This lubricates the joint, which allows smooth movement between the bones.

The synovium is the tissue that surrounds a joint. Synovial fluid is made by cells of the synovium. The outer part of the synovium is called the capsule. This is tough, gives the joint stability, and stops the bones from moving out of joint. Surrounding ligaments and muscles also help to give support and stability to joints.

What happens to joint in RA?
Our bodies normally produce inflammation to destroy things, such as bacteria, which cause illness. We do not know what sets off the inflammation in RA, but the result is the same – unfortunately, in this case it is not bacteria or other harmful substances which are attacked but the tissues in the joints. The inflammation of the synovium causes swelling, pain, and eventually may lead to damage to the cartilage ligaments and and bone itself.

What causes RA?

RA is thought to be an autoimmune disease. The immune system normally makes antibodies (small proteins) to attack bacteria, viruses, and other germs. In people with RA, antibodies are formed against the tissue that surrounds each joint (the synovium), causing joint inflammation. We do not know why this happens. Some things we know are that:

RA is not an infection and is not contagious.

RA sometimes runs in families - but most people who develop RA do not have a relative with RA.

Women are affected more commonly than men

Smoking cigarettes can increase the risk of getting RA

What are the symptoms of RA?

Joint symptoms

The common main symptoms are pain and stiffness of affected joints. In most cases the symptoms develop gradually - over several weeks or so. Typically, you may first develop some stiffness in the hands, wrists, or soles of the feet in the morning, which eases by mid-day. This may come and go for a while, but then becomes a regular occurrence. You may then notice some pain and swelling in the same joints. More joints such as the knees, shoulders and elbows may then become affected. The stiffness is usually worse first thing in the morning, or after you have been resting. RA is often symmetrical. So, for example, if a joint is affected in a right arm, the same joint in the left arm is also often affected. In some people, just a few joints are affected. In others, many joints are involved.
Other symptoms

- Anaemia and tiredness are common
- Small painless lumps (nodules) develop in about 1 in 4 cases. These commonly occur on the skin over the elbows and forearms, but usually do no harm.

- In a few cases, inflammation develops in other parts of the body, such as the lungs, heart, blood vessels, or eyes. This is uncommon but, if it occurs, can cause various symptoms and problems which are sometimes serious.
- **When you are diagnosed with RA, you may have to cope with the symptoms of the disease, with treatment your doctor suggests, and also with the psychological impact of the disease on you and your family.** Poor sleep, frustration, and feelings of isolation and depression are common in the first few months after RA is diagnosed. Discuss these with your doctor and rheumatology nurse.

How will RA progress?

RA is usually chronic (longstanding) with flare-ups (relapses), and “quiet” times. There is usually no clear reason why the inflammation may flare up for a while, and then settle down. Without treatment, most people with RA have this pattern of flare-ups followed by better spells. In some people, months or even years may go by between flare-ups.

Joint damage

Inflammation can damage the cartilage which may become eroded or worn. The bone underneath may become thinned. The joint capsule and nearby ligaments and tissues around the joint may also become damaged. Joint damage develops gradually, but the speed at which damage develops varies from person to person. Over time, joint damage can lead to deformities. It may become difficult to use the affected joints. For example, the fingers and wrists are commonly affected, so a good grip and other tasks using the hands may become difficult.

Most people with RA develop some damage to affected joints. The amount of damage can range from mild to severe. At the outset of the disease it is difficult to predict for an individual how badly the disease will progress. However, modern treatments can often limit or even stop the progression of the disease and limit the joint damage (see below).
How is RA diagnosed?

When you first develop joint pains, it may at first be difficult for a doctor to say that you definitely have RA. This is because there are many other causes of joint pains. There is no single test which diagnoses early RA with 100% certainty. However, RA can usually be confidently diagnosed by a doctor based on the following combination of factors:

- Typical symptoms and signs of swelling in the joints.
- A blood test. The common test is to check for a protein in the blood, called rheumatoid factor (RF). This is present in about 2 in 3 people with RA. However, about 1 in 20 of the normal population has RF. Also, some people with RA do not have rheumatoid factor, so, a positive rheumatoid factor is suggestive of RA, but not conclusive. A more recently developed test detects the presence of an antibody to a substance called cyclic citrullinated peptide (CCP) in a blood sample. This has been found to be more specific than rheumatoid factor in the diagnosis of RA.

You may also be advised to have other tests to rule out other causes of joint pains, and to check for complications of your RA. These might include X rays or sonars, and blood tests.

Is RA the same as osteoarthritis?

No, osteoarthritis is a different disease. RA is caused by inflammation in the lining of the joint. Osteoarthritis is more like a wear process, in which the cartilage in the joint can no longer withstand the loads placed on it. Some inflammation does occur in osteoarthritis, but it is not the same as that in RA. And some wear may take place in joints which have previously been damaged by RA, but this is a complication which only occurs later in RA. The two diseases are quite different in their treatment and it is important not to confuse the two. If you have any doubt about which type of arthritis you have, ask your doctor.

Associated conditions

The risk of developing certain other conditions is higher than average in people with RA. These include:

- Cardiovascular disease (such as heart attack and stroke).
- Anaemia ("thin blood due to a low haemoglobin level)
- Infections
- Osteoporosis' (thinning' of the bones which may lead to fractures).
It is not clear why people with RA have a higher-than-average chance of developing these conditions. One possible reason is that, on average, people with RA tend to have more risk factors for developing some of these conditions. For example:

- Lack of exercise and having high blood pressure are risk factors for developing cardiovascular diseases. People with RA may not be able to exercise very easily, and some of the medicines used to treat RA may increase blood pressure.
- Some of the medicines used to treat RA suppress the immune system. This may be a factor for the increased risk of developing infections.
- Poor mobility and steroid medicines increase the risk of developing osteoporosis.

Other complications
Other complications which may develop include:

- Carpal tunnel syndrome. This is relatively common. It causes pressure on the main nerve going into the hand. This can cause pain, tingling and numbness in parts of the hand.
- Tendon rupture sometimes occurs (particularly the tendons on the back of the fingers).
- Cervical myelopathy. This is an uncommon but serious complication of severe, long-standing RA. It is caused by a dislocation of joints at the top of the spine. This can cause pressure on the spinal cord.

The importance of early diagnosis and treatment
If your doctor suspects that you have RA, you will usually be referred to a joint specialist (a rheumatologist). This is to confirm the diagnosis and to advise on treatment. It is very important to start treatment as early as possible after symptoms begin to minimise or even prevent any permanent joint damage.

What are the treatments for RA?
There is no cure for RA. However, treatments can make a big difference to reduce symptoms and improve the outlook. The main aims of treatment are:

- to control inflammation and therefore prevent joint damage
- To reduce pain and stiffness in affected joints as much as possible.
- To reduce the risk of developing associated conditions
Disease-modifying medicines (DMARDs)

There are a number of medicines called disease-modifying antirheumatic drugs (DMARDs). These are medicines that ease symptoms and reduce the damaging effect of the disease on the joints. They work by blocking the way inflammation develops in the joints. They do this by blocking certain chemicals involved in the inflammation process. DMARDs commonly used include methotrexate, chloroquine, sulfasalazine, and leflunomide. It is these medicines that have improved the outlook (prognosis) in recent years for many people with RA.

It is usual to start a DMARD as soon as possible after RA has been diagnosed. It is also common practice to use a combination of two or more DMARDs. This is commonly methotrexate plus at least one other DMARD. In general, the earlier you start DMARDs, the more effective they are likely to be.

DMARDs can take several weeks, and sometimes several months, before you notice any effect on pain and swelling. Therefore, it is important to keep taking DMARDs as prescribed, even if they do not seem to be working at first. If DMARDs work well, it is usual to take one or more DMARDs indefinitely. However, when a satisfactory level of disease control has been achieved, your doctor may advise a cautious reduction in doses, but not to a dose less than that required to continue to maintain disease control.

Each DMARD has different possible side-effects. If one does not suit, a different one may be fine. Some people try several DMARDs before one or more can be found to suit. Some side-effects can be serious. These are rare and include damage to the liver and blood-producing cells. Therefore, it is usual to have regular tests - usually blood tests - whilst you take DMARDs. The tests look for some possible side-effects before they become serious.

Biologics

Biologic medicines have been introduced more recently and also have a disease-modifying effect against RA. Biologic medicines work in RA by blocking chemicals that are involved in inflammation. For example, some of these biologics block a chemical called TNF-alpha which plays an important role in causing inflammation in joints in RA., and include infliximab, adalimumab, etanercept, and golimumab. Other biologics block other chemicals involved in joint inflammation-such as abatacept, rituximab and tocilizumab

One problem with biologics is that they need to be given by injection. They are also expensive. There is also an increased risk of infection, including tuberculosis (TB) with biologics. Recent guidelines state that
two trials of six months of traditional DMARD monotherapy or combination therapy (at least one including methotrexate) should fail to control symptoms or prevent disease progression before one of these newer biological medicines may be recommended. Biological medicines may also be used in combination with methotrexate (a DMARD).

Maintaining good oral hygiene may help
There seems to be an association between gum disease and the activity of RA. Gum disease causes an ongoing inflammation in the gums. The theory is that this inflammation may in some way add to the immune mechanisms involved in the inflammation of RA. Further research is needed to confirm this association. But, in the meantime, it seems sensible to brush and floss teeth well, and visit a dentist every 6 months.

Reducing pain and stiffness
DMARDs and biologics control the activity of the disease and will ease symptoms when they take effect. However, whilst waiting for them to take effect, or if they do not work so well, you may need treatment to treat symptoms.

During a flare-up of inflammation, if you rest the affected joint(s) it helps to ease pain. Special wrist splints, footwear, gentle massage, or applying heat may also help. Medication is also helpful. Medicines which may be advised by your doctor to ease pain and stiffness include the following:

Non-steroidal anti-inflammatory drugs (NSAIDs)
These will ease pain and stiffness, but unlike DMARDs, they cannot prevent joint damage. There are many types and brands. Each is slightly different to the others, and side-effects may vary between brands. You may need to try two or more brands before finding one that suits you best.

The most common side-effect of NSAIDs is stomach pain (dyspepsia or heartburn). Stomach ulcers can develop. Therefore, your doctor will usually prescribe another medicine to protect the stomach from these possible problems, but stop taking the tablets and see a doctor urgently if you develop stomach pains, pass blood or black stools (faeces) or vomit blood whilst taking an anti-inflammatory.

After starting a DMARD, many people take an anti-inflammatory tablet for several weeks until the DMARD starts to work. Once a DMARD is found to help, the dose of the anti-inflammatory tablet can be reduced – keep them for “bad days” when you have a painful joint or heavy exercise planned. You do not need to take NSAIDs every day if you have no pain or stiffness
**Painkillers**

Paracetamol often helps. This does not have any anti-inflammatory action, but is useful for pain relief in addition to, or instead of, an anti-inflammatory tablet. Codeine is another stronger painkiller that is sometimes used.

**Note:** NSAIDs and painkillers ease the symptoms of RA. However, they do not alter the progression of the disease or prevent joint damage. You do not need to take them if symptoms settle with the use of DMARDs.

**Steroids**

Steroids are good at reducing inflammation. It is common practice to advise a short course of steroids to damp down a flare-up of symptoms which has not been helped much by an NSAID. Also, when RA is first diagnosed, a short course of steroids is commonly used to control symptoms whilst waiting for DMARDs to take effect. Sometimes a steroid is used for a longer period of time in combination with a DMARD. An injection of steroid directly into a joint is sometimes used to treat a bad flare-up in one particular joint.

Serious side-effects that may occur if you take steroids for a long time, particularly at higher doses. These include diabetes, weight gain, increased risk of serious infection, ‘thinning’ of the bones (osteoporosis) and easy bruising.

**Excercise**

- As far as possible, try to keep active. The muscles around the joints will become weak if they are not used. Regular exercise may also help to reduce pain and improve joint function. Swimming is a good way to exercise many muscles without straining joints too much. Other gentle exercises like yoga and tai chi have very good effects on joints, muscles, and improve your sense of well-being. A physiotherapist can advise on exercises to keep muscles around joints as mobile and strong as possible. They may also advise on splints to help rest a joint if needed.
- If such things as your grip or mobility become poor, an occupational therapist may advise on adaptations to the home to make daily tasks easier.
- If you develop a joint deformity then surgery to correct it may be an option. If severe damage occurs to a joint, operations such as knee or hip replacements are an option.

**Reducing complications of RA**
As mentioned earlier, sometimes people with RA develop inflammation in other parts of the body such as the lungs, heart, blood vessels, or eyes. Also, anaemia may develop. Various treatments may be needed to treat these problems if they occur.

As mentioned earlier, if you have RA you have an increased risk of developing cardiovascular diseases (for example, angina, heart attack, and stroke), osteoporosis, and infections. Therefore, you should consider doing what you can to reduce the risk of these conditions by other means.

For example, if possible:

- Eat a good healthy diet and exercise regularly.
- Lose weight if you are overweight.
- Do not smoke. (In addition to increasing the risk of cancer, infections, heart disease and stroke, and osteoporosis, smoking may also make symptoms of RA worse.)
- If you have high blood pressure, diabetes, or a high cholesterol level, they should be well controlled on treatment.
- Keep up to date with your vaccines to prevent certain infections, Discuss these with your doctor.

Other treatments

Some people try complementary therapies such as special diets, bracelets, acupuncture, etc. There is little research evidence to say how effective such treatments are for RA. In particular, beware of paying a lot of money to people who make extravagant claims of success. For advice on the value of any treatment it is best to consult a doctor, or contact one of the groups below.

Pregnancy

Most RA patients have happy, healthy uncomplicated pregnancies, and the joint inflammation often improves during pregnancy. Tell your doctor if you are pregnant or planning to fall pregnant. Both men and women should stop drugs which could harm the baby, such as methotrexate or leflunomide, six months before conception.

What is the outlook?

The prognosis regarding joint damage is perhaps better than many people imagine:
• About 2 in 10 people with RA have a relatively mild form of the disease, and can continue to do most normal activities for many years after the condition first starts.
• About 1 in 10 people with RA become severely disabled.
• About 7 in 10 people with RA fall somewhere in between with varying degrees of difficulties and disability. Most will have to modify their lifestyle to some extent, but can expect to lead a full life.

However, these figures are probably becoming out-of-date, as treatment has improved in recent years. Symptoms can often be well controlled with medication. Also, the outlook for a person who is diagnosed with RA these days is likely to be much better than it was a few years ago. This is because of the newer and better

In summary

• RA can range from relatively mild to severe.
• The outlook cannot be predicted for an individual when the disease starts.
• Treatment usually includes one or more DMARDs, which aims to reduce disease activity and joint damage. The earlier this treatment is started, the less damage is likely to occur in the joints.
• Other disease-modifying medicines such as biological medicines may be used.
• If you have gum disease, good oral hygiene may help to reduce disease activity.
• A steroid medicine may be advised for a while to control inflammation whilst disease-modifying medicines take effect.
• An anti-inflammatory and/or other painkillers may be used to ease pain and reduce inflammation. These help to ease symptoms but do not affect the progress of the disease. You do not need to take them if symptoms settle.
• Other treatments such as physiotherapy, occupational therapy, and surgery may also be advised, depending on the severity of the disease and other factors.
• Leading a healthy lifestyle, such as not smoking, eating healthily, and taking regular exercise, can help to reduce the chance of developing complications.