"immunosuppressive" medicine is required. For active or severe kidney disease the most widely used immunosuppressive is cyclophosphamide given intermittently by injection. In the past, cyclophosphamide was given as a tablet but this produced more side-effects and most units have now converted to giving intermittent "pulses". This comes in the form of a drip given into the vein. Doses vary from clinic to clinic but the more modern fashion has been to use lower doses than those previously used and this has the benefit of far less side-effects. These side-effects are outlined in the fact sheet Lupus and Medication. A milder and very widely used immunosuppressive is azathioprine given as tablet-form usually at a dose of about 2mg/kg body weight. A tablet that is becoming more widely used is called mycophenolate mofetil. Studies are underway to see if it might replace cyclophosphamide, which would be advantageous as it does not cause as many serious side effects as cyclophosphamide. It is also useful if a patient does not tolerate azathioprine.

All immunosuppressives can affect the blood count and regular blood counts are mandatory. Other immunosuppressive drugs such as cyclosporin-A are increasingly used but the two mainstays of treatment remain cyclophosphamide and azathioprine.

s dialysis helpful?

If the kidney damage reaches a stage where toxic chemicals build up then dialysis is vital. Dialysis has been one of the major advances in 20th century medicine and either haemodialysis or peritoneal dialysis has kept thousands of patients with renal failure stable. This includes a number of patients with lupus.

Does renal transplant work?

The answer is very definitely yes. One of the surprises in the early days of transplantation in lupus was that the lupus did not return to damage the transplanted kidney. The reasons for this are obscure, possibly related to the strong treatment used for transplantation but possibly to other factors. It is a striking fact that patients with lupus who do have renal transplantation in general do very well indeed.

THE LUPUS UK RANGE OF FACT SHEETS

A range of fact sheets are available as follows:

1. LUPUS Incidence within the Community
2. LUPUS A Guide for Patients
3. LUPUS The Symptoms and Diagnosis
4. LUPUS The Joints and Muscles
5. LUPUS The Skin and Hair
6. LUPUS Fatigue and your Lifestyle
7. LUPUS and Pregnancy
8. LUPUS and Blood Disorders
9. LUPUS and Medication
10. LUPUS and the Kidneys
11. LUPUS and Associated Conditions
12. LUPUS and the Brain
13. LUPUS The Heart and Lungs
14. LUPUS The Mouth, Nose and Eyes
15. LUPUS and Light Sensitivity
16. LUPUS and the Feet
17. LUPUS and Men
18. LUPUS and Mixed Connective Tissue Disease

LUPUS UK is the registered national charity caring for people with presently incurable lupus and has over 6,000 members who are supported by the Regional Groups.

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Please contact our National Office should you require further information about lupus. LUPUS UK will be pleased to provide a booklist and details of membership.

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LUPUS and the Kidneys

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Lupus and the Kidneys

Lupus and the Kidneys

Together with the brain, the kidney is potentially the most serious organ involved in lupus. Serious in that it may be "silently" involved - the patient not knowing that there is disease going on, and because it may lead to kidney failure. The early diagnosis of lupus in patients throughout the world has contributed more than anything else to the improved prognosis. It is now known that if caught in time, kidney inflammation can be treated successfully.

How frequent is kidney involvement?

Estimates vary depending on the type of clinic and the patients studied, but it is usually said that approximately half of all lupus patients at some stage will have clinical evidence of kidney inflammation. It may be that with a diagnosis of milder cases of lupus, this percentage will fall. Fortunately, severe kidney disease requiring kidney dialysis and even transplantation is extremely rare in lupus.

Symptoms and Signs

Kidney involvement in lupus rarely causes discomfort or pain (as distinct, for example, from kidney stones or infection). The most common major kidney problem is that of protein (albumin) leakage in the urine. This can be mild and detected only on testing, or severe gradually leading to a lowering of the protein level in the blood (a low plasma albumin level). When this happens there is a tendency to ankle swelling, to fluid retention and to general fluid "bloating".

When the kidney is inflamed the blood pressure frequently rises and blood pressure measurement is one of the important parts of the physical examination of lupus patients. When the kidney is more severely damaged its normal filtering process is grossly impaired and toxic elements such as urea and creatinine, normally present in the blood in small amounts, build up, leading to weight loss, nausea and general malaise.

Urine testing

Simple "outpatient" urine testing involves the use of a dip-stick. Modern urine testing sticks check for a variety of constituents in the urine including urine sugar, albumin, blood and so on. The test simply involves the dipping of the stick in the urine and comparing the colour changes with a colour chart. If the lupus patient is losing protein in the urine ("proteinuria") then the amount may need to be quantified. These days this is done by comparing the ratio of albumin and creatinine in a sample of urine (albumin: creatinine ratio), which is much easier than measuring the total protein in all the urine passed over 24-hours that used to be done. The urine sample may also be sent to the laboratory to allow detection of infection and for microscopic examination. Normal urine under the microscope is clear but when there is inflammation anywhere in the urinary tract (in the kidneys or the bladder) cells are present, either red cells or white cells. More important is the presence of clumps of cells called "casts". These clumps - looking rather like a railway train of goods wagons - are indicative of kidney inflammation rather than bladder inflammation and are very helpful in the diagnosis and assessment of the kidney.

What the blood tests show

Much information concerning kidney function is obtained from simple blood tests. The three main blood tests affected by kidney function are the blood urea (sometimes called blood urea nitrogen or BUN), the creatinine and the albumin. The creatinine can be used to complete a measurement called the eGFR (estimated glomerular filtration rate), which helps to grade the severity of kidney disease into 5 stages where stage 1 is the mildest and stage 5 the worst. If the vital filtering function of the kidney is impaired then urea and creatinine levels start to rise and eGFR falls. The blood level of albumin (protein) falls if leakage of the protein in the urine is present.

In addition to these tests a number of other blood tests give important information. These include the sodium, potassium, calcium and phosphate levels and the blood haemoglobin - all directly or indirectly affected by altered kidney function.

More complicated tests

A kidney ultrasound may be done to check that two kidneys are present and to check their size. Sometimes other tests may be undertaken such as an isotope renogram, which can give additional information such as the extent that each kidney contributes to overall function.

Kidney biopsy

In some patients the only way of determining precisely the degree of disease activity is to perform a kidney biopsy. This is now a routine procedure in hospitals throughout the world. It is most safely carried out under ultrasound scanning. Following a local anaesthetic given in the loin, a needle is inserted into the kidney and a small core is obtained. The patient is usually kept in hospital overnight as there is a small risk of bleeding following biopsy. The procedure has a very high safety margin and does not adversely affect kidney function. The interpretation of the kidney biopsy by the pathologist takes a lot of expertise. Put at its most simple, the first signs are those of inflammation (cells are seen around the filters). The second and more serious stage is damage to the filters (glomeruli). The most severe stage is when all the glomeruli are scarred. There are international conventions about "staging" the severity of the kidney biopsy and pathologists are able to judge the chances of response to treatment from their reading of the biopsy.

General Treatment

It is now widely agreed that when there is kidney inflammation a combination of steroids and an