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In the interest of public health education.

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Glomerulonephritis Information Sheet

What is glomerulonephritis (gn)?

Glomerulonephritis is the medical term for inflamed kidney filters. Often the name is shortened to nephritis or gn. There are many causes of inflamed kidneys.

Some common types of glomerulonephritis are: minimal change nephritis; membranous nephritis; focal and segmental glomerulosclerosis (FSGS); postinfectious glomerulonephritis; IgA nephritis; lupus nephritis. Sometimes nephritis is replaced with the term nephropathy – which means “something wrong with the kidney”.

Some gns are mild and cause few long term problems, and some are troublesome, and can cause kidney failure, and the subsequent need for dialysis or kidney transplantation.

What do the filters do?

One of the many functions of the kidneys is to filter, or clean, the blood of waste products. When the filters are inflamed, the body’s waste products accumulate in the body, and cause symptoms.

Together both kidneys make about 180 litres of urine per day, fortunately most of it is reabsorbed by the kidney tubules before it reaches the bladder! There is about 50 kilometres of tubules in each kidney. Each kidney has about one million filters. Once the filter is damaged and scarred, it cannot regrow. It is lost forever.

What causes glomerulonephritis?

Sometimes part of the immune system goes haywire, and instead of protecting us, the immune damage starts to destroy us. Sometimes the kidney is on the receiving end of this.

Post-infectious gn can be caused by a Streptococcal infection in the throat. Some cancers are rarely associated with some glomerulonephritides - especially minimal change and membranous nephritis.

What are the symptoms of glomerulonephritis?

The symptoms suffered depend upon which type of glomerulonephritis, and how quickly the gn develops.

Symptoms include: blood in the urine; swelling of the legs, eyes and wrists; frothy urine. Generalised, non-specific symptoms such as tiredness, nausea, joint aches and rashes may also occur.

Other findings include: protein and blood on urine testing; high blood pressure; abnormal kidney function (high urea and creatinine). In most cases it is necessary to perform a kidney biopsy. This involves removing a small piece of tissue with a fine needle passed through the back under ultrasound guidance into one of the kidneys. A local anaesthetic is given. The gn will be affecting both kidneys equally, so only one needs to be biopsied to get the information required.

Can glomerulonephritis be treated?

Not all gns require treatment. Not all are treatable. Early presentation and diagnosis of a treatable gn allows early treatment before permanent scarring may have developed.

Most treatments involve anti-inflammatories and / or strong anti-immune system (immunosuppressive) medications. Commonly used medications are prednisone, cyclophosphamide, azathioprine and cyclosporine.

Treatment often requires admission to hospital in the first few days, and frequent monitoring of blood and urine tests as an out-patient. Treatment will require frequent visits to the kidney specialist.

Can glomerulonephritis be prevented?

Unfortunately most types of gn are not preventable. Although a lot is known about many gns, a lot of research still is necessary, both in identifying causes and treatment therapies. Reduced infection risk with good hygiene and avoiding overcrowding can reduce post-infectious (post-streptococcal) gn.

Glomerulonephritis is more common in Maori and Pacific Islanders. These Polynesians are also more likely to get the more serious forms of gn that progress to kidney failure.

Glomerulonephritis is the second to most common cause of kidney failure, leading to dialysis or kidney transplantation, in New Zealand. Approximately one-third of patients on dialysis in New Zealand have glomerulonephritis as the underlying cause.