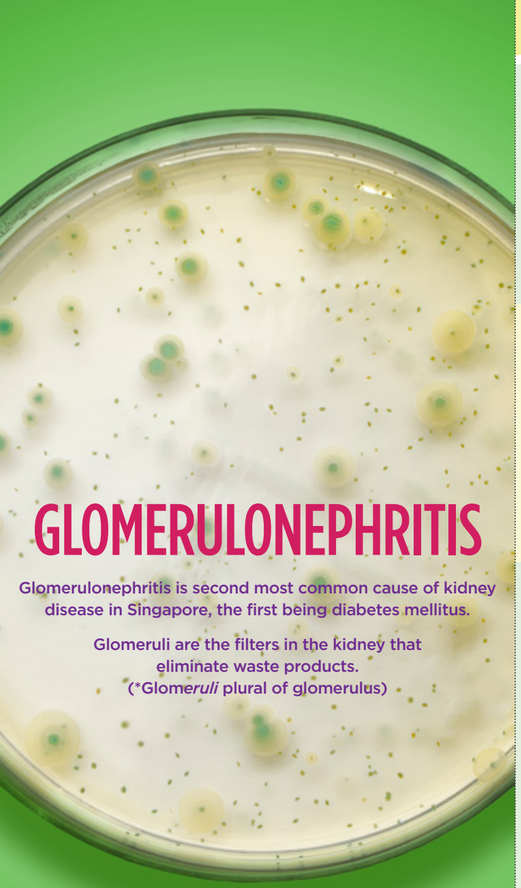


GLOMERULONEPHRITIS

Glomerulonephritis is second most common cause of kidney disease in Singapore, the first being diabetes mellitus.

Glomeruli are the filters in the kidney that eliminate waste products.
(*Glom*eruli* plural of glomerulus)

KDF
KIDNEY DIALYSIS FOUNDATION

What is glomerulonephritis?

Glomerulonephritis refers to inflammation of the kidney filters. This eventually leads to scarring of the Glomeruli. There are different types of glomerulonephritis. The commonest form in Singapore is IgA Nephropathy. IgA nephropathy is a primary form of kidney disease where the illness is restricted to the kidney in the early stages. In contrast, Lupus nephritis is a secondary form of glomerulonephritis. This means that the kidney disease is only one manifestation of a disorder affecting many body systems.

How does glomerulonephritis come about?

When a person has an infection or autoimmune disease, fighter cells in the body react and cause antigen and antibody complexes to form in the blood stream. When these complexes reach the kidney filters (glomeruli), the filters can become inflamed and eventually scarred. When scarring is severe, the ability of the kidney to excrete waste products and water decreases.

How are these antigen and antibody complexes formed?

Antibodies in the blood stream provide resistance to infection. They attach to foreign matter such as bacteria or viruses (antigen) to initiate the immune response after forming the antigen-antibody complexes. When the immune system is over-reactive, abnormal antibodies or abnormally high levels of antibodies are produced. This may cause the inability of the body to clear these complexes from the blood stream. In many types of glomerulonephritis, the antigen is often not known. Occasionally the antigen could be the body's own tissues or even the kidney itself. It is often not clear why these complexes form.

What are the signs and symptoms of glomerulonephritis?

The disease is usually silent with any signs and symptoms until the kidney filters are severely damaged. In the early stages, it is usually detected following pre-employment or life insurance screening as presence of blood or protein in the urine. In Singapore, young men are often picked up through a routine medical examination for National Service. Some other types of glomerulonephritis are associated with skin or joint disorders and may be detected when patients seek treatment for their joint or skin problems.

When the kidneys are severely damaged, a person may present with complaints related to kidney failure, which include:

- Headache, nausea, vomiting, fever, chills
- Reduced urine output
- Swelling seen in the face, hands and feet (edema) due to water and salt retention
- High blood pressure or hypertension

What investigations are performed to identify glomerulonephritis?

- Urine sample to check for presence of blood or protein.
- Blood tests to assess kidney function.
- A renal biopsy (a tissue taken from the kidney) to determine the type of kidney disease. It is usually done when the disease is more advanced and more specific treatment options need to be considered.

What is the long term outlook for patients with glomerulonephritis?

This depends on the type of glomerulonephritis and severity.

However, those with large amount of protein leakage on urine test and those whose renal biopsy shows damage of kidney filters, are likely to develop kidney failure with time. Left untreated, this these patients will eventually require kidney replacement by dialysis or transplantation.

What are the types of treatment available to slow down the progression of damage to the kidneys?

Your doctor will let you know what stage of glomerulonephritis you have.

In mild case, no treatment is necessary. For moderate and advanced cases treatment includes:

Drug therapy:

- Leakage of protein into the urine can be reduced with certain classes of antihypertensives called RAAS blockers (eg ACE inhibitors or Angiotensin II receptor blockers). They are also good antihypertensive agents.
- Treatment of hypertension.
- Treatment of fluid retention.
- Anti-platelets (dipyridamole) and anti-coagulant (warfarin) have been shown to be effective in IgA Nephropathy.

Dietary measures

- Control salt and water intake to prevent fluid retention.
- Careful reduction of protein intake can slow progression to end stage renal failure. There is a very fine balance between too much protein, which can stress the kidney, and taking too little, which can lead to malnutrition. It is very important that you see the dietician so that he/she can assess and advise you on the correct amount to take.
- Many of the drugs used may increase potassium level so it is important to moderate its daily intake.

What are some points to remember if one is diagnosed with glomerulonephritis?

- **MILD CASES**
  Even if there is no treatment, monitoring on a yearly basis is necessary with your family doctor. If the urine protein becomes excessively high, you should visit the hospital for further assessment.
- **MODERATE TO ADVANCED CASES**
  Medication would usually have been started. Follow up should continue and the degree of protein leakage, kidney function and complication of the drug treatment should be monitored periodically.

Prevention of kidney failure is the goal, as treatment of advanced kidney failure is time consuming and very expensive.

Remember, the whole process occurs over a long period of time, thus follow up and compliance to treatment is essential in preventing kidney failure.

You may visit these websites for more information:

http://www.kdf.org.sg/education/health-guides
http://www.davita.com
http://www.uptodate.com/patients/index.html

Blk 333 Kreta Ayer Road, #03-33, Singapore 080333
Tel: 6559 2630 **Fax:** 6225 0080
Website: www.kdf.org.sg

Printed: June 2017

肾小球肾炎

在新加坡，肾小球肾炎是导致肾脏疾病的第二大病因，第一大病因是糖尿病。

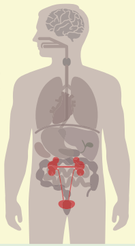
肾脏由众多肾小球组成，肾小球是肾脏的过滤装置，其主要功能是过滤及清除体内的代谢废物。

KDF
KIDNEY DIALYSIS FOUNDATION

什么是肾小球肾炎？

肾小球肾炎是指肾小球的炎性病变导致肾小球瘢痕形成从而造成肾脏过滤功能障碍，肾小球肾炎种类很多。在新加坡，最常见的是IgA肾病即A型免疫球蛋白肾病（IgA Nephropathy），它是一种原发性肾小球肾炎，发病初期病变只局限于肾脏。而狼疮性肾炎(Lupus nephritis)则是继发性肾小球肾炎。在这种情况下，肾小球肾炎只是全身性疾病的一种表现。

肾小球性肾炎是如何形成的？



当人体遭受感染或罹患自身免疫性疾病时，机体的免疫细胞发生反应，血液中有抗原抗体复合物形成，当这些免疫复合物流经肾脏过滤器（肾小球）时，肾小球会出现炎性反应导致肾小球瘢痕形成使肾脏过滤功能受损。受损情况严重时，肾脏清除体内废物和水的能力降低。

抗原-抗体复合物是如何形成？

血液中的抗体可抵抗感染。它们与入侵物质如细菌或病毒（抗原）结合引发免疫应答，形成抗原-抗体复合物。当免疫系统反应过度，会产生异常抗体或异常高水平的抗体，这将导致身体无法清除血液中抗原-抗体复合物。许多类型的肾小球肾炎，不能明确是何种抗原导致该疾病的发生。抗原有可能是身体自身的组织，甚至是肾脏本身，因此此类抗原-抗体复合物的形成原因不明。

肾小球肾炎的症状与体征

肾小球肾炎通常起病时症状隐匿，直至肾脏功能严重受损。初期病例往往是在入职体检或购买保险者的例行体检时发现。在新加坡，青年男性常常会在服兵役体检行尿液检查时发现有蛋白尿或血尿，提示罹患肾小球肾炎。一些其他类型的肾小球肾炎会出现皮肤或关节病变，这类患者通常是在求治皮肤关节病变时发现患有肾小球肾炎。

肾脏功能严重受损时，患者可出现肾功能衰竭相关的如下症状：

- 头痛、恶心、呕吐、发热、寒战
- 少尿
- 水钠储溜导致的颜面部、四肢水肿
- 高血压

肾小球肾炎的诊断：

- 尿常规检查提示有血尿或蛋白尿；
- 血液生化检查评估肾脏功能；
- 肾脏穿刺活检（从肾脏取出少量组织）以确定肾炎的类型。此检查通常是在疾病进展较严重时进行，以便明确诊断，指导治疗或判断预后。

肾小球肾炎患者的预后：

取决于肾小球肾炎的类型和严重程度。尿常规提示有大量蛋白尿或肾脏穿刺活检显示肾滤器损害的患者，随着时间推移，患者发展成肾功能衰竭的几率较高。若未及时接受治疗，患者最终将需要肾脏透析治疗或肾脏移植。

治疗：如何延缓肾功能进行性损伤？

医生会根据您肾小球肾炎所处的病程阶段制定治疗方案。

轻症患者无需特殊治疗，中重度患者的治疗包括：

药物治疗

- 可服用RAAS阻滞剂类抗高血压药物（如ACE抑制剂或血管紧张素受体拮抗剂）减轻尿中蛋白质的流失，此外亦有良好的降血压作用。
- 高血压的治疗。
- 水肿的治疗。
- 抗血小板药物（Dipyridamole）和抗凝剂（Warfarin）已证实对治疗IgA肾病（IgA Nephropathy）有效。

饮食控制

- 控制盐和水的摄入量以预防水肿。
- 谨慎控制蛋白质的摄取量可延缓肾功能衰竭的进展。蛋白质的代谢平衡是很微妙的：摄入过量会增加肾脏负担；摄入过少则会导致机体营养不良。可咨询营养师进行评估，计算您每日蛋白质的摄取量。
- 药物治疗可造成血钾升高，需注意每日钾的摄取量。

肾小球肾炎患者注意事项

- 轻症病例：

  即使无特殊治疗，也需要每年看家庭医生进行基本的例行检查。如果发现蛋白尿程度严重，必须到医院作进一步检查。

- 中重症病例：

  此阶段通常已开始药物治疗。患者需定期随访，监测尿蛋白渗漏程度、肾脏功能以及药物副作用引起的并发症。

预防肾功能衰竭是肾小球肾炎的治疗目标，因为肾功能衰竭的治疗既耗时且费用昂贵。

切记，整个治疗需要患者长时间的配合，因此定期随诊以及谨遵医嘱是预防肾功能衰竭所必需的。

欲知更多，可浏览以下网页：

http://www.kdf.org.sg
http://www.davita.com
http://www.uptodate.com/patients/index.html

Blk 333 Kreta Ayer Road, #03-33, Singapore 080333
Tel: 6559 2630 **Fax:** 6225 0080
Website: www.kdf.org.sg

Printed: June 2017