Acute Nephritis

Definitions

Nephritis essentially means inflammation of the kidney. Nephritis may involve the glomerulus, tubule, or the interstitial renal tissue.

- When inflammation involves the glomeruli it is called glomerulonephritis.
- When kidney disease involves structures in the kidney outside the glomerulus, it is broadly referred to as tubulo-interstitial disease. This disease generally involves the tubules and/or the interstitium of the kidney and spares the glomeruli.
- When inflammation affects the area of the kidney between the nephrons (the renal interstitium) it is known as interstitial nephritis, or sometimes tubulo-interstitial nephritis.

Renal disease can present in a number of different ways, including as:

- Nephritic syndrome (nephritis).
- Nephrotic syndrome (nephrosis).
- Acute kidney injury.
- Chronic kidney disease.
- Hypertension.
- Renal pain and dysuria.

Glomerulonephritis can present with different clinical syndromes. These include nephrotic and nephritic syndrome. Glomerulonephritis is discussed in more detail in the separate Glomerulonephritis article.

Interstitial nephritis can be acute or chronic. Acute interstitial nephritis is commonly due to a drug hypersensitivity reaction and presents as sudden-onset acute kidney injury. Acute interstitial nephritis is discussed in detail in the separate Interstitial Nephritis and Nephrotoxins article.

So, nephritis and nephrosis are responses to renal disease or injury. There are a number of underlying disease processes that can lead to both nephritic and nephrotic syndromes. See also separate articles:

- Nephrotic Syndrome.
- Acute Kidney Injury.
- Chronic Kidney Disease.
- Renal Tubular Disease.
- Goodpasture's Syndrome.
- IgA Nephropathy (Berger's Disease).

Acute nephritic syndrome

Acute nephritic syndrome is often the most serious and potentially devastating form of the various renal syndromes.

Clinical features

The key clinical features of acute nephritic syndrome are:

- Haematuria.
- Reduced urine output.
- Fluid retention and oedema (including periorbital, pedal and pulmonary oedema).
- Proteinuria (usually <3.5 g/day).
- Hypertension.
- Uraemic symptoms (including anorexia, pruritus, lethargy, nausea).
- Deteriorating renal function.

### Aetiology

- Post-infection with nephritogenic strains of Group A beta-haemolytic streptococcus (typically occurs in children).
- Any of the other causes of glomerulonephritis:
  - Other bacterial infections - eg, typhoid, secondary syphilis, meticillin-resistant Staphylococcus aureus (MRSA) infection, pneumococcal pneumonia, infective endocarditis.
  - Viral infections - eg, hepatitis B, mumps, measles, infectious mononucleosis, varicella, Coxsackievirus.
  - Parasitic infections - eg, malaria, toxoplasmosis.
  - Multisystem systemic diseases - eg, systemic lupus erythematosus (SLE), vasculitis, Henoch-Schönlein purpura, Goodpasture's syndrome, Wegener's granulomatosis.
  - Primary glomerular diseases - eg, Berger's disease (IgA nephropathy), membranoproliferative glomerulonephritis.
  - Guillain-Barré syndrome.
  - Diphtheria-pertussis-tetanus vaccine

### Management

#### In primary care

- Take a history - ask about onset of symptoms and uraemic symptoms; look for a clue to an underlying cause - eg, recent streptococcal infection, other infection, multisystem disease.
- Measure blood pressure.
- Assess for peripheral, periorbital and pulmonary oedema.
- Perform urine dipstick for protein and blood.
- If acute nephritic syndrome is suspected, patients should be referred to secondary care. Acute admission may be required.

#### In secondary care

- Investigations are focused on assessing severity of renal injury and looking for the underlying cause - discussed in detail in the separate *Glomerulonephritis* article.
- Management depends on the underlying cause and is also discussed in the same article.

### Prognosis

This depends on the underlying cause. The prognosis for nephritic syndrome caused by acute post-streptococcal glomerulonephritis in children is generally excellent.

### Further reading & references

- KDIGO Clinical Practice Guideline for Glomerulonephritis; International Society of Nephrology (2012)

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