



## GLOMERULONEPHRITIS – ACUTE

### Clinical Presentation

The classical presentation is the triad:

- 1) Facial oedema
- 2) Coke or tea-coloured urine
- 3) Oliguria

- APSGN is uncommon before 2 years of age
- Impetigo is present in > 50% of cases (other associations include scabies and pharyngitis)

### Severity

Life threatening complications include:

- 1) Volume overload progressing to cardiac failure, pulmonary oedema and respiratory failure
- 2) Hypertension progressing to encephalopathy +/- coma +/- blindness
- 3) Acute renal failure

The severity of the illness is determined by the degree of hypertension and the amount of volume overload. BOTH CAN KILL.  
Hypertensive encephalopathy and pulmonary oedema may occur with minimal peripheral oedema and mild renal failure.

### Investigations

#### Diagnose nephritis

- Urine dipstix and M,C&S (go to lab quickly before casts disintegrate)
- Evidence of Streptococcal infection (if no impetigo present): ASOT/Anti-DNAse B, throat swab
- C3/C4

#### Evaluate Hypertension

Check all pulses and do 4 limb BP's if pulses absent or asymmetrical

- Fundoscopy
- Fits
- LOC

#### Evaluate Volume Overload

- CXR: to check for cardiomegaly, pulmonary congestion, pleural effusion

#### Check Renal Function and Exclude Nephrotic Syndrome

- Renal function: urea, creatinine, Na<sup>+</sup> & K<sup>+</sup>, total protein/albumin (ALWAYS)
- Remember there may not be proteinuria in a child with nephrotic syndrome who has severe hypoalbuminaemia
- Monitor urine output

## Management for All

Admit all children with acute nephritis (possible and probable)

### 1) Observations

- Pulse and BP 4 hourly (more frequently if BP and management so dictate)
- Daily weight
- Daily test-tube urine displayed above patient's bed (DAILY DIPSTIX IS NOT NECESSARY)
- Strict intake and output measurement

A satisfactory care plan can be made using these observations and a focussed clinical assessment

### 2) Routine Care

- Restrict fluid to insensible loss only (15ml/kg/24 hours) when first admitted, and until no longer volume overloaded. Then increase to normal intake over a full day
- Restrict sodium intake until fluid overload is resolved (this means: no chips, nik-naks etc and no added salt in the food)
- Restrict protein if urea > 20 mmol/l

### 3) Rx

- PENICILLIN VK 50mg/kg/day 6 hourly for 10 days (or ERYTHROMYCIN 25-50mg/kg/day 6 hourly if impetigo is present)
- FUROSEMIDE 1-2 mg/kg/dose orally 12 hourly

## Management when the child's life is in danger

### 1) If Pulmonary Oedema is present:

- Sit upright
- Oxygen
- Morphine 0,1 mg/kg IVI
- Furosemide 2 mg/kg IVI over 5-10 minutes (giving FUROSEMIDE fast causes deafness). If no response in 20-30 minutes, double the dose.
- Admit to ICU or HCU if no diuresis NOR rapid clinical improvement

### 2) If Hypertension is present:

A very important part of management is to **re-establish urine flow** by using adequate doses of FUROSEMIDE

- Give additional FUROSEMIDE IVI up to a maximum of 5 mg/kg
- If BP > 140 systolic and/or >100 diastolic, give NIFEDIPINE (Adalat) 5 mg under tongue. NIFEDIPINE can be given 4-6 hourly. An alternative is dihydropyridine 0.1-0.8 mg/kg/dose IMI 4 hourly.
- Monitor BP hourly thereafter until stable
- If BP is not controlled on NIFEDIPINE, give HYDRALAZINE 1-5mg/kg/day 6 hourly orally

### 3) If Renal Failure is present:

- Monitor K<sup>+</sup>, urea and creatinine

## Discharge Home When:

- Urine macroscopically clear **AND** oedema resolved **AND** blood pressure normal **AND** urea/creatinine normal or falling rapidly  
**ON**
- Normal diet and fluid intake  
**AND OFF**
- FUROSEMIDE and anti-hypertensive agents: i.e. spontaneous diuresis has occurred

## Follow Up

- Should occur 3-6 monthly for two years to check urine dipstix and blood pressure