School of Nursing

Course Code : BSCN2003 **Course Name: MEDICAL SURGICAL NURSING**

ACUTE GLOMERULONEPHRITIS (AGN) & HYDRONEPHROSIS

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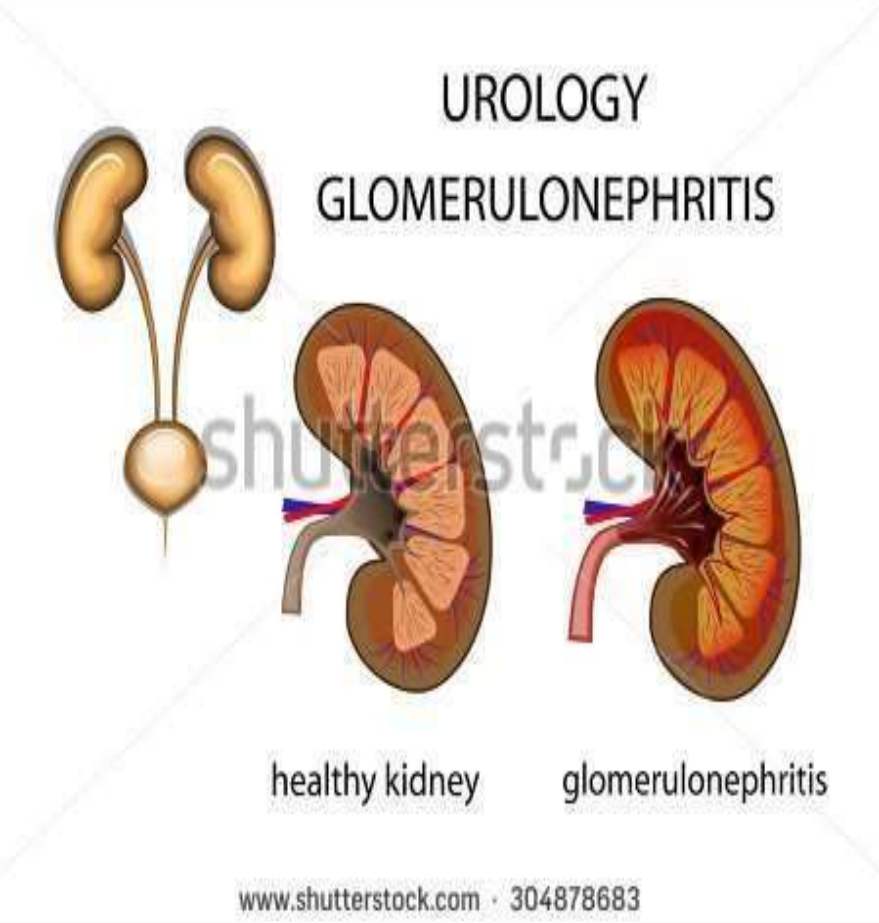
Name of the Faculty: Ms. Simrat **Program Name: B.Sc. Nursing**

DEFINITION

- Acute Nephritis or glomerulonephritis is an infective renal disease characterized by sudden onset of hematuria, oliguria, edema and hypertension.


UROLOGY
GLOMERULONEPHRITIS
healthy kidney
glomerulonephritis
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Glomerulonephritis
Proteins in Urine
Secretion of Proteins
Afferent Arteriole
Nephrons
Efferent Arteriole
Glomerulus

ETIOLOGY

- More common in male than females.
- Most common in preschool and early school age children with a peak age of onset of 6-7 years.
- Rare in children under two years of age.
- On average responsible for 2 to 4% of pediatric admissions in India.
- Accounts for about 90% of renal diseases in childhood
- Varies with the prevalence of nephritogenic strains of streptococci and the likelihood of cross – infection.

- Most cases are post infectious and have been associated with
- -Pneumococcal
- -Viral infection
- -Acute post streptococcal glomerulonephritis is the most common of the post infectious renal disease in childhood.
- -Streptococcal pharyngitis is more common in the winter.

PATHOPHYSIOLOGY

- Antigen(group-A Beta Hemolytic Streptococcus)
- Antigen-antibody product
- Deposition of antigen-antibody complex in glomerulus
- Increased production of epithelial cells lining the glomerulus
- Leukocytes infiltrate the glomerulus
- Thickening of the glomerulus filtration membrane
- Scarring and loss of glomerular filtration membrane
- Decreased glomerular filtration rate(GFR)

CLINICAL MANIFESTATION:

- Decreased urine output
- Bloody or brown – coloured urine.

Oedema:

- Present in most patients Usually mild.
- Often manifested by Periorbital oedema in the morning
- May appear only as rapid weight gain.
- May be generalized and influenced by posture.

- **Hypertension:**
  - Present in over 50 per cent of patients.
  - Usually mild.
  - Rise in blood pressure may be sudden.
  - Usually appears during the first four to five days of the illness.
- **Malaise**
- **Mild headache**
  - Pallor
  - Irritability
  - Lethargy
  - Dysuria
  - Fever

INVESTIGATION

- **History of illness** and physical examination help in clinical diagnosis.The confirmation of diagnosis is done by the following:
- **Urine examination:**
  - It shows increased specific gravity, smoke dirty brown colour urine with reduced total amount in 24 hrs. Mild to moderate or severe albuminuria is detected.
- Microscopic examination reveals presence of red cells, WBCs, pus cells, epithelial cells and granular cast.
- Proteinuria (3+ to 4+)

- **Blood examination:**

- Blood examination demonstrates increased level of urea, creatine, ESR
- There is decreased level of Hb, serum complement and albumin in blood. Hyponatremia and hyperkalemia may occur in persistent oliguria.
- Serum IgA level elevated

- **Throat swab culture:**

- Throat swab culture may show presence of beta – hemolyticus streptococcus in some children.

- **Chest X-ray:**

- It may show pulmonary congestion

THERAPEUTIC MANAGEMENT

- AGN with impaired renal function as severe oliguria and azotemia needs hospitalization for special attention. Mild oliguria patients with normal blood pressure can be managed at home with OPD – based treatment.
- Treatment is essentially symptomatic
- **Monitoring:**
- The patient should be monitored closely for the presence of hematuria, decreased urinary output, and signs of volume overload like edema, hypertension and congestive heart failure.

- Daily record the general condition, edema, consciousness level, weight, heart rate, respiratory rate, blood pressure, fluid intake and urinary output.
- The kidney function tests must be monitored at regular intervals.

- **Bed rest:**

- It is rarely indicated except during the acute phase when complications of acute renal failure may be present.
- Protect the child from fatigue and contact with other respiratory infections.
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- **Diet:**

- Diet should be arranged with restriction of protein, salt and fluid intake, till oliguria and increased blood urea level persist.
- Carbohydrate containing food to be allowed freely.
- The diet of the patient need not be restricted routinely.
- Fluid intake should be allowed in a calculated amount (i.e., total amount of previous day urine output in 24 hrs plus insensible losses to be allowed to drink on that day).
- Daily weight recording is important to assess the increase and decrease of edema.

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