# Acute Glomerulonephritis

- **Definition of Glomerulonephritis:** it is an immunologic disease characterized by inflammation of the capillary loops in the glomeruli.

- **Etiology:** Etiologic factors are many and varied including:

1. Immunologic reactions—systemic lupus erthematosus (SLE),streptococcal infection
2. Vascular injury—hypertension
3. Metabolic diseases (DM)
4. Disseminated vascular coagulation (DIG)

The most common cause Gr.A-beta streptococcal infection (1-3 weeks after the infection)

The most common sites of primary infections are the pharynx or tonsils (URI) and the skin (impetigo)

- **Pathophysiology:**

There are several immunologic mechanisms that can cause acute glomerulonephritis. The most common, Gr.A strepococall infection and its consequence is the development of AGN. Antigen and antibody reaction results in inflammation of the glomeruli and scar tissue forms. Glomerular permeability increases and proteins leak into the urine. Glomerular filtration decreases and nitrogenous wastes accumulate in the blood and serum creatinine rise

Repeated episodes of acute glomerulonephritis result in chronic glomerulonephritis. The kidneys are reduced to as little as one fifth their normal size. Bands of scar tissue distort the remaining cortex. Numerous glomeruli and their tubules become scarred and the branches of renal artery are thickened. These result in end-stage renal disease (ESRD)

- **Signs and symptoms:**

*Early stage*

1. Hematuria
2. Protienuria
3. Azotemia
4. Increased urine specific gravity
5. Elevated erythrocyte sedimentation rate (ESR)
6. Oliguria
7. Elevated antistreptolysin O titer

*Late stage*

1. Circulatory congestion
2. Hypertension
3. Edema
4. End-stage kidney disease

- **Collaborative management:**

1. *Diagnostic tests*—urine analysis for protienuria, hematuria, and cell debris, urine creatinine and clearance; blood tests for BUN, creatinine, blood cell counts. ESR, antistreptolysin O titer

2. *Medical treatment:* antibiotics and prophylactic antibiotics, symptomatic treatment of water retention and diuretics, treatment of hyperkalemia, antihypertensive drugs

3. *Dietary restriction:* Low-protein diet (1-1.2 g/kg/d), high carbohydrate

4. *Activities restriction:* Bed rest until the infection resolve

- **Complications:**

1. Hypertensive encephalopathy
2. Congestive heart failure
3. Pulmonary edema

- **Nursing management:**

***Nursing assessment***

1. Assess signs and symptoms, recent infections (especially sore throat or skin lesions), and changes in urine characteristics
2. Inspect the area around the eyes, the extremities, and the abdomen for fluid accumulation
3. Assess skin turgor
4. Monitor vital sings for respiratory and cardiac function for evidence of excess fluid volume—dysponea, tachy-cardia, hypertention
5. Accurate intake and output records and daily weights

***Nursing Diagnoses:***

1. Excess fluid Volume related to renal dysfunction
2. Risk for infection
3. Activity intolerance related to retention of chemical wastes and fatigue
4. Self care deficit related to prescribed bed rest, lack of knowledge of treatment measures
5. Anxiety related to possibility of chronic illness

***Nursing interventions:***

1. Promoting fluid balance by—
   - Sodium and fluid restriction
   - Monitor signs and symptoms of fluid overload: Body weighing daily, Vital signs, Dyspnea, Edema
   - Administer antihypertensive, diuretics as prescribed and monitor serum K+
2. Preventing infection by:
   - Universal precautions
   - Preventing the patient from URI (from visitors etc.) if indicated administer antibiotics as prescribed
   - Avoiding catheterization
3. Facilitating self-care and coping to illness by
   - Explain the rational for bed rest and once the signs and symptoms subside, encourage the patient to ambulate
   - Offer diversional activities to prevent depression (e.g., talking with others, listening to music etc.)
   - Encourage the patient to plan activities as tolerated for his/herself
   - Encourage family to get involve and plan the care together with the patient
   - Encourage them to express their feelings and concerns and provide supportive care
4. Patient and family education
   - Nature of disease and effect of diet and fluids on fluid balance and sodium retention

- Diet teaching
- Medication regimen
- Need to balance activities
- Avoidance of infection
- Signs and symptoms indicating need for medical attention
- Importance of follow up care

**Q. What is SLE?**

- Systemic lupus erythematosus (SLE), is the most common type of lupus.
- SLE is an autoimmune disease in which the immune system attacks its own tissues,
- Causing widespread inflammation and tissue damage in the affected organs.
- It can affect the joints, skin, brain, lungs, kidneys, and blood vessels.
- What are the symptoms of lupus?
  - facial rash
  - Fatigue.
  - Fever.
  - Joint pain, stiffness and swelling.
  - Skin lesions that appear or worsen with sun exposure.
- How is SLE diagnosed?
  - No one test can diagnose lupus. The combination of blood and urine tests, signs and symptoms, and physical examination findings leads to the diagnosis.
- There is no cure for SLE.
- The goal of treatment is to control symptoms. Severe symptoms that involve the heart, lungs, kidneys, and other organs often need treatment by specialists.

**Q. what is azotemia?**

- Azotemia is a biochemical abnormality, defined as elevation, or buildup of, nitrogenous products (BUN-usually ranging 7 to 21 mg/dL), creatinine in the blood, and other secondary waste products within the body.
- What is azotemia vs uremia?
  - Azotemia is when there's nitrogen in your blood. Uremia occurs when there's urea in your blood. However, they're both related to kidney disease or injury.

**Q. What do you mean by Antistreptolysin O (ASO) titer?**

- Antistreptolysin O (ASO) titer is a blood test to measure antibodies against streptolysin O, a substance produced by group A streptococcus bacteria. Antibodies are proteins our bodies produce when they detect harmful substances, such as bacteria.

- Streptolysins are two hemolytic exotoxins from Streptococcus.[1][2] Types include streptolysin O (SLO; slo), which is oxygen-labile, and streptolysin S (SLS; sagA), which is oxygen-stable