

Practice teaching on



Glomerulonephritis

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M. Sc Nursing 1st year

Objectives

After completion of the class students will be able to

- Introduce the glomerulonephritis.
- Define glomerulonephritis
- Enlist the types of glomerulonephritis
- Explain the Causes of glomerulonephritis
- Explain the Pathophysiology of glomerulonephritis
- Enumerate the Clinical manifestations glomerulonephritis.

Objectives

- Enlist the diagnostic evaluation of glomerulonephritis.
- Explain the management of glomerulonephritis.
- Enlist the complication of glomerulonephritis.
- Explain the nursing management of the glomerulonephritis.

Introduction

It is a term used to refer to several kidney disease (both kidney) characterized by inflammation either of the glomeruli or of the small blood vessels in the kidney. But not all the disease necessarily have an inflammatory component.

It occurs due to repeated episodes of acute nephrotic syndrome, nephrosclerosis and hyperlipidemia.

Definition



- **Glomerulonephritis** is a kidney condition that involves damage /inflammation to the glomeruli.

Incidence

Incidence rates of primary GN vary between 0.2/100,000/year and 2.5/100,000/ year. this disease can exist sub clinically and is therefore only detected by chance in some patients. In addition, referral policies for diagnostic biopsy vary between countries. This will affect the incidence rates found.

Anatomy and physiology of Nephron

The nephron consist of a tubule closed at one end, to form the cup-shaped glomerular capsule (bowman's capsule), which almost completely enclose a network of tinny arterial capillaries, the glomerulus. Continuing from the glomerulus capsule, the remainder of the nephron is about 3cm long & is described in three parts-

- The proximal convoluted tubule
- loop of henle (medullary loop)
- distal convoluted tubule lead them to collecting duct.

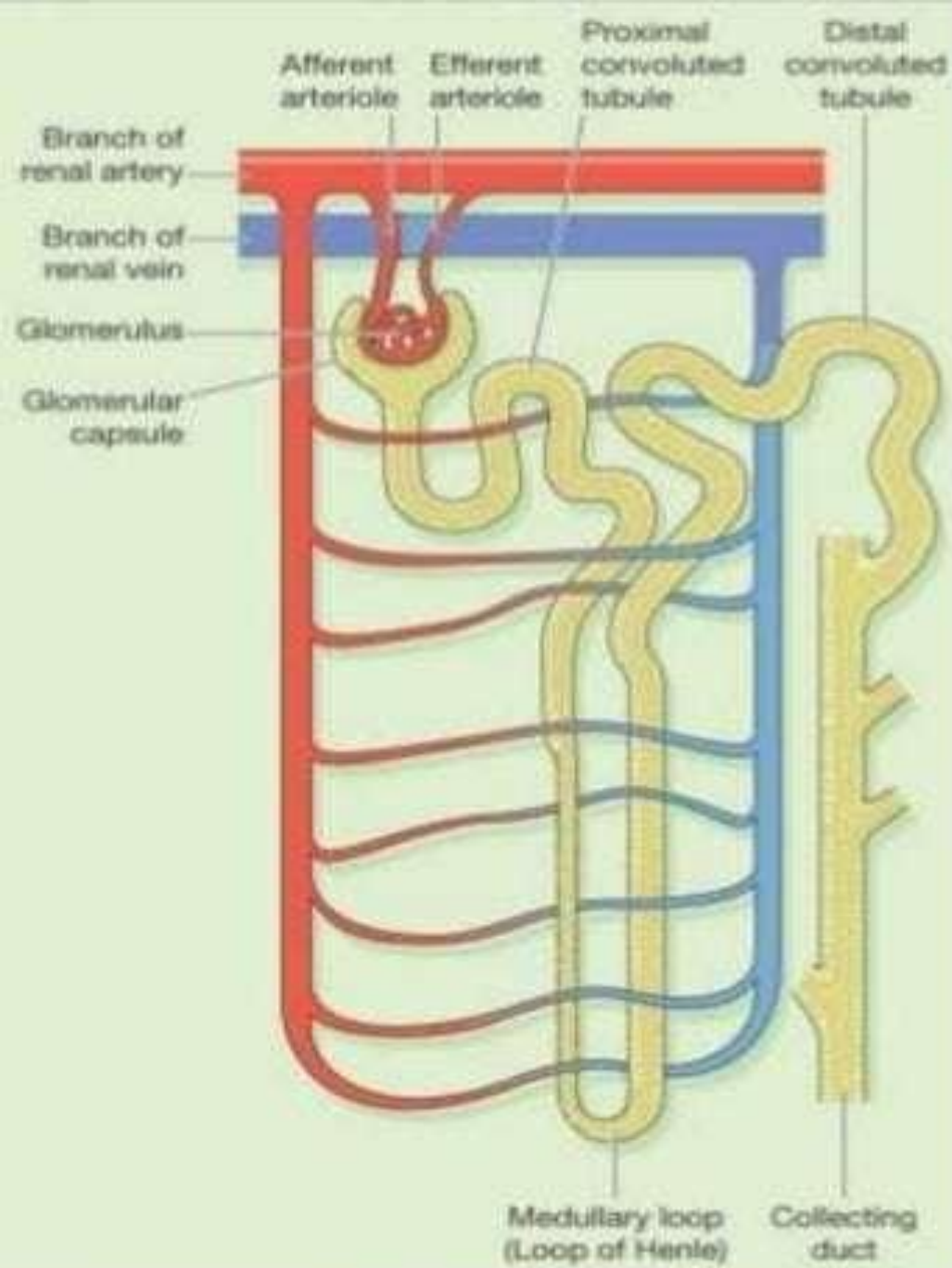
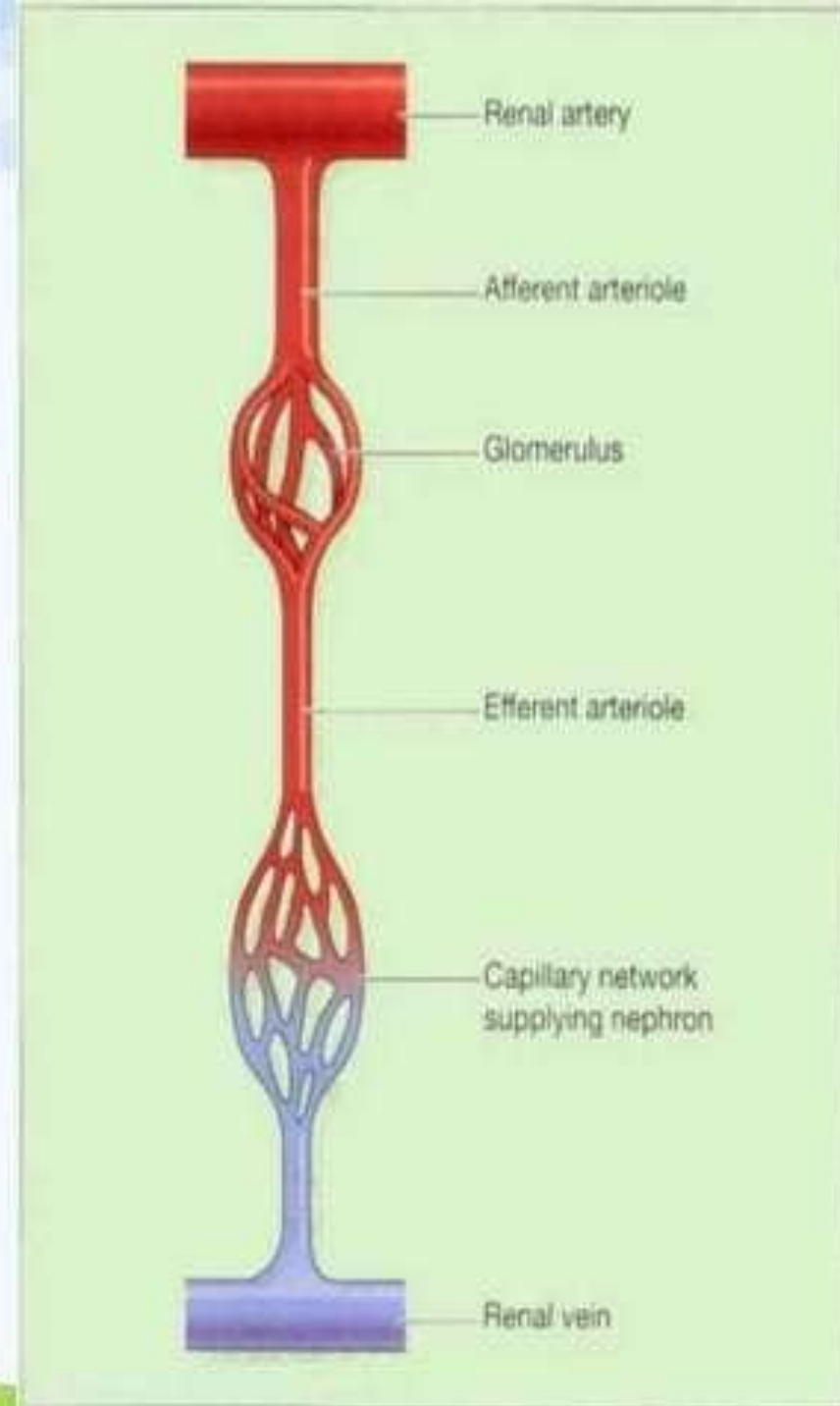


Figure 13.5 A nephron and associated blood vessels.



Etiology & risk factor

- Streptococcal infection of the throat (strep throat) or skin (impetigo)
- Hereditary diseases
- Immune diseases, such as SLE
- diabetes
- High blood pressure
- Vasculitis (inflammation of the blood vessels)
- Viruses (HIV, hepatitis B virus, and hepatitis C virus)
- Endocarditis (infection of the valves of the heart)



Types of glomerulonephritis

❑ Acute glomerulonephritis

- begins suddenly.

It occurs after 5-21 days of streptococcal Infection.

❑ Chronic glomerulonephritis

-develops gradually over several years. It occurs after the acute phase.





Pathophysiology



Due to any etiological factor

↓
Release of Ag substance into the circulation

↓
Formation of Ab

↓
formation of Ag and Ab complex in the glomerulus

↓
Inflammatory response

↓
proliferation of epithelial cells lining the glomerulus

↓
Leukocytes infiltration of the glomerulus

↓
Thickening of the glomerular filtration membrane

Cont...



scarring and loss of glomerular filtration membrane



decrease GFR and glomerulus plasma flow



Retention of sodium and water



Edema and hypertension



Clinical manifestations

- Flank pain
- Foamy urine
- Cola color or diluted iced tea color urine
- Hematuria
- Oliguria, Dysuria
- Fatigue to anemia and kidney failure
- Hypertension
- Fluid Retention



Diagnostic evaluation

- History
- Physical examination
- Urinalysis
- Biopsy
- IVP
- Blood Test
- USG

Management



Management

- Treatment depend on the cause of the disorder, type and severity of the symptoms.
- High B.P. may be hard to control. Controlling the B.P. usually the most important part of the treatment.
- Dialysis
- Medication
 - Diuretics
 - Immuno-suppressants
 - Anti-hypertensive

Cont...

- Life style changes
 - Sodium and water restriction
 - Potassium, phosphorus, magnesium restriction.
 - Limit intake of protein in the diet.
 - Take calcium supplements.
 - Maintain a healthy weight through diet and exercise.
- Physiotherapy treatment

Cont...

- Patient education
 - Lymphatic message to reduce the edema.
 - Breathing exercise - pursed lip and diaphragmatic breathing.
 - Endurance exercise such as walking, swimming, bicycling, aerobic dancing, circulatory exercise.

This exercise improve your blood circulation, accelerate kidney to discharge waste and toxins.

Complication

- Acute and chronic renal failure
- Nephrotic syndrome
- Hypertension
- Electrolyte imbalances
- Pulmonary edema
- CHF due to fluid overload

The background features a stylized landscape with rolling hills. The top portion consists of light blue and white wavy bands, while the bottom portion consists of green and light green wavy bands. The text is centered in the white space between these bands.

Nursing Management

1. **Nursing diagnosis** - Acute pain related to inflammation of renal cortex as evidenced by facial expressions and verbalization of patient.

- **Goals:** reduce pain

- **Intervention:**

- Assess the onset, duration, location, severity and intensity of pain.
- Provide comfort devices, quiet environment and calm activities.
- Encourage use of relaxational technique.
- Provide diversion therapy.
- Administer the analgesic according to physician order.

2. **Nursing diagnosis** - excess fluid volume related to accumulation of fluid in the body as evidenced by edema and weight gain.

- **Goal:** to maintain the fluid volume
- **Intervention:** To change the position frequently.
- To elevate the edematous extremities.
- Allow the patient to heard the running water to promote the diuresis.
- Apply hot application on the bladder to promote the diuresis.
- To administer the diuretics to promote the diuresis.
- To administer the albumin helps in shifting the fluid from the ISC to IVC.

3. **Nursing diagnosis** - Ineffective breathing pattern related to accumulation of fluid in the peritoneal cavity as evidence by respiration rate, dyspnea.

- **Goal:** to improve the breathing pattern
- **Intervention:**
 - Instruct the patient to perform the deep breathing exercise.
 - To provide the semi-fowler position.
 - Encourage the rest between the activities to Avoid The overexertion.
 - Instruct not to wear the tight dress to promote the breathing.
 - To administer the diuretics and albumin.

Abstract

Shashidhar Baikunje conducted a retrospective study on Post-infectious glomerulonephritis with crescents in adults. Sample consisted of adults who underwent kidney biopsy from February 2010 to June 2014. Major finding of the study reveals that the mean percentage of glomeruli with crescents was 36.13%. This study concluded that Non-streptococcal infections are more common precipitants. There was no correlation between histological and clinical severity. Patients treated with steroids had better renal outcomes.

The background features a stylized landscape with rolling hills. The top portion consists of several layers of light blue and white wavy bands, suggesting a sky or distant mountains. The bottom portion shows rolling green hills in various shades of green, from light to dark, creating a sense of depth and movement.

Summary

References

- “Burnner and Suddarth's” text book of medical surgical nursing, twelfth edition, Wolters publication, Page no. 1316-1317
- “Saunders” comprehensive review for the NCLEX RN examination, fifth edition, Elsevier publication, page no. 494-495
- Shashidhar Baikunje, Post-infectious glomerulonephritis with crescents in adults; a retrospective study, [Internet]. India:[cited 2017march,1]. Available form - <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4792622/>