Glomerulonephritis vs. Nephrotic Syndrome (NCLEX REVIEW)

Feature	Glomerulonephritis	Nephrotic Syndrome
Definition	**Inflammation** of the glomeruli, leading to damage and **protein leakage** into the urine	**Damage** to the glomeruli, resulting in **excessive protein loss** in the urine
Main Symptoms	Proteinuria (high levels of protein in the urine), hematuria (blood in the urine), edema (swelling), hypertension	Proteinuria (very high levels of protein in the urine), edema, hyperlipidemia (high cholesterol and triglycerides)
Causes	Infectious (e.g., strep throat), autoimmune (e.g., lupus), idiopathic (unknown cause)	Minimal change disease, membranous glomerulonephritis, focal segmental glomerulosclerosis
Diagnosis	Urine analysis, blood tests, kidney biopsy (may be required)	Urine analysis, blood tests, kidney biopsy (may be required)
Treatment	Corticosteroids, immunosuppressants, diuretics, antibiotics (if infection is present)	Corticosteroids, diuretics, cholesterol-lowering medications, protein-losing enteropathy diet

Key Differences:

Proteinuria:

Glomerulonephritis typically causes moderate to severe proteinuria, while nephrotic syndrome is characterized by massive proteinuria.

Edema:

Edema is common in both conditions, but it is usually more severe and widespread in nephrotic syndrome.

- **Hyperlipidemia:**

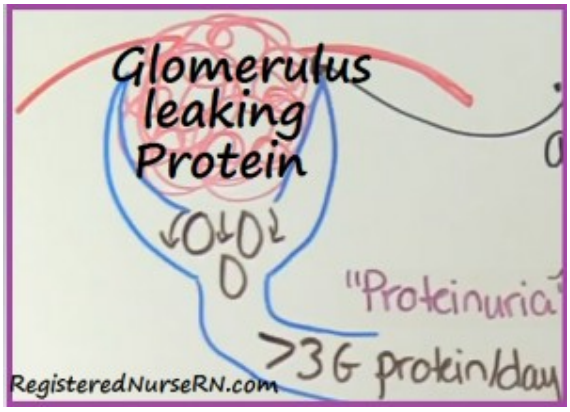
Hyperlipidemia is a common feature of nephrotic syndrome but is not typically seen in glomerulonephritis.

Nephrotic Syndrome vs Glomerulonephritis NCLEX Review

Nephrotic Syndrome

What is happening?

- Changes to the glomerulus of the nephron that leads to the leakage of a ***MASSIVE AMOUNT OF PROTEINS*** into the urine.



Main Causes:

- Changes to the glomeruli (cause not 100% known)
- Minimal change disease (most common cause) this disease shows glomeruli changes when assessed with an electron microscope
- Tends to affect the pediatric population (ages 2-5 years)
- Other causes can be secondary due to a disease causing changes to the glomeruli, such as lupus, diabetes, heart failure, etc.

Various types of proteins can be lost:

- Main protein lost is ALBUMIN…can also lose **immunoglobulins that help fight infection** and **proteins that decrease clot formation.**

Signs and Symptoms of Nephrotic Syndrome:

- Massive Proteinuria (>3 Grams per day)
    - Foamy Frothy urine dark yellow
- Hypoalbuminemia (low levels of albumin in the blood)

- Hyperlipidemia: as the liver tries to make more albumin it will produce more triglycerides and cholesterol as well
- Edema: weight gain…starts in face and around the eyes and progresses to the extremities and abdomen

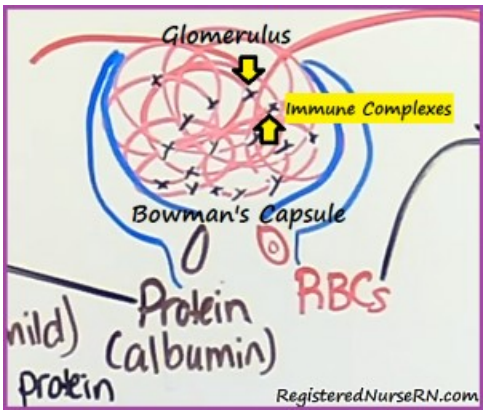
Main Nursing Concerns:

- Monitor fluid status and swelling (diuretics and IV albumin may be ordered by the physician to help with swelling and replace low albumin levels)
- At risk for infection (especially the edematous skin)
- Corticosteroids or immune suppressors to help decrease amounts of protein lost in urine…prevent relapse per physician's order
- Assess for blood clots: deep vein thrombosis, respiratory change pulmonary embolism etc.
- Diet limiting sodium, potassium, fluid, and fat
- Educate about relapse and how to monitor for signs and symptoms

Acute Glomerulonephritis

What is happening?

- Inflammation of the glomerulus that leads to the leaking of ***RED BLOOD CELLS*** and ***PROTEIN (mild)*** into the urine.



Main Cause:

- Post streptococcal infection
  - (occurs 14 days after a strep infection of the throat or skin…impetigo)
  - Tends to affect the pediatric population (ages 2-10)

Understanding how it works: AGN is not caused from the strep bacteria attacking the glomerulus ***but the immune system's response to the bacteria by creating antigen-antibody complexes,*** which inflames the glomerulus. This is why you see it **AFTER** a strep infection.

Signs and Symptoms of AGN:

*"**Had Strep**"*

Hypertension

ASO antistreptolysin titer positive (test used to diagnose strep infections)

Decreased GFR: inflammation dueto complexes in the glomerulus (low urine output)… oliguria (watch potassium level)

Swelling in face/eyes (edema)…mild

Tea-colored urine (cola colored)…from hematuria

Recent strep infection

Elevated BUN and creatinine

Proteinuria (mild)

Main Nursing Concerns:

- Monitor blood pressure (antihypertensive medications) and diuretics may be ordered by the physician.
- Monitor fluid status: intake and output…if oliguric watch for hyperkalemia because when the GFR is decreased potassium is not excreted properly, and swelling
- Diet limiting sodium and fluid…if oliguria presents will need to limit potassium-rich foods as well.
- Relapse not common but teach how to monitor for strep infections in the future and the importance of obtaining throat/skin cultures.