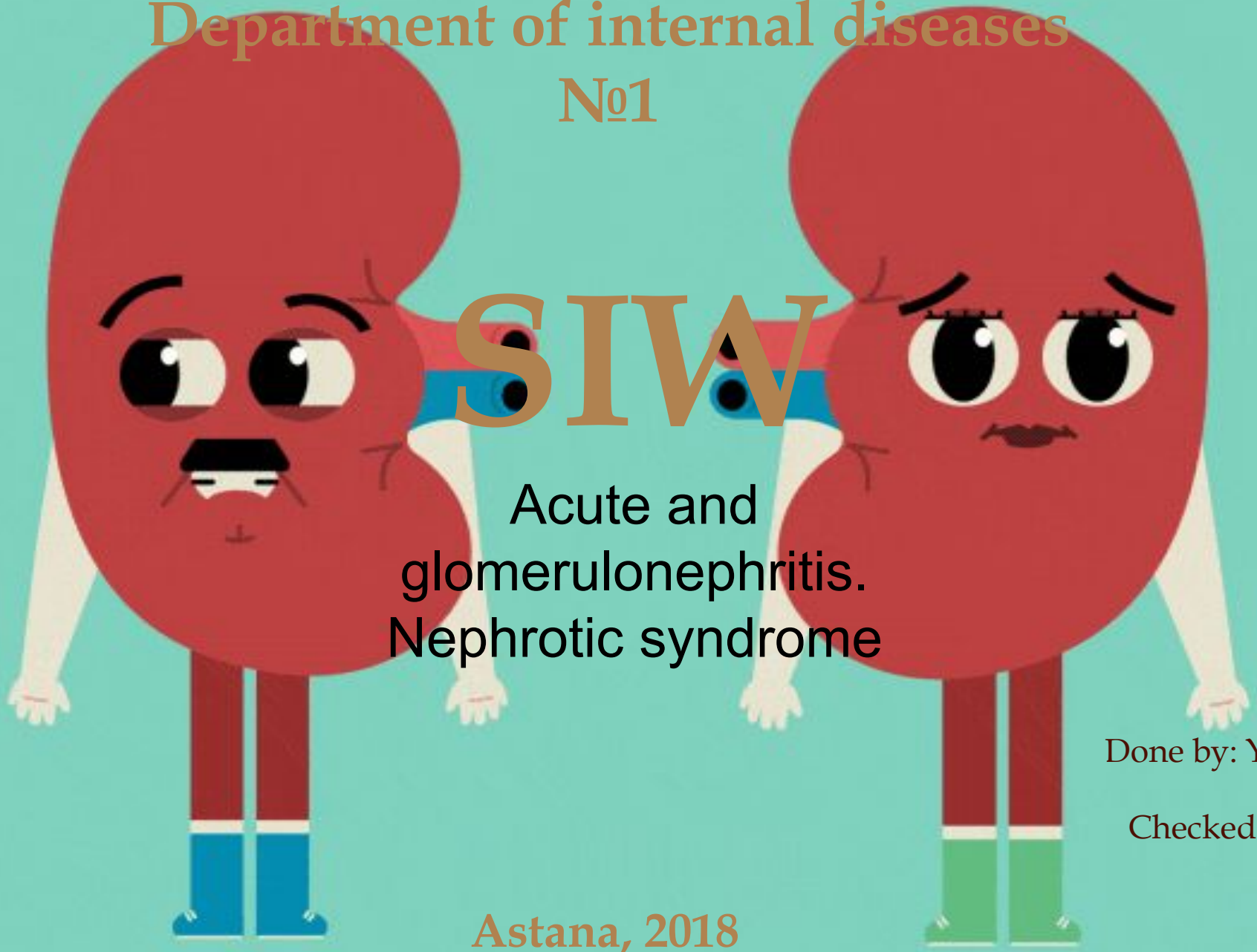
JSC «Medical University Astana»
Department of internal diseases
№1



SIW

Acute and glomerulonephritis. Nephrotic syndrome

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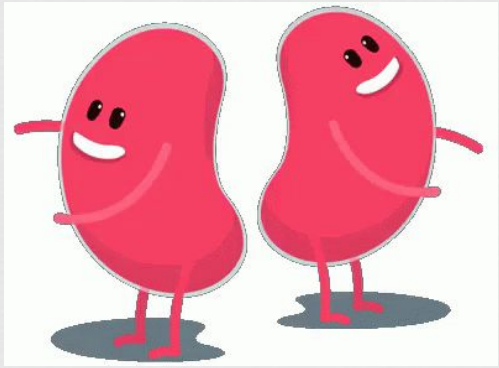
Content

- The concept of glomerulonephritis.
- Classification.
- Etiology.
- Diagnostics
- Analyzes

WHAT IS IT?

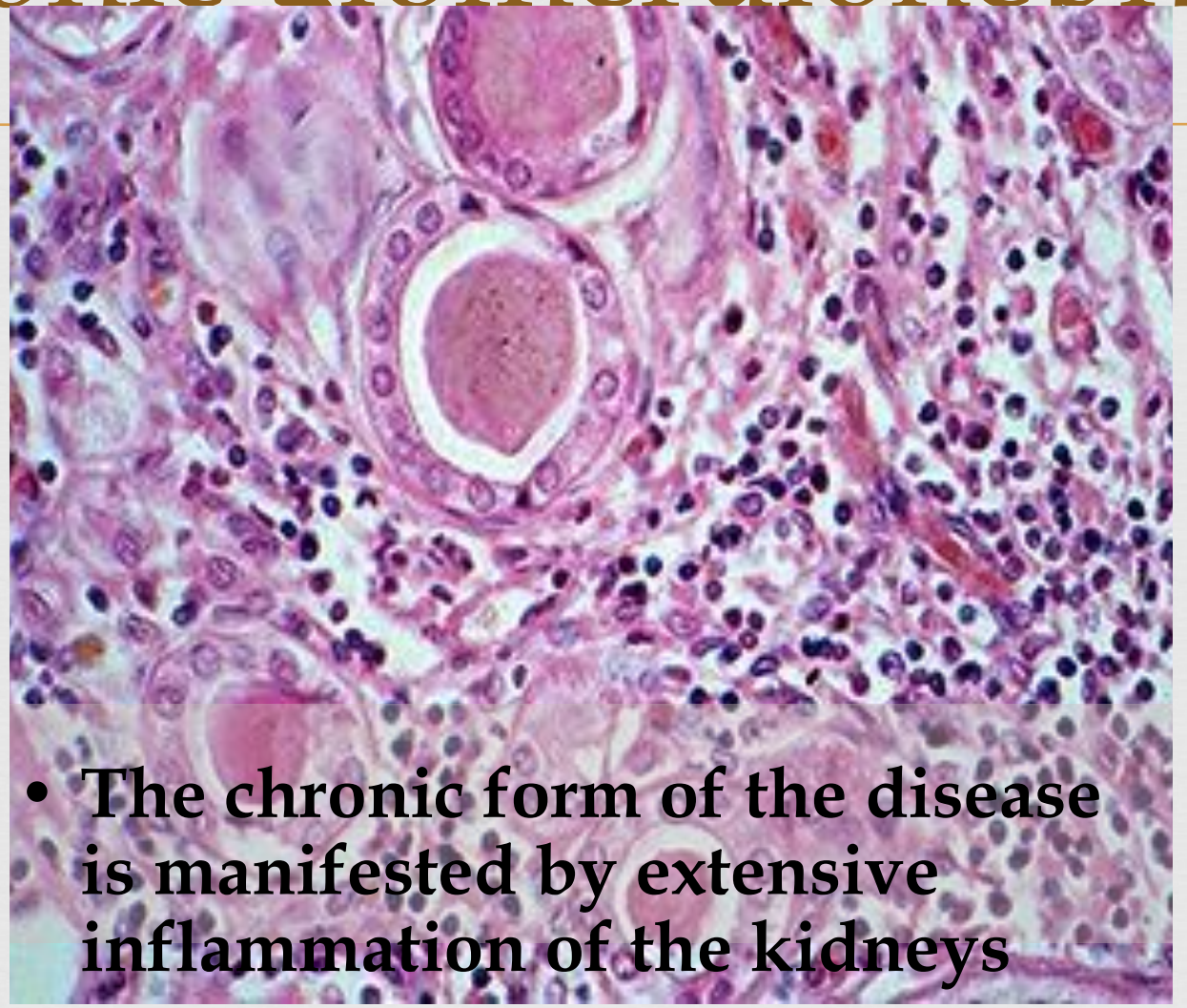
Acute glomerulonephritis is an acute diffuse immune-mediated inflammation that has developed after sensitization with an antigen (more often bacterial or viral) and manifested by acute nephritic syndrome.



Chronic glomerulonephritis is a chronic immune-mediated inflammation of the glomeruli of the kidneys with a stable change in urine tests (proteinuria and / or hematuria)

Acute glomerulonephritis

Chronic glomerulonephritis



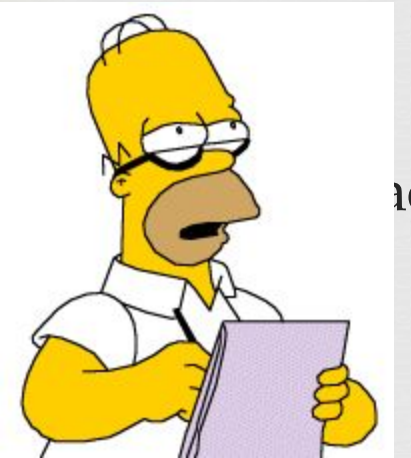
- **The chronic form of the disease is manifested by extensive inflammation of the kidneys**

Classification of glomerulonephritis (Tareyev EM)

Acute (10%): - with acute arthritis syndrome
- with isolated urinary syndrome
- with nephrotic syndrome

Chronic (70% b, jktt): - a latent variant
- hematuric
- hypertensive
- nephrotic
- mixed

acute (1%): (rapidly progressive GN)



Causes?

Glomerulonephritis develops from infections, poisonings, allergies, because of the complications of other diseases.

getting into the human body of infections (streptococcus, staphylococcus), viruses (hepatitis, herpes, rubella), bacteria, parasites that cause inflammation in the glomerulus of the kidneys;

poisoning with poisons, chemicals, alcohol, or some medication;

allergic complications;

re-vaccination;

the transfer of certain diseases (lupus, periarteritis, vasculitis) as a complication.

Difference in symptoms

The acute form progresses rather quickly, after a couple of weeks the following symptoms are observed:

edema;

pain in the lower back;

headache, general weakness in the body;

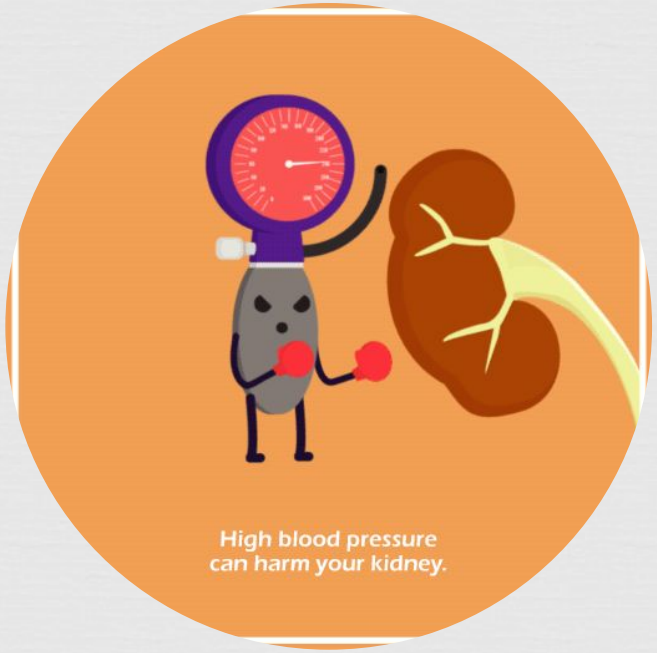
nausea, sometimes vomiting;

high body temperature;

lowering of urine leakage;

urine leaves with an admixture of blood;

increased blood pressure in the kidneys.



What other differences in symptoms?

nephrotic (small admixtures of blood in the urine, problems with urination, in the analysis of blood detect protein);
hypertensive (increased pressure);
mixed (there are signs of nephrotic and hypertensive syndromes);
hematuric (most often in men on the background of drinking alcohol).

Detect HG

It happens quite difficult because of the absence of obvious symptoms (latent leakage), in contrast to acute. The patient can feel quite normal, not have puffiness, his urine without blood. Chronic often the form is discovered by chance. Increased protein in the blood, an increase in the number of red blood cells can mean the presence of the disease. If it is not treated for a long time, kidney failure develops.

ANALYSIS

Analyzes for CG

- During the exacerbation of the nephrotic form of CG, an early manifestation is a decrease in the level of the total protein due to albumin, an increase in alpha-2 and gamma globulins, as well as levels of sialic acids, seromucoid, fibrinogen. With hypertensive form, there is a decrease in glomerular filtration rate. Electrophoretic determination of protein fractions of urine allows differentiating selective and nonselective proteinuria in chronic glomerulonephritis.

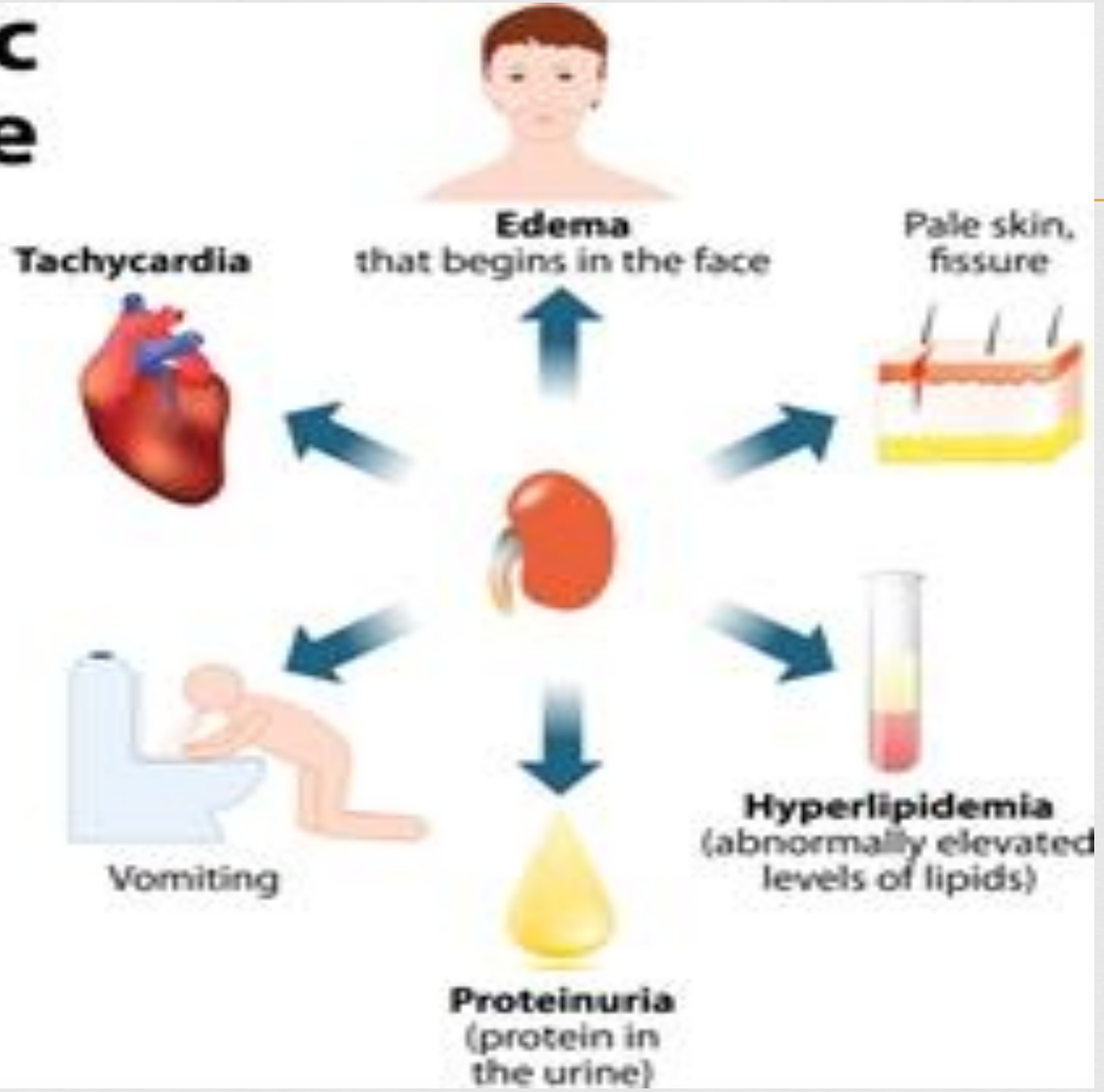
- In the analysis of urine, a decrease in the relative density of urine, nocturia and polyuria.
Proteinuria is noted, especially pronounced in the nephrotic form of the disease. A characteristic symptom of this disease is macro- and microhematuria. In the analysis of urine sediment, hyaline and granular cylinders, less often waxy, especially pronounced cylindruria with nephrotic and mixed form of the disease, reveal yellowish filaments of fibrin.

Analyzes for AG

- OAK leukocytosis, eosinophilia, elevated ESR, often thrombocytopenia
BH blood - the total protein content is reduced. The level of creatinine and urea increases. the level of fibrinogen and other proteins of the acute phase increases.
They show hypercoagulability - a shortening of prothrombin time, an increase in the prothrombin index.
Immunological analyzes - increased levels of immunoglobulins A and immunoglobulins M (subspecies of blood globulins), circulating immune complexes, decreased C3 and complement fractions, high antibody titers to streptococcal antigens.

In the analysis of urine in the initial period of OG is noted (oliguria) and an increase in the relative density. A few days later, proteinuria and microhematuria, but in a number of cases in the first days there is also a macrohematuria - urine acquires a red color or the color of "meat slops". Half of the patients with exhaust gas in the analysis of the urine sediment find hyaline and granular cylinders, leukocytes, sometimes cells of the renal epithelium.

Nephrotic syndrome



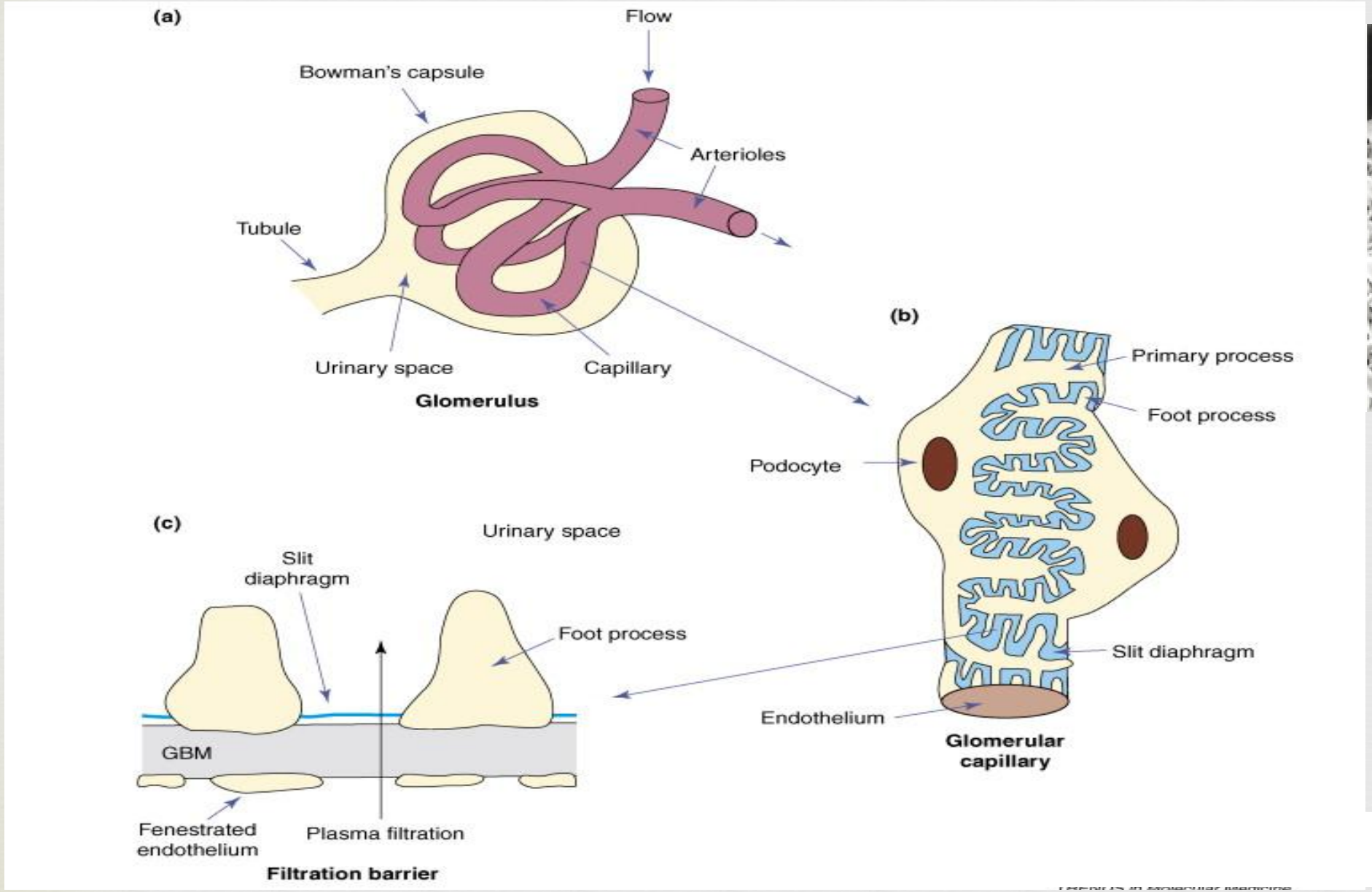
- Nephrotic range proteinuria, (>40mg/m^2/hour), (> 50mg/kg/day), urine to protein creat ratio (>2mg/mg), +3-4 on dipstick
- Hypoalbumenia (<2.5g/dl)
- Hyperlipidemia
- edema

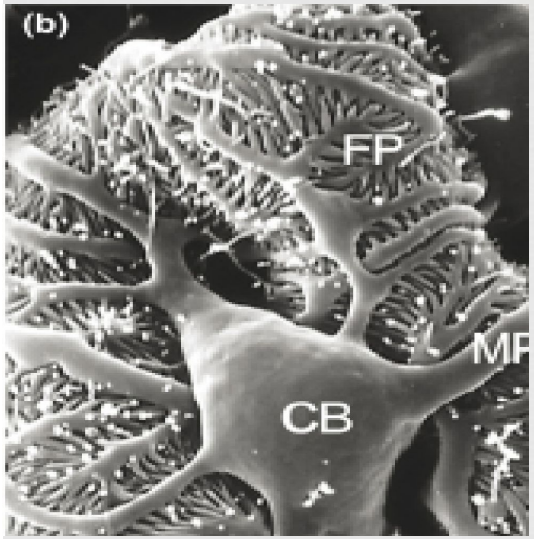
ETIOLOGY

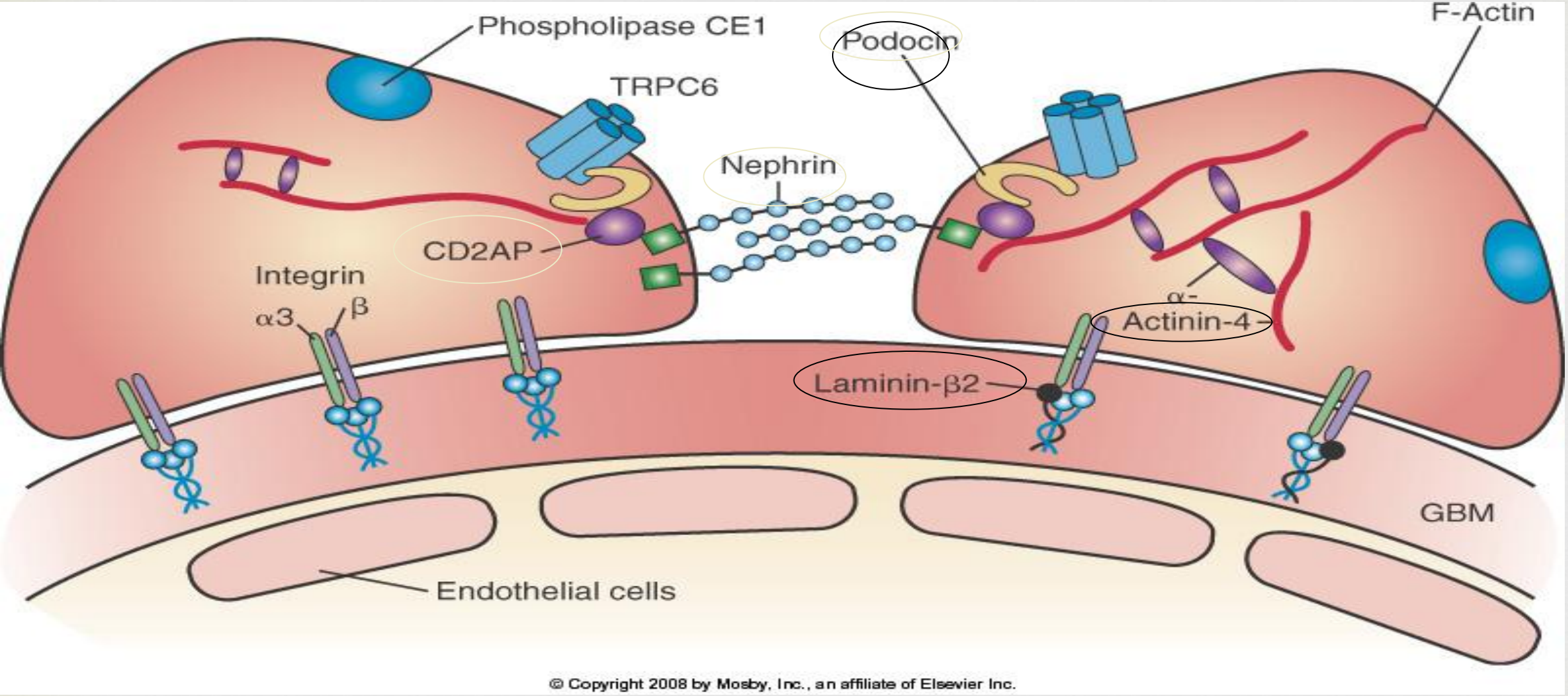
1. Primary or idiopathic(MCD,FSGS,Membranous, Mesangial proliferation)

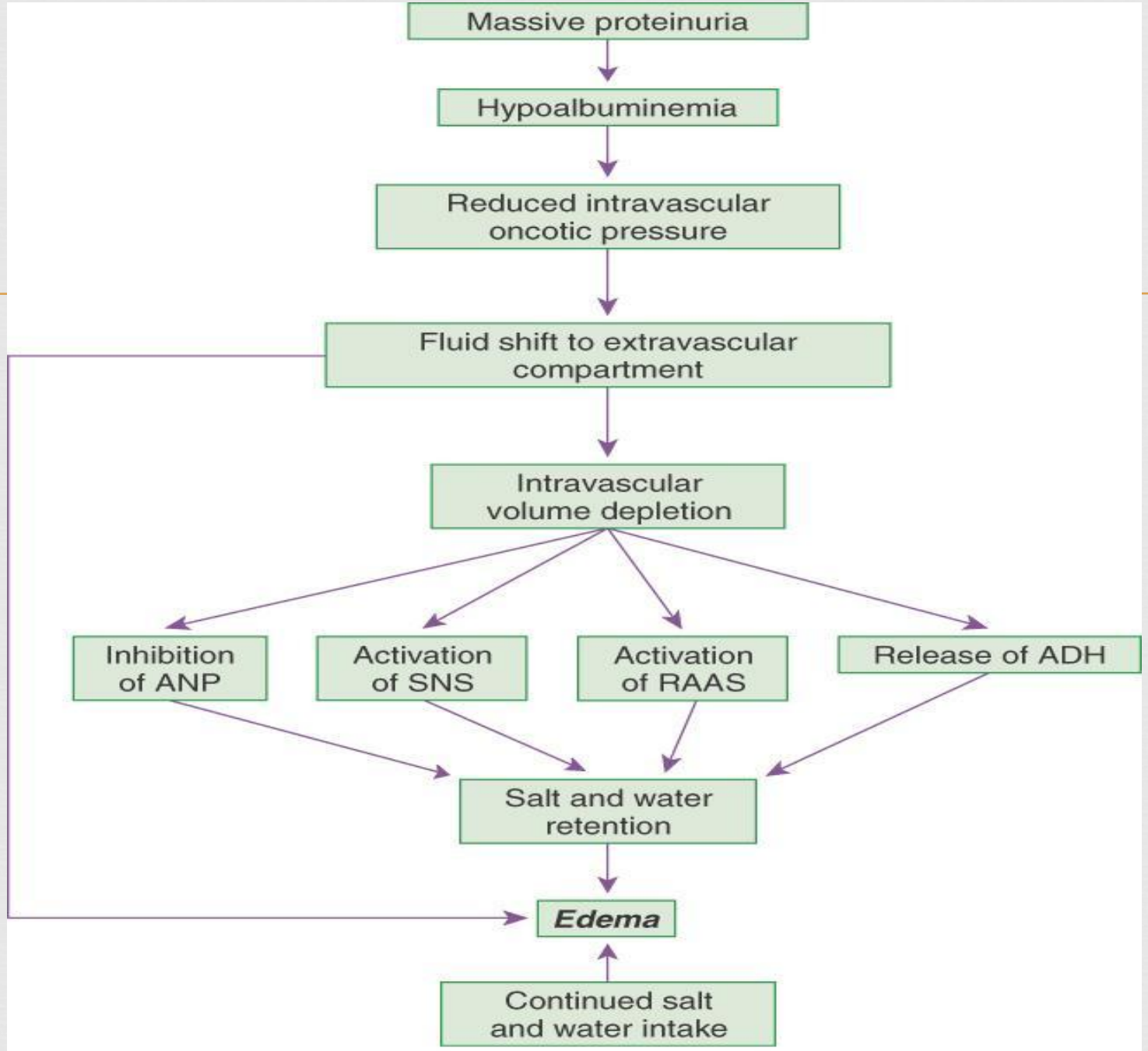
2. Secondary to infections,systemic diseases (HSP,SLE)

Podocytes and the slit diaphragm

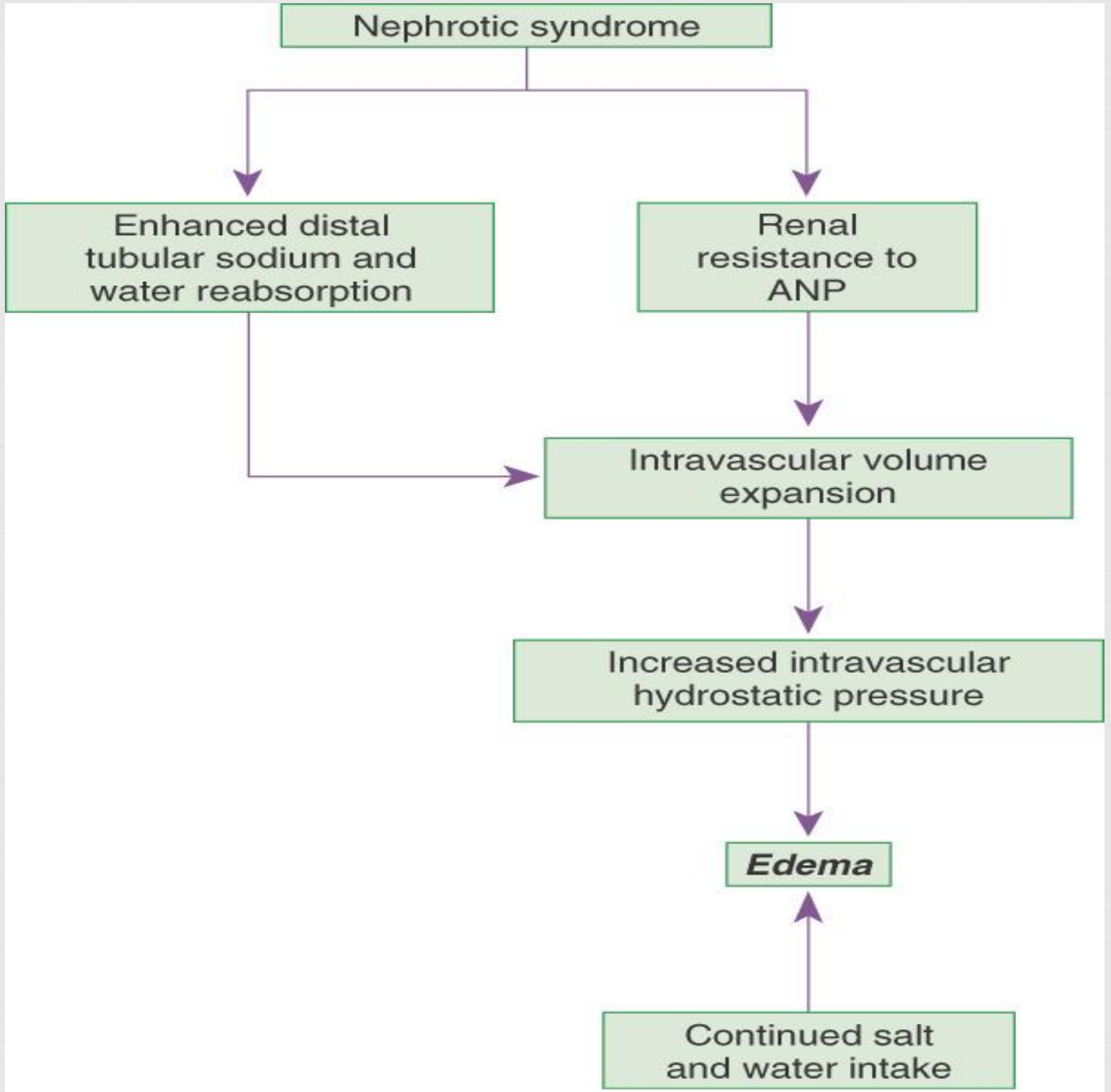








(From Schrier RW, Fassett RG: A critique of the overfill hypothesis of sodium and water retention in the nephrotic syndrome, *Kidney Int* 53 (5):1111-17, 1998.)



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Laboratory investigation

- Electrolytes: low Na,low albumin and calcium
- ANA,C3,C4,hepatitis B,C
- Hemoglobin high,platlet high
- Urine Na less than 10
- Urine analysis: proteinuria,microscopic hematuria
- Urine protein/creatinine more than 2 mg/mg
- Elevated cholesterol and triglycerides

TREATMENT

- First episode :Steriods 2mg/kg/day,60 mg/m^2/day single daily dose for 4 weeks,followed by alternate dose for 3-6 months.
- Response in 10 to 14 days
- Recent Cockrane metaanalysis found that treatment for 3m compared to 2m reduces risk of relapse by 30% at 12-24m
- No significant diff in risk of side effects or cumulative steriod dose
- With each 1 m over 2m,RR of relapse falls by 11%

- Treatment of relapses:2mg/kg/day till remission for 3 days,then alternate days for 2-3m.
- Treatment of FR or SD SSNS:

1.Long alternate steriods for 12-18 m

2.Cyclophosphamide

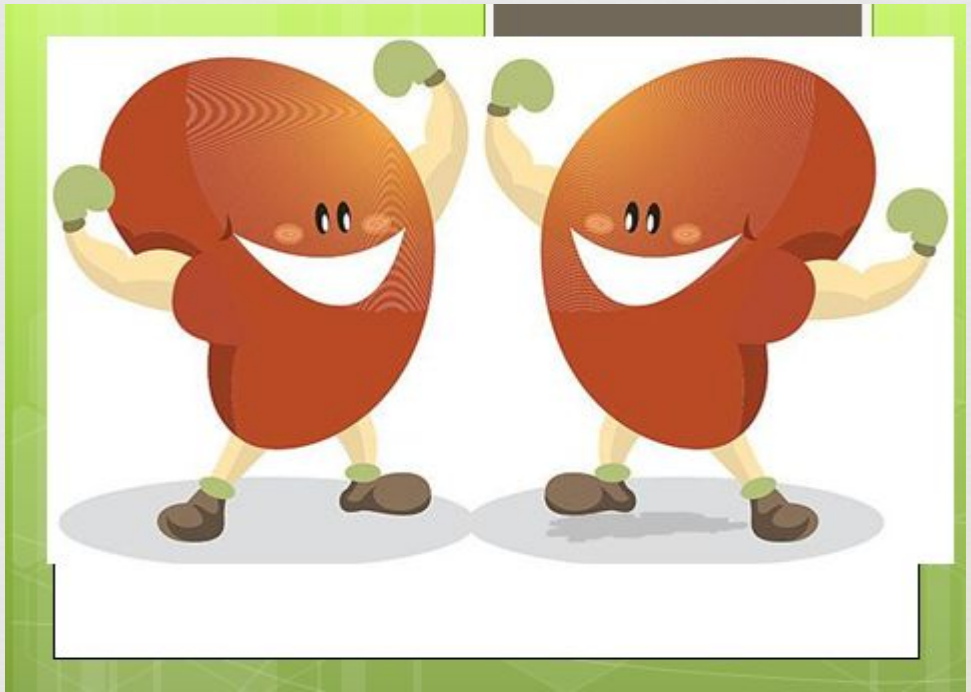
3.cyclosporine

4.Levimazole

5.Mycophenolate acetate

COMPLICATIONS

- 1-Infections:losses of IgG in urine,abn T cell function,low factor B (C3 proactivator),steriod use,impaired opsonization
- Encapsulated bact streptococcus pneumonia,staph,Ecoli
- Primary bacterial peritonitis
- Immunization against pneumococcus,varicella



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