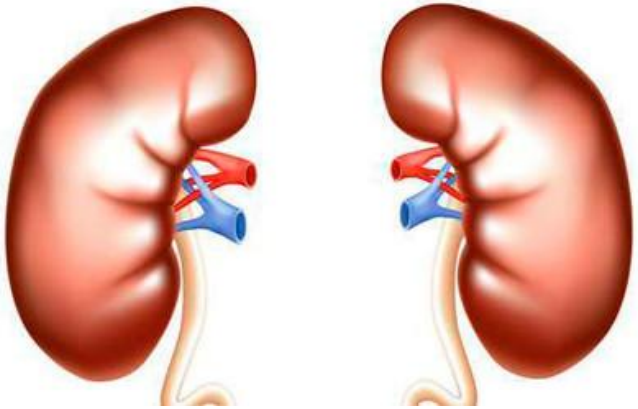
JSC “Astana Medical University”
Department of Internal Diseases №1

SIW

Theme: acute and chronic glomerulonephritis.



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Astana, 2018

Glomerulonephritis (**GN**), also known as **glomerular nephritis**, is a term used to refer to several kidney diseases (usually affecting both kidneys). Many of the diseases are characterised by inflammation either of the glomeruli or of the small blood vessels in the kidneys, but not all diseases necessarily have an inflammatory component.

Etiology

- **Infectious**

- Streptococcal

-Nonstreptococcal postinfectious glomerulonephritis

  Bacterial

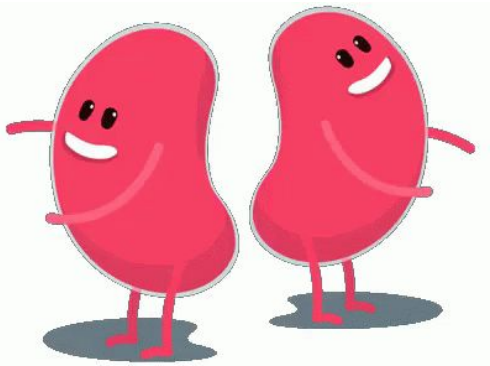
  Viral

  Parasitic

- **Noninfectious Streptococcal**

- Multisystem systemic diseases

- Primary glomerular diseases



Pathogenesis of Glomerulonephritis

Causative agent activates in organism an immunopathological process

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Formation of immune complexes

↓

Antigen of a streptococcus is an endostreptosin

↓

In the blood: increase of immune complexes and degrease of the C3-complement

↓

Changes in the physico-chemical properties of the basal membrane, mesangium, endothelium, glomerular epithelium and activation of platelet count

↓

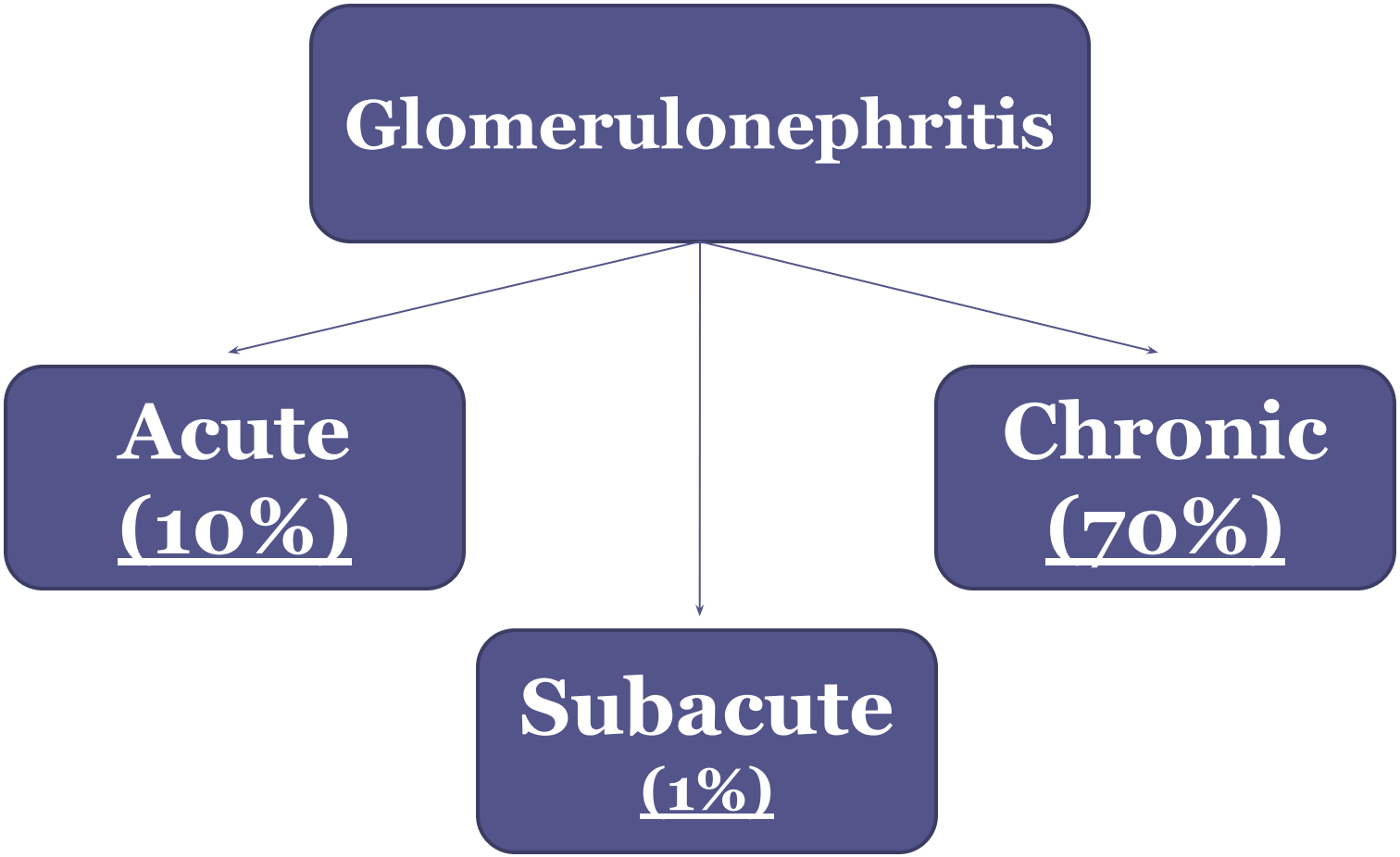
Proliferation and activation of mesangial cells

↓

Sclerotherapy

Changes in hemodynamics, hyperlipidemia

Classification



Acute glomerulonephritis

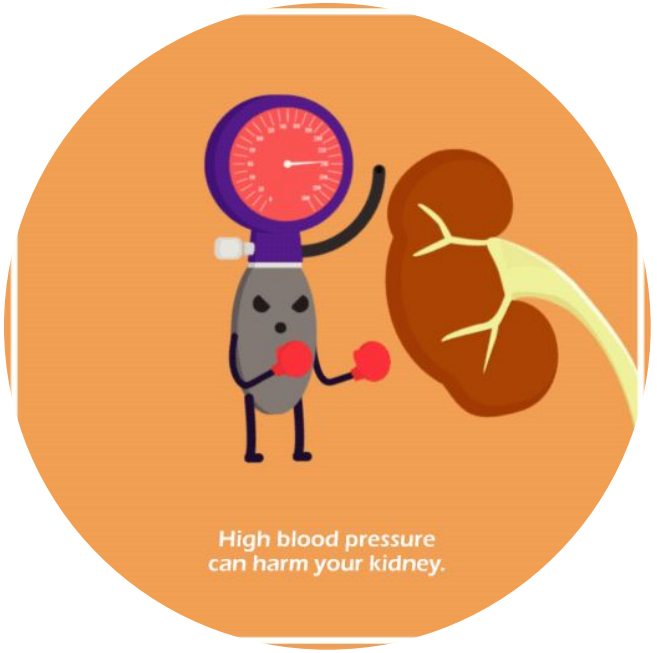
- It is an acute immunoinflammatory disease of the kidneys with the initial lesion of the glomeruli and involvement in the pathological process of all renal structures, clinically manifested by renal and adrenal symptoms

PATHOPHYSIOLOGY

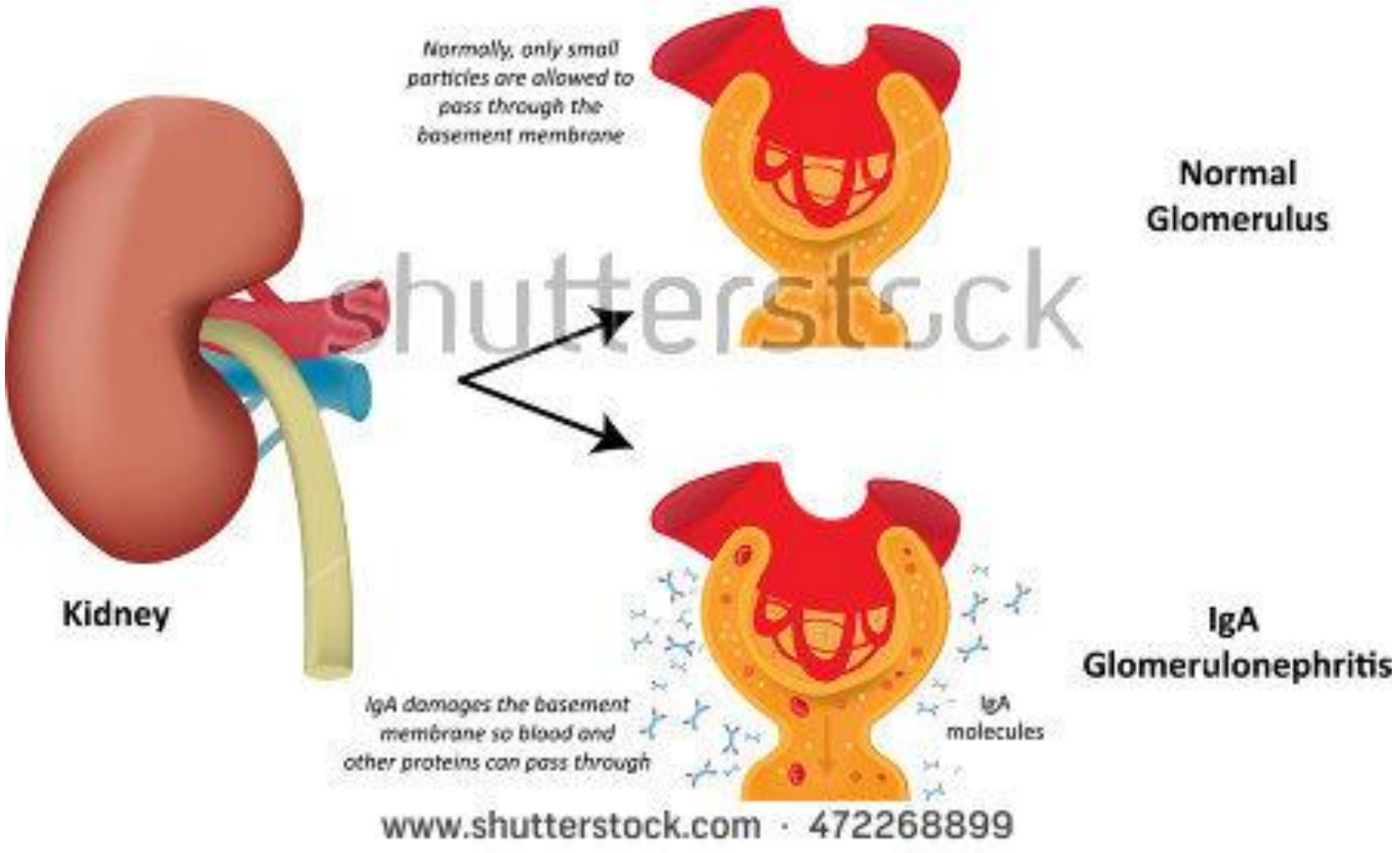
- Acute Glomerulonephritis
  - characterized anatomically by inflammatory alterations in the glomeruli
    1. Light microscopy – enlarged hypercellular glomeruli with leucocytic infiltration
    2. IF – granular IgG and C3 in GBM and mesangium
    3. EM – subepithelial humps
  - clinically by the syndrome of acute nephritis:
    1. Hematuria
    2. Red blood cell casts in the urine
    3. Pyuria
    4. Mild to moderate proteinuria
    5. Hypertension
    6. Edema

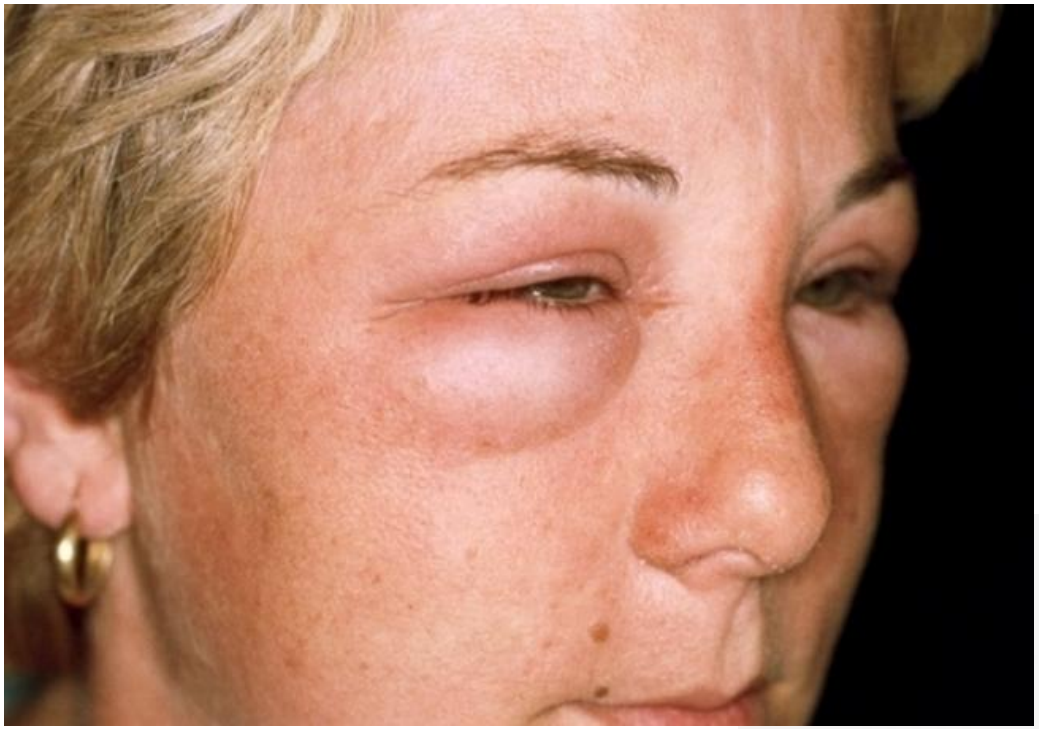
Syndroms

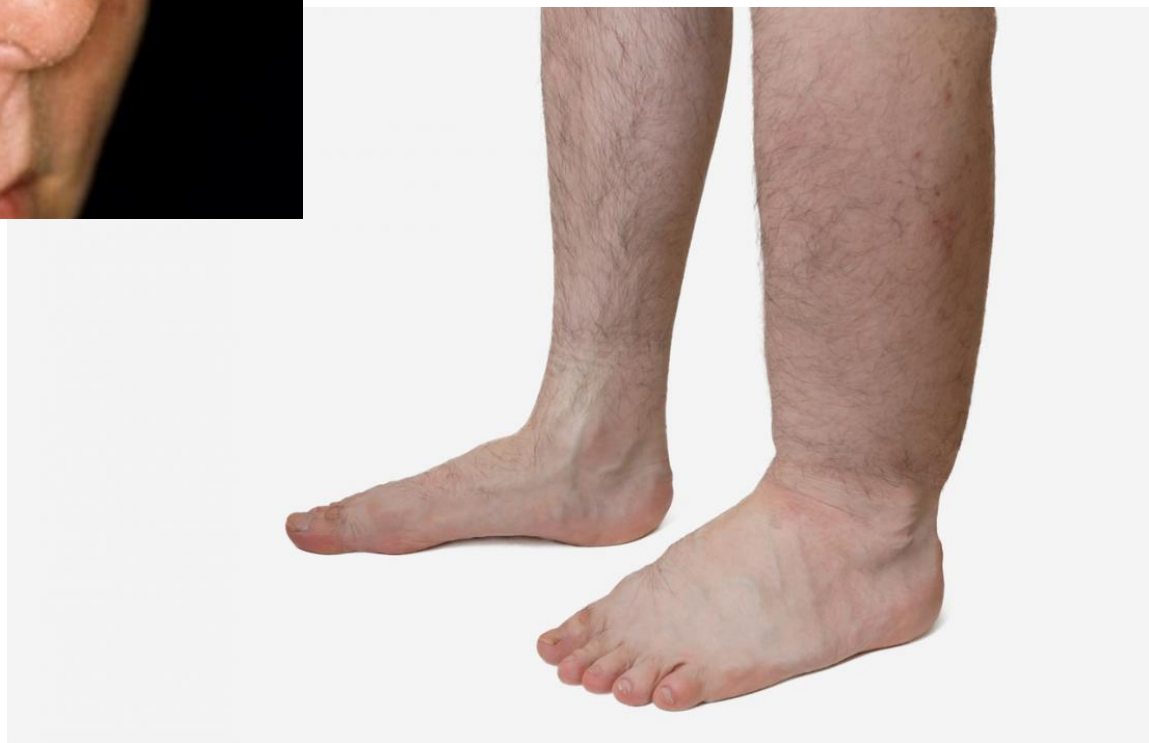
- Nephrotic syndrome
- Hypertonic syndrome
- Mixed syndrome



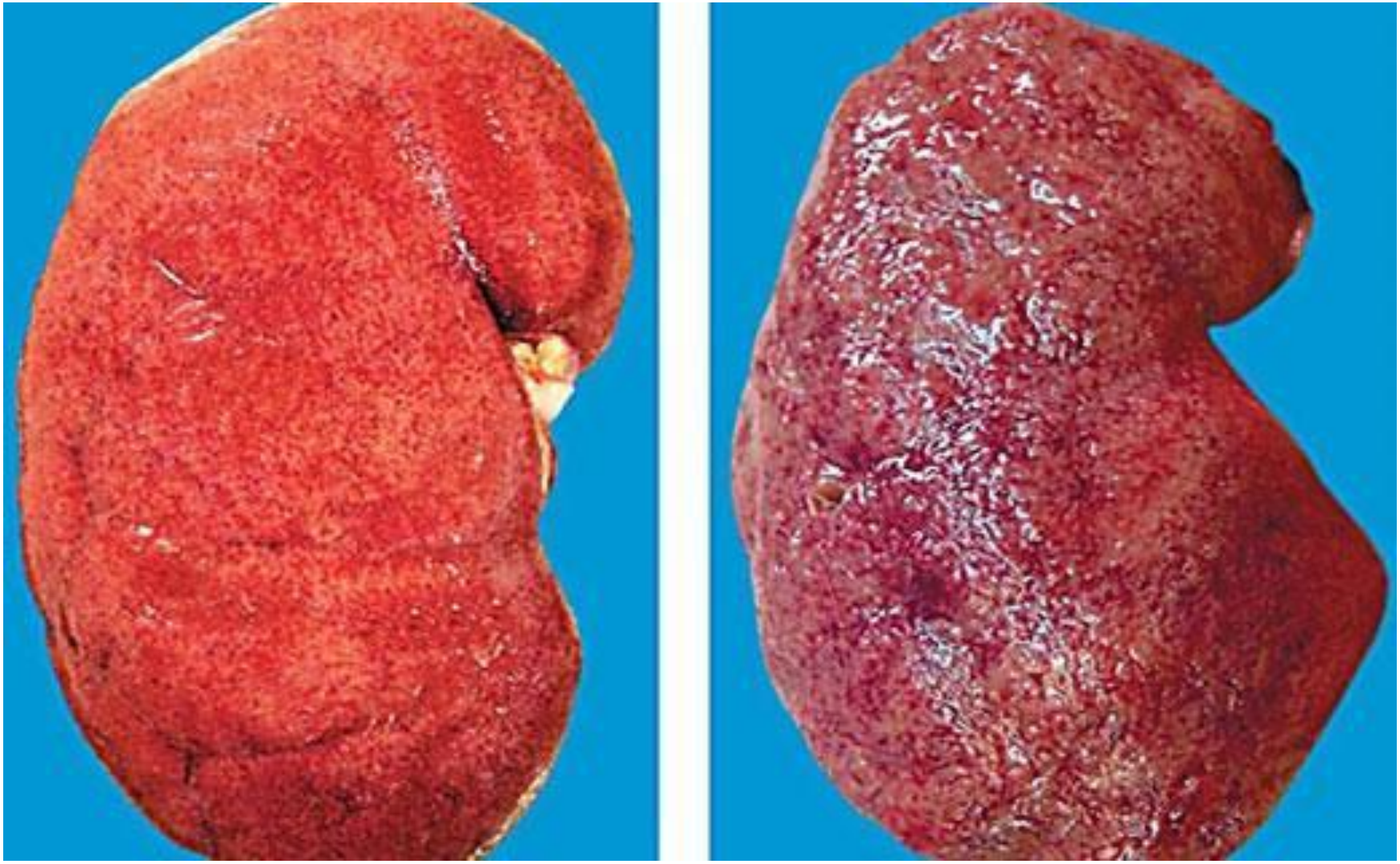
IgA Glomerulonephritis







Acute glomerulonephritis



Diagnostics of AG

- Full blood count
- Clinical urine analysis
- Determination of creatinine, urea, uric acid
- Calculation of the glomerular filtration rate
- Determination of total protein count, protein fractions
- Determination of ALT, AST, cholesterol, bilirubin, total lipids
- Determination of potassium, sodium, chlorides, iron, calcium, magnesium, phosphorus

Treatment of AG

1. Diet №7
2. Antibiotics:

   - Benzylpenicillin 1 000 000-2 000 000 UA/day, 7-10 days.

3. Glucocorticoids:

   - Prednisolone 50-60 mg/day 1-1,5 months

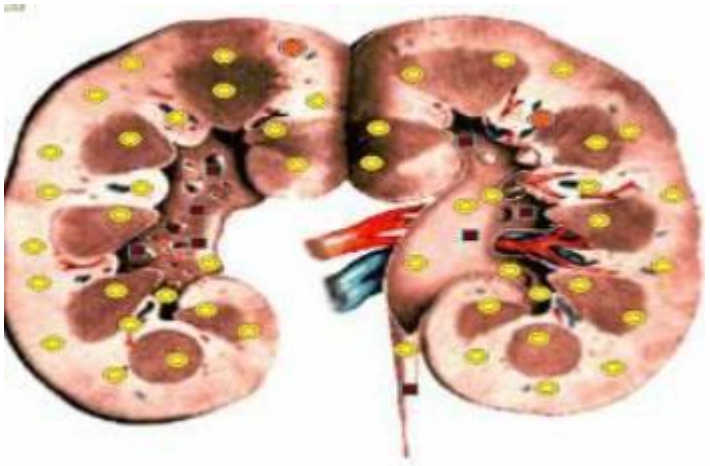
4. *Antiaggregants* - dipyridamole tablets of 25 mg, film-coated, 75 mg/day, tab; pentoxifylline 100 mg/day amp.

5. With antihypertensive and nephroprotective purpose, angiotensin-converting enzyme inhibitors:

- fozinopril 20 mg/day,
- enalapril 20 mg/day,
- ramipril 10 mg/day, tab;

Chronic glomerulonephritis

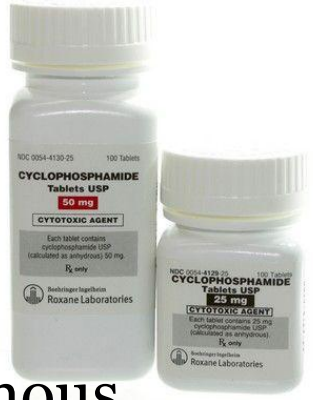
- It is the same as an acute form. It can be difficult to detect it because of the absence of obvious symptoms (latent leakage), in contrast to acute. The patient can feel quite *normal*, not have puffiness, his urine is without blood. Increased protein in the blood, an increase in the number of red blood cells can mean the presence of the disease. If it is not treated for a long time, nephratonia develops.



Diagnostics of CG

- 1. General blood test: HB, Erythrocytes, Leukocytes, Platelets, ESR before and after kidney biopsy
- 2. Test strips for hematuria, proteinuria, leukocyturia
- 3. Protein / creatinine ratio
- 4. Creatinine, blood serum urea
- 5. Determination of clotting time
- 6. A biopsy of a kidney under the control of US
- 7. The account of the accepted and allocated liquid, daily measurement of weight
- 8. Determination of the concentration of Cyclosporine, Tacrolimus in serum

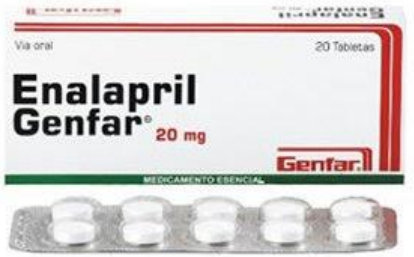
Treatment of CG

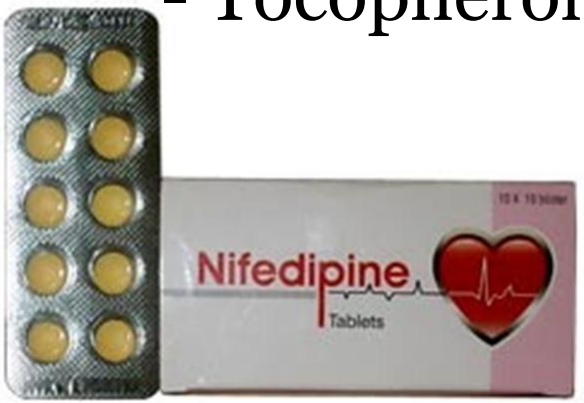


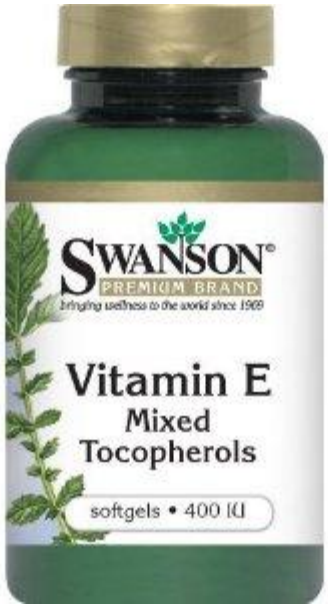
1. Glucocorticoids:
   - Prednisolone 1 mg/kg 2 months endovenous
2. Cytostatics:
   - Cyclophosphamide 2-3 mg/kg/day
   - Chlorambucil 0,1-0,2 mg/kg/day
   - Ciclosporin 2,5-3,5 mg/kg/day

3. Antiaggregants and anticoagulants:
   - Dipyridamole 400-600 mg/day
   - Clopidogrel 0,2-0,3 g/day

4. Antihypertensive therapy:
   ACE inhibitor
   - Captopril 50-100 mg/day
   - Enalapril 10-20 mg/day
   Calcium channel blockers
   - Nifedipine 20-40 mg/day
5. Antioxidants:
   - Tocopherol







References

- «Glomerulonephritis" at Dorland's Medical Dictionary
- Colledge, Nicki R.; Walker, Brian R.; Ralston, Stuart H., eds. (2010). Davidson's principles and practice of medicine. illust. Robert Britton (21st ed.). Edinburgh: Churchill Livingstone/Elsevier. ISBN 978-0-7020-3084-0.
- The Nephrotic Syndrome Stephan R. Orth, M.D., and Eberhard Ritz, M.D. N Engl J Med 1998; 338:1202-1211 April 23, 1998 DOI: 10.1056/NEJM199804233381707
- Kumar, Vinay, ed. (2007). Robbins basic pathology (8th ed.). Philadelphia: Saunders/Elsevier. ISBN 978-1-4160-2973-1.