



**MEDICAL UNIVERSITY - PLEVEN  
FACULTY OF MEDICINE**

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**DISTANCE LEARNING CENTRE**

**DEPARTMENT OF “NEPHROLOGY,  
HEMATOLOGY AND GASTROENTEROLOGY”**

# **PRACTICAL EXERCISES – THESES**

**FOR E- LEARNING IN NEPHROLOGY**

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# ACUTE GLOMERULONEPHRITIS

/ Plan of exercise /

## **A/ Introduction**

Infection with group A beta-hemolytic streptococcus is a well-known cause of acute glomerulonephritis.

Traditional explanation of the pathogenesis of poststreptococcal glomerulonephritis gives a central role to immune complexes formed in circulation and eventually deposited in the glomeruli, where they recruited the complement cascade and inflammatory cells, thereby triggering a phlogogenic reaction.

Typical microscopic changes are those of diffuse endocapillary glomerulonephritis.

The clinical presentation of poststreptococcal nephritis is not uniform, but since the acute nephritis syndrome, consisting of edema, hypertension, hematuria, and oliguria is the most common and best recognized with the term acute glomerulonephritis.

## **B\Students' work with a patient**

Students should be able to take anamnesis in detail. The ability to take good anamnesis is supreme art.

## **C\ Discussion of the case**

### Anamnesis

The usual locations of streptococcal infection are the skin and the throat, but other sites are also possible. Streptococcal pharyngitis can cause few symptoms or be associated with cervical lymphadenopathy, fever, and tonsillar purulent exudate, alone or in combination.

Clinically nephritis is manifested among children by the same features of the acute nephritic syndrome in about 96 percents of the cases.

- Hematuria is practically present among all patients. Only in some exceptional cases the diagnosis of glomerulonephritis may be done if the urinary sediment is normal. Glomerulonephritis hematuria is manifested by red cells casts and by dysmorphism in 80 percent or more of the red blood cells found in the urine.
- Edema is the main complaint for almost two-thirds of the patients. Generalized edema is found in 36 percents of the children between the ages of 2 and 6 years. Ascites is uncommonly associated with nephritic syndrome.

Blood pressure is elevated in 82 percent of the patients, and patients or relatives in about half of the cases notice diminished urinary output. Congestive heart failure is a complication related to excessive fluid retention.

- Somnolence, convulsions, and coma in association with severe arterial hypertension are characteristic of hypertensive encephalopathy; papilledema and the increased cerebrospinal fluid pressure are not always present, and local vasoconstriction has been implicated in the pathogenesis of this complication.

Malaise, weakness, and anorexia are observed in 55 percents of the patients, and nausea, vomiting, and a dull lumbar aching are less common.

#### **D. How to make the correct diagnosis?**

Sometimes to put correct diagnosis is very difficult. The students have to use and analyze the data obtained from interrogation and physical examination.

##### **The basic steps are:**

##### **1. Anamnestic data:**

- *Preceding streptococcal infection*

- *The latent period.*

- **First symptoms - general appearance:** The patient has an overblown appearance quite often during the morning. They are droop in the bed, from pale person of specter and sometimes less a will to live. These events are rather rare, but we must know about them.

Quite often the sick shows no any exterior signs of disease. Then the laboratory will help us.

- **a decrease of urine** or a headache, which is a result of the increase in blood pressure.

##### **2. Clinical symptoms:**

- *edema*

- *high blood pressure*

- *hematuria*

##### **3. Laboratory data:**

- *Proteinuria* is found in 80 percents of the patients with poststreptococcal glomerulonephritis, but rarely it excesses to 2 g/ day.
- The manifestations of the *acute nephritic syndrome* begin to improve after 4 to 7 days, and the child is usually free of edema and normotensive 1 to 2 weeks afterwards.
- *Microscopic hematuria* may persist for a year, and during this time it may be intensified during febrile episodes; this findings does not carry a worse long-term prognosis.
  - *The serological findings* in acute poststreptococcal glomerulonephritis include the detection of antistreptococcal antibodies, an increasing of the levels of serum immunoglobulins, anti-immunoglobulins, and immune complexes, and depression of serum complement.

##### **5. Imaging Studies:**

- Ultrasonography shows normal size of the kidneys or they are slightly increased, because they are overfilled with blood.

- Radionuclid-nephrography is not a method of choice, but as a result, which we exclude other diagnoses. It shows a normal line or reduction of amplitude.
- X-ray urography can damage the kidney function, which is why in our clinic we do not perform this examination earlier than one year after the disease.

### **E/ Prognosis**

The *mortality* of acute glomerulonephritis is low; only 5 to 8 cases in 1000 die as a result of complications such as pulmonary edema, hypertensive encephalopathy, or rapidly progressive exocapillary proliferation with irreversible renal failure.

A subset of adult patients who have massive proteinuria, with or without the full clinical picture of the nephrotic syndrome, have particularly bad prognosis, since 77 percent of them develop chronic renal failure.

### **F/ Debating for the therapy.**

#### **Treatment:**

##### 1. Regimen:

All patients with acute glomerulonephritis should be treated in a hospital. The regimen on the bed, has a good effect on the renal blood circulation, and helps for the disappearance of tumefactions.

##### 2. Diet

All patients benefit from restriction of sodium and fluid intake.

##### 3. Etiologic therapy:

###### *Antibiotics*

They must be treated with aminopenicillins, like *Ampicillin* - 1 or 2 g every 6 or 8 hours for 10 to 14 days.

Cephalosporins of first generation, like *Cephazolin*, *Cephalothin* are alternative therapy in same doses and intervals. Parenteral way of application is better, however there could be any complications like gluteal infiltrates or a late allergic reaction. In person allergic to Ampicillin or Cephazolin, *Erythromycin* - 250 or 500mg every 6 hours is an appropriate alternative.

Prophylactic antibiotic therapy is advisable for all the patients. The usual drug is *Benzylpenicillin*, 1 200 000 UI in a special scheme.

##### 4. Pathogenic treatment:

- Rutascorbin tabl. 120mg; 1 to 3 tabl./ three times a day
- Peflavit C tabl. 70mg - in the same dose.

These medicaments has capillarytonic, anti-inflammatory, anti-allergic and other beneficial effects.

5. Symptomatic treatment:

Diuretics

Antihypertensive drugs

Uremia and hyperkalemia may necessitate ***dialysis treatment.***