MEDICAL UNIVERSITY - PLEVEN
FACULTY OF MEDICINE

DISTANCE LEARNING CENTRE

DEPARTMENT OF "NEPHROLOGY,

HEMATOLOGY AND GASTROENTEROLOGY"

PRACTICAL EXERCISES – THESES

FOR E- LEARNING IN NEPHROLOGY

ENGLISH MEDIUM COURSE OF TRAINING

SPECIALTY OF MEDICINE

ACADEMIC DEGREE: MASTER

PROFESSIONAL QUALIFICATION: DOCTOR OF MEDICINE

PREPARED BY DEPARTMENT OF NEPHROLOGY

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PREGNANCY INDUCED NEPHROPATHY

1. Definition

Characteristic only for the human pregnancy - a disease, induced by the loss in the mother's organism of the total immune-depression status, allowing the delivery of the foetus. As a result immune mechanisms are activated leading to the deposits of immune complexes in the kidneys, liver, placenta with clinical manifestation: arterial hypertension, proteinuria, oedemas, convulsions and fatal outcome for the baby and/or mother.

2. Brief analysis of the disease stages

The students report in details the clinical manifestation of the disease. The assistant highlights:

- The occurrence of the disease in young women that haven't had babies before
- Initial changes in the arterial pressure and proteinuria in the last trimester of the pregnancy
- Lack of preceding renal disease

The aspects of pregnancy normal physiology are discussed in details.

- Hypervolemia /the circulating blood volume increase above 50%/
- Hemodilution /decreased rate of albumin, increased gamma globulins/
- Increased rate of hormones from the first month of pregnancy /estrogens; progesterone; renin; angiotensin/
- Increased dilator prostaglandin PgI_2, Pgt_2, decreased PgAg (tromboxan)
- Increased glomerular filtration rate and renal plasma flow (GFR ↑ 50%; RPF ↑ 80%)

3. Handling of a patient having pregnancy induced nephropathy

Anamnesis: The students are asking comprehensive questions for:

- Preceding renal disease or renal complaints (dysuria, nocturia, hematuria).
- Exact determining the term of arterial hypertension and proteinuria (the exact month of the pregnancy)
- Interrogation about preceding abortions and dead born babies.
- Patients that did not attend the ladies' consultation are asked for the first signs of headache, sickness and oedema
- The patients are asked if they have taken any medicines or certain diet, e.g. limited salt consumption or taking diuretics for oedemas.

Physical examination (status):

The students have to be able to determine paleness and swelling of the patient's face from the general overview.

About the cardio-vascular system: it is noticeable bradycardia < 60 beats/min, accented second aortic tone and hypertension (RR > 140/90 in two measurements at an interval of one week).

The respiratory system does not show any deviations except in the stage of acute left-sided weakness with cardiac asthma or lung oedema (auscultatorily "bubbling lungs").

The abdomen is not informative due to the advanced pregnancy. The limbs in well-developed nephrosis syndrome are swollen with cold testable oedemas.

Tests:

- *The haematological indices* show slight to moderate anaemia: Hb between 110 and 90 g/l, Leu between 10,0 – 12,0x10^9/l with slight neutrophilia due to hemodilution.
- *Biochemical tests*
  - Protein profile changes are of major importance. Hypoalbuminemia, hyper α_1, α_2 and β-globulinemia are present. In massive proteinuria the total protein drops < 60 g/l.
  - Special attention is paid to the test of the uric acid in blood (in normal pregnancy up to 300 μmol/l). If it surpasses > 350 μmol/l twice tested it is indicative of a risk pregnancy and impending preeclampsia.
  - Proteinuria up to 500 mg/24 h is admissible for normal pregnancy. In preeclampsia it is usually present moderate up to 3,0/24 h proteinuria, more often selective glomerular. Higher level to massive proteinuria up to 5,0 – 7,0 g/24 h. Are non-selective.
  - The future relies on immunologic tests to explain the mechanism of immune complexes formation with the participation of IgM and its deposit in mesangial and subendothelial depots.
- *Urine* volume is below 650 ml/24 h. – oliguria, with high specific weight > 1028.
- Ultrasound test shows enlarged kidneys with widened above 20 mm parenchyma zones (norm in pregnancy up to 20-22 mm).
- X-ray, isotope and invasive tests are contraindicated.

4. Diagnosis

The students formulate the syndromes:

1. Hypertensivevascular - after 28-32 week of the pregnancy
2. Oedematous syndrome - after 28-32 week of the pregnancy

And they prepare a working diagnosis: ***Nephropathia gravidarum*** and write it in Latin.

5. Differential diagnosis:

- Renal diseases, exacerbated during pregnancy.
  - Pyelonephritis – fever-heat, dysuria, significant bacteriuria.
  - Glomerulonephritis – hypertension, hematuria.
  - Satellite (collagenous) nephropathies – affecting another organs and systems (heart, lungs, skin).
  - In all these cases the information from the anamnesis and the medical documents from the profile specialists is decisive.

1. Acute glomerulonephritis – very rare.

   Anamnesis includes questions about angina, light 10-days period, ↑ AST, hematuria.

6. Therapy

- Etiologic therapy is childbirth.
- Diet – abundance of fruit and vegetables. Salt and water are not limited. Up to 15% of the food is recommended to be proteins (milk origin) calories – 2500 – 3000 kcal/24 h.
- Regime – lying on the left side for improvement of hypertension and oedemas
- Medicaments
  1. Sympatholytic

     Alfa-methyl DOPA + 250 mg S.3 x 1 t. (Dopegyt)
  2. Convulsions prevention
     - *Phenobarbital amp. S. 2 x 1 amp./24h.*
     - *MgSO4*

❖ Writing a prescription