

MODERN ASPECTS OF DIAGNOSING GESTATIONAL PYELONEPHRITIS

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Abstract. *In pyelonephritis, the pathogenic factor that affects the chronic stage of inflammation loses its leading role, the processes affecting the change in the rheological properties of blood and microcirculation play an important role, which leads to the development of a chronic condition. comes - the causes of this disease are a risk factor for the mother and the fetus, leading to perinatal losses.*

Patients with acute pyelonephritis have significant changes in the hemostasis system, clinical and laboratory parameters. The above changes increase during the transition from the serous stage to the purulent stage of kidney inflammation.

Keywords: *ultrasound, statistical studies, nephrostoma, retrospective analysis, Nechiporenko test, Zimnitsky test.*

Relevance. Patients with acute pyelonephritis have significant changes in the hemostasis system, clinical and laboratory parameters. The above changes increase during the transition from the serous stage to the purulent stage of kidney inflammation.

The study of the interaction between this pathology and pregnancy is important due to the high percentage of obstetric complications, negative perinatal consequences and serious diseases in newborns, which emphasize the medical and socio-economic importance of the problem (V.V. Iremashvili, 2007; L.E. Nicolle, 2008; K. Shea et al., 2008; A. J. Schaeffer et al., 2010). In chronic pyelonephritis, pregnancy is complicated by iron deficiency anemia (35-70%), premature termination of pregnancy at various times (15-20%), chronic placental insufficiency (30-35%), preeclampsia (35-70%). 30-40% causes complications such as chronic hypoxia of the uterus (30-40%), fetal infection (20-30%) and growth retardation (12-15%) (I.G. Nikolskaya et al., 2007). In the background of chronic pyelonephritis, the adaptation ability of newborns is significantly impaired and the risk of early neonatal death increases (L.E. Nicolle, 2008; K. Shea et al., 2008).

Aim of the study. Identify modern aspects of diagnosing gestational pyelonephritis.

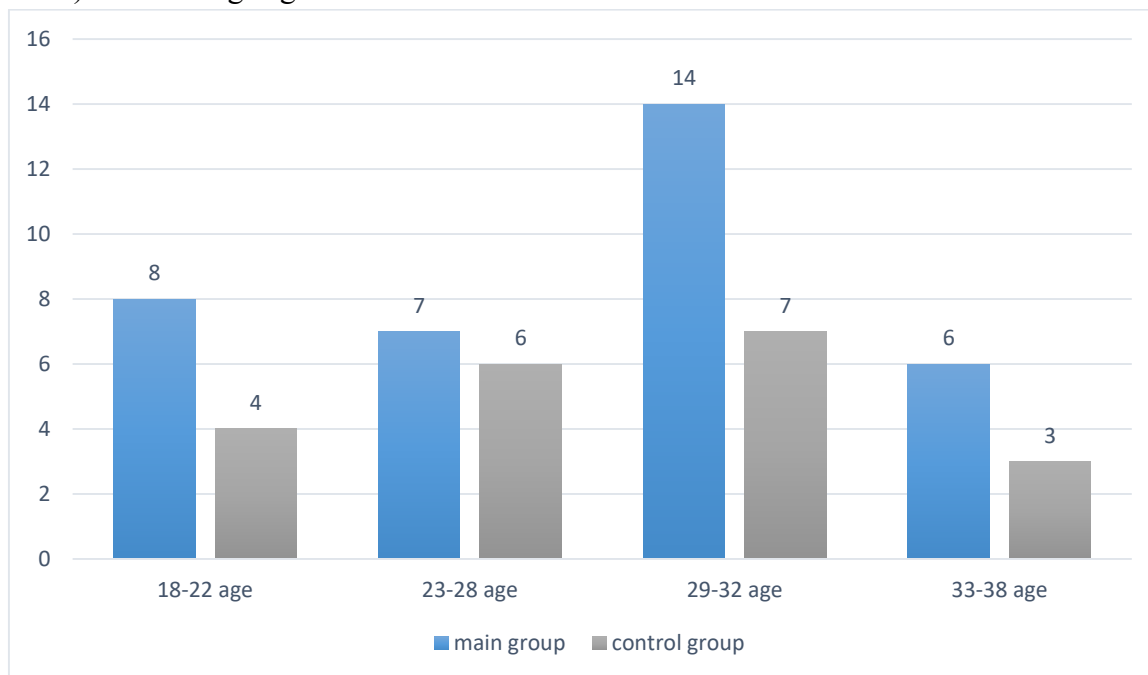
Materials and methods. In order to achieve the set goal and fulfill the tasks, the data of 55 pregnant women and their newborns, who applied to the perinatal center of Samarkand city on the basis of the Department of Obstetrics and Gynecology No 1 of SamSMU, were studied during 2020-2022. The women studied during the study were divided into 2 groups: the main group - 35 pregnant women with gestational pyelonephritis (GP) and the control group - 20 conditionally healthy pregnant women.

Examination of pregnant women includes the following: determination of clinical and anamnestic features of the pregnancy process, laboratory diagnosis of inflammatory pathology of the kidneys, examination of the kidneys and small pelvic organs, as well as the state of the fetus and feto-placental system using instrumental methods. Renal function: the amount of urea and

creatinine in the blood serum (nitrogen excreting activity of the kidneys), glomerular filtration rate (according to endogenous creatinine clearance), concentrating ability (Zimnitsky test), kidneys and urinary tract (Nechiporenko test), and inflammation in the blood evaluated by the presence of the process.

The criteria for inclusion of patients in the examined groups were the absence of organic pathology of the urinary system, absence of acute infectious pathology, specific infection and sexually transmitted infection. The cases of patients with inflammatory pathology in the acute phase or chronic extragenital foci during the period of illness were excluded from the study.

All studied pregnant women were of active reproductive age, that is, from 18 to 38 years old (Chart 1). The average age was 29.2 ± 1.8 .



Results and discussion. General blood analysis indicators were counted automatically in hematological analyzers such as "CELL-DYN 1700" and "CELL-DYN 400" ABBOTT DIAGNOSTICS (USA), the sedimentation rate of individual erythrocytes was determined in 1 hour using 5% 0.25 sodium nitrate solution.

Biochemical blood tests were performed on the following devices: "EXPRESS PLUS" device developed by "BAYER" (Germany), "LIVID" by "CORMAY" and "AVARENESS TECHNOLOGI INC." by "STAT FAX-1904 PLUS" (USA) devices. General and indirect bilirubin, blood sugar, urea, creatinine was determined. Blood electrolytes were monitored as indicated, with blood electrolytes Medica Corp. It was carried out in the "Easy Lyte" ion-selective analyzer of the (USA) company. The study of the general analysis of urine included microscopic examination of the sediment, which revealed the presence of leukocytes, erythrocytes, bacteria, salt crystals, cylinders, epithelial cells; the presence of protein was carried out with a 3 or 15% solution of sulfalicylic acid.

The analysis of research results showed that during pregnancy (8-12 weeks) pregnant women with OGP do not significantly deteriorate the nitrogen excretion function of the kidneys, which is confirmed by the absence of significant changes compared to healthy kidneys.

In a study conducted using the Nechiporenko method in pregnant women with GP, a high level of leukocytes was $4.8-5.1 \cdot 10^3$ per 1 ml, proteinuria - 0.23-0.25 g / l, bacteriuria - 50 per 1

ml from 100 to more than a thousand bacteria have been identified. The presence of an inflammatory process in the kidneys is confirmed by positive data according to the Nechiporenko test. The causative agent of GP was mainly conditionally pathogenic microorganisms.

Table 1

Kidney function parameters in pregnant women with GP (M±m)

Indicators	Control group (n=20)	Main group (n=35)
SK in blood, mmol/l	270,3±16,20	381,6±10,40
Excretion of SK, mg/day	480,4±17,95	357,4±15,54
Creatinine in blood, mmol/l	67,8±4,10	112,5±3,81
Creatinine clearance, mmol/l	115,6±8,72	72,8±3,35
Relative density of urine	1014,0±1,03	1013,0±1,02
CFT, ml/min	153,8±8,85	78,8±5,68
Proteinuria, g/l	0,01±0,01	0,19±0,11*
Leukocyturia, >25·10 ³ ml ⁻¹	1,0±0,01	12,8±0,40*
Bacteriuria	-	35 (100%)

All women underwent USD and dopplerometry. In this, the state of the pelvic organs and the fetus, as well as the state of the kidneys, were evaluated. The homogeneity of the renal parenchyma was evaluated during the ultrasound examination of the kidneys, the presence or absence of hyperechoic and hypoechoic structures of the kidneys was measured by the transverse dimension of the pelvis. It is the size of the pelvic cavity that was chosen as an objective criterion for statistical processing, since this parameter reflects the degree of urodynamic disturbance. The largest size was considered.

Table 2

Ultrasound data

Diagnosis	Main group (n=35)		Control group (n=20)	
	Abs	%	abs	%
Pyelonephritis	35	100%	0	0%
Chronic salpingo-oophoritis	8	22,9%	1	5,0%
Ovarian cyst	4	11,4%	1	5,0%

Varicose dilatation of small pelvic veins	6	17,1%	0	0,0%
Hydronephrosis	35	100%	2	10,0%

Conclusion. According to the ultrasound data, hydronephrosis cases were found in 100% in the main group, because we selected women with complicated gestational pyelonephritis for the study. The 1st degree of hydronephrosis was found in 22.8%, the 2nd degree in 62.8%, and the 3rd degree in 14.3%.

When the condition of the fetus was examined, complications such as increased uterine tone (100%), fetal growth retardation (25.7%), and fetoplacental insufficiency (34.3%) were detected in the main group of women who were in the 2nd-3rd trimester of pregnancy.

Summarizing the results of the study of the importance of clinical signs in diagnosing the severity of the inflammatory process in pyelonephritis of pregnancy, we can conclude that the most valuable criteria that determine the severity of the inflammatory process are the percentage of lymphocytes and neutrophils in the peripheral blood. The composition of erythrocytes, the level of glycemia and proteinuria may play a slightly smaller role. Parameters such as platelet count, potassium, urea and creatinine, pyuria and hematuria have the least diagnostic value.

Finally, parameters such as temperature reaction, total leukocyte count and protein content in the blood do not play any role in diagnosing the severity of the patient's condition. From subjective symptoms, pain syndrome plays a certain role in diagnosing the severity of the inflammatory process in pregnancy pyelonephritis. USD is the most convenient and non-invasive method for assessing the state of the kidneys and fetus, and is currently widely used. US can be used to evaluate the condition of the kidney parenchyma and the level of hydronephrosis, and at the same time, it can be considered as a criterion with a special place in the assessment of the severity of GP.

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