CLINICAL AND LABORATORY CHARACTERISTICS OF RENAL PATHOLOGY OF PREGNANCY IN THE FIRST TRIMESTER

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КЛИНИКО-ЛАБОРАТОРНАЯ ХАРАКТЕРИСТИКА ПОЧЕЧНОЙ ПАТОЛОГИЯ БЕРЕМЕННОСТИ ПЕРВЫЙ ТРИМЕСТР

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The significant spread of kidney diseases, their medico-social significance and the disabling nature of the pathology determine the special relevance of the problem of early diagnosis and prevention of diseases of the urinary system in pregnant women. The effect of urinary tract diseases on the course of childbirth, pregnancy and the postpartum period, as well as on the condition of the fetus and newborn, has been studied by many researchers [1, 2, 3]. The issues of etiology and pathogenesis of urinary tract infection during pregnancy are widely covered in the literature. Most authors note the leading role of bacteria in the occurrence of the disease, both during pregnancy and outside it, especially representatives of the Enterobacteriaceae family [6, 7].

To assess the clinical picture of infectious kidney disease, and especially to choose a treatment method, it is of great importance to identify the pathogen. The close anatomical proximity of the urethra, vagina, rectum, and a decrease in antimicrobial immunity during pregnancy contribute to the colonization of the entrance to the urethra by bacteria from the intestine. A short urethra and a close location of the bladder, a violation of the movement of urine through the urinary tract contribute to the upward

path of infection. This, apparently, explains the significant predominance of E. coli and other microbes living in the intestine among the pathogens of the urinary tract, which occupy the first place during pregnancy. In addition, yeast-like fungi of the genus Candida, mycoplasma and ureaplasma are often sown in pregnant women's urine. The infection can also spread hematogenically from the focus of inflammation — pharyngeal tonsils, teeth, genitals, gallbladder. Pathogens - E. coli, gram-negative Ecterobacteria, Pseudomonas aeruginosa, proteus, Enterococcus, Staphylacoccus aureus, Streptococcus, Candida fungi. [7, 8] The combination of pregnancy and diseases of the urinary system is very often accompanied by a number of complications: miscarriage (spontaneous miscarriages in the first trimester, non-developing pregnancies); premature birth; intrauterine infection of the fetus (possible development of intrauterine pneumonia); impaired functioning of the placenta, which can negatively affect the formation and development of the fetus. [4, 6].

Despite the fact that some progress has been made recently in understanding the pathogenesis, diagnosis, treatment and prevention of renal pathology in pregnant women, some aspects of this problem remain not fully understood. For example, almost all researchers report an increase in the frequency of these diseases, but some believe that this is due to erased forms, others — clinically expressed [5, 9, 10]. The presence of erased forms, which are characterized by a more pronounced clinical picture, longer duration and a tendency to relapse, dictates the necessity of introducing modern diagnostic methods into practice [11, 12]. However, the literature does not sufficiently cover the issues of informativeness and acceptability of using various methods of diagnosing renal pathology in pregnant women (ultrasound examination of the kidneys, chromocystoscopy). There are reports of both significant diagnostic value of ultrasound examination of the kidneys and low informativeness of the method [3].

Bacteriological examination of urine is a necessary diagnostic method, but the duration of its execution, the high cost of the study and the insufficient equipment of laboratories make it inaccessible. A significant role in the development of renal pathology during pregnancy is played by: weakening of the ligamentous apparatus of the kidneys, contributing to pathological renal mobility; an increase in the frequency of vesicoureteral reflux; increased secretion of estrogens and progesterone, glucocorticoids, and placental hormones - choriogonic gonadotropin and chorionic somatomammotropin. [1, 3] In turn, pregnancy can contribute to the occurrence of renal pathology, or exacerbation of chronic kidney diseases that occur latently before pregnancy. Pregnancy predisposes to kidney disease due to urodynamic disorders caused by changes in topographic and anatomical relationships as the size of the uterus increases, and the effect of progesterone on urinary tract receptors. Hypotension and enlargement of the calyx-pelvic system and ureters are observed (the capacity of the pelvis together with the ureters, instead of 3-4 ml before pregnancy, reaches 20-40 in

the second half, and sometimes 70 ml). In addition, in the second half of pregnancy, the uterus deviates to the right (rotating in the same direction) and thereby exerts more pressure on the area of the right kidney, which can probably explain the high frequency of right-sided lesions of the urinary system. [8, 9, 12]

A decrease in the tone and amplitude of contractions of the ureter begins after the third month of pregnancy and reaches a maximum by the eighth month. The restoration of tone begins from the last month of pregnancy and continues during the third months of the postpartum period. A decrease in the tone of the upper urinary tract and stagnation of urine in them during pregnancy leads to increased pressure in the renal tract - this is important in the development of pyelonephritis. [5, 7, 8] Urolithiasis occurs in 0.2—0.8% of pregnant women, and this indicator is growing every year. This situation is related to the conditions of modern life: physical inactivity, leading to a violation of phosphorus-calcium metabolism, an abundance of purines in food, resulting in hyperuricemia and hyperuricuria. An important role in the origin of urinary stones belongs to infection, which can be localized in the interstitial tissue of the kidney (in pyelonephritis). Infection promotes the formation of stones, and stones, injuring the urinary tract and disrupting urodynamics, facilitate the spread of infection and the development of pyelonephritis. The products of inflammation in pyelonephritis (mucus, pus, epithelial cells) are involved in the formation of the nucleus of a kidney stone, on which crystals are layered. In stagnant infected urine, salt precipitation occurs very intensively, and this accelerates the formation of stones. Chronic pyelonephritis is complicated by nephrolithiasis in 85% of patients, and infection is associated with nephrolithiasis in 60-80% of patients. During pregnancy, there is no increased release of salts, which can serve as a starting material for stone formation. Pregnancy is accompanied by an increase in the colloidal activity of urine, which prevents the development of urolithiasis. [13, 14, 16]

As pregnancy progresses, the colloidal activity of urine, i.e. the number of protective colloids, increases. Urolithiasis usually does not occur during pregnancy, but its clinical signs may become pronounced if the disease was latent earlier. This is facilitated by the accelerated growth of stones during pregnancy due to the physiological characteristics of the urinary system, more favorable conditions for the stone to enter the ureter and the comparative ease of infection. During pregnancy, spontaneous discharge often occurs. This is due to both the expansion of the urinary tract and hyperplasia of the muscular wall of the ureters. [1, 2, 3]

After 34 weeks of pregnancy, stones are rarely released, probably due to atony of the ureters and compression of their enlarged uterus or the adjacent part of the fetus, which makes it difficult to move concretions. In the postpartum period, compression of the ureters disappears and their tone increases. In this regard, the spontaneous release of stones is becoming more frequent again. Often, pathology on the part of the kidneys

and urinary organs is first detected during pregnancy. One of the most common diseases during pregnancy in obstetric practice are infectious and inflammatory diseases of the urinary tract (asymptomatic bacteriuria, cystitis, pyelonephritis). [2, 8] The diagnosis of "asymptomatic bacteriuria" is established when 100,000 microbial cells are detected in 1 milliliter of urine and there are no symptoms of urinary tract infection. Pregnant women with asymptomatic bacteriuria are carefully examined to identify hidden forms of urinary system disease.

Against the background of asymptomatic bacteriuria, acute pyelonephritis develops in about 30% — 40% of cases, therefore, such pregnant women need timely preventive treatment. Cystitis accompanies a variety of pathological conditions of the urinary tract and genital organs. It may be the first manifestation of pyelonephritis or other pathological diseases. Acute cystitis is characterized by dysuric disorders: painful urination (pain at the end of urination), frequent urination (every 30 to 60 minutes); pain in the suprapubic region, aggravated by palpation and filling of the bladder, weakness, fever up to 37.5 ° C. [8, 9, 12]

Timely detection and treatment of asymptomatic bacteriuria and cystitis during pregnancy leads to a significant reduction in the risk of acute pyelonephritis and its immediate consequences for both mother and fetus (most often it is the threat of termination of pregnancy or premature birth). Pyelonephritis, which first appeared during pregnancy, is called "gestational pyelonephritis" or "pyelo nephritis of pregnant women". It occurs in 6-7% of pregnant women, more often in the second half of pregnancy. Pyelonephritis that exists before pregnancy may worsen during pregnancy or occur in a chronic and erased form. Women with pyelonephritis are at high risk for pregnancy complications such as miscarriage, gestosis of the second half of pregnancy, intrauterine infection, fetal hypotrophy (stunting), the most serious complication is acute renal failure — a condition in which the kidneys completely or partially stop working (rare). [16, 17, 18]

Predisposing factors for the development of acute gestational pyelonephritis and exacerbation of chronic pyelonephritis during pregnancy are changes in the urinary system accompanying pregnancy: impaired urinary excretion (due to an increase in uterine size), restructuring of hormonal and immune status. The presence of recurrent (worsening) cystitis before pregnancy, malformations of the kidneys and urinary tract (doubling of the kidney, ureter), urolithiasis, diabetes mellitus, etc. is an additional predisposing factor for the development of pyelonephritis. Most often, acute pyelonephritis occurs at 22-28 weeks of pregnancy (as well as at certain periods of pregnancy: 12-15 weeks, 32-34 weeks, 39-40 weeks). These terms are associated with the peculiarities of the hormonal background and an increase in the functional load on the kidneys, in later periods — with a deterioration in urine outflow. In the acute period of the disease, pregnant women complain of a sudden deterioration in well—being,

weakness, headache, fever (38-40 ° C), chills, lower back pain, dysuric disorders — frequent urination, pain when urinating.

If pyelonephritis is suspected, the pregnant woman is hospitalized in the prenatal department of the maternity hospital, while long—term treatment is recommended (at least 4-6 weeks). After childbirth, kidney function is usually restored in women who have suffered gestational pyelonephritis. In parallel with the treatment of kidney pathology, therapy is carried out aimed at preserving pregnancy with the threat of its termination and improving uteroplacental blood supply. The question of early termination of pregnancy is raised in the case when all means and methods of treatment have proved ineffective. Childbirth is carried out through the natural birth canal. Caesarean section is performed only according to strict obstetric indications.[12] Summing up, it should be noted that the presented review, without claiming to be the completeness of the information available on this topic and limited in scope, was intended to emphasize the scientific interest and practical relevance of the problem of kidney pathology in pregnant women. Continuing research in this direction will allow for a deeper understanding of the mechanisms and peculiarities of the development of this pathology in combination with the gestation process, identify patterns and criteria for the prognosis of several pregnancy complications, optimize therapeutic tactics and increase the effectiveness of prevention of both the underlying disease and complications of the gestational process in this category of patients.[13-14-18].

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