

MODERN VIEWS ON THE PROBLEM OF CHRONIC PYELONEPHRITIS AND THE COURSE OF PREGNANCY



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СУРУНКАЛИ ПИЕЛОНЕФРИТ МУАММОСИ ВА ҲОМИЛАДОРЛИК КЕЧИШИ ҲАҚИДАГИ ЯНГИЛИКЛАР

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СОВРЕМЕННЫЕ ВЗГЛЯДЫ НА ПРОБЛЕМУ ХРОНИЧЕСКОГО ПИЕЛОНЕФРИТА И ТЕЧЕНИЕ БЕРЕМЕННОСТИ

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Резюме. Долзарблиги: Сурункали соматик патология ҳомиладор аёлларнинг 70% да аниқланади, ҳомиладорлик даврида 76% касалликларнинг кўзгаши (анемия, пиелонефрит ва бошқалар) кузатилади. Замонавий акушерликнинг долзарб муаммоларидан бири бу аёлнинг репродуктив функциясига салбий таъсир кўрсатадиган, ҳомиладорлик ва туғруқ жараёнини мураккаблаштирадиган гипертензив касалликларининг ривожланиши, муддатдан олдинги туғруқ, етилмаган болаларнинг туғилиши, туғруқдан кейинги буйрак ва экстраренал асоратларнинг кўпайиши, ҳомиланинг антенатал ўлимига, онадан асоратларга олиб келадиган комбинацияланган соматик патологиядир. Бу пиелонефритли ҳомиладор аёлларда юрак-қон томир патологиясининг пайдо бўлиши частотасини, тузилишини, даволаш тактикасини ва асоратларни олдини олиш усулларини ўрганиш зарурлигини кўрсатади. Мақсад – сўнги 10 йил ичида сурункали пиелонефритнинг кечиши ва намоён бўлиши бўйича замонавий адабиётлар маълумотларини кўриб чиқиш, ҳомиладор аёлларда СП билан бирга келадиган касалликларни аниқлаш. Материаллар ва методлар: Тадқиқот CyberLeninka, Google Akademiyasi, arxiv.org, DOAJ, Rossiya Davlat kutubxonasi, SSRN, Elibrary веб-сайтлари орқали сўнги 10 йилдаги замонавий адабиётлар маълумотлар базаси асосида ўтказилди. Натижалар: Ҳар қандай ҳомиладорлик бутун организмда ҳам, сийдик ажратилиши тизимида ҳам функционал ўзгаришлар билан бирга келади. Ҳомиладор аёлларнинг 20-25 %да дизурик ҳодисалар ҳомиладорликнинг биринчи ҳафталарида пайдо бўлади, СП кўпинча асосий 5 та симптом билан намоён бўлади - оғриқ, дизурик, анемия, гипертензия ва интоксикация. Ўз навбатида, бу ўзгаришлар коморбид ҳодисаларга олиб келади - анемия, юрак-қон томир тизимининг кўрсаткичлари узгаришлари ва ҳомиланинг ривожланишидаги асоратлар. Хулоса: Шундай қилиб, замонавий маълумотларга асосланиб, СПнинг клиник кўринишидаги ўзгаришлар аниқланди, бундан ташқари, унинг фонида анемия ва юрак-қон томир тизимидаги ўзгаришлар кўпинча юзага келади, улар клиник кўринишлар юзага келишидан олдин аниқланади. Натижада, коморбид ҳодисаларнинг олдини олиш учун ушбу ҳомиладор аёлларни дастлабки босқичларда ўрганиш долзарбдир.

Калит сўзлар: сурункали пиелонефрит (СП), ҳомиладорлик, коморбидлик, анемия, юрак-қон томир тизимидаги ўзгаришлар.

Abstract. Relevance: Chronic somatic pathology has 70% of pregnant women, 76% during pregnancy experience exacerbations of diseases (anemia, pyelonephritis, etc.). One of the urgent problems of modern obstetrics is combined somatic pathology, which has a negative impact on the reproductive function of a woman, complicates the course of pregnancy and childbirth, which is manifested by the development of hypertensive disorders of pregnancy, miscarriage, the birth of immature children, an increased frequency of postpartum renal and extrarenal complications, leading to antenatal death of the fetus, complications from the mother. This shows the need to study the frequency of occurrence, the structure of cardiovascular pathology in pregnant women with pyelonephritis, management tactics and ways to prevent complications. Purpose - to review the literature over the past 10 years on modern provisions on the course and manifestations of chronic pyelonephritis to identify comorbidities in pregnant women with CP. Material and methods: The study was conducted on the basis of the database of modern literature of the last 10 years through the websites of CyberLeninka, Google

Academy, arxiv.org, DOAJ, Russian State Library, SSRN. Elibrary. Results: Any pregnancy is accompanied by functional changes in both the whole organism and the urinary system. Dysuric phenomena in 20-25% of pregnant women appear in the first weeks of pregnancy, CP is more often manifested by the main 5 symptoms - pain, dysuric, anemic, hypertensive and intoxication. In turn, these changes lead to comorbid phenomena - anemia, impaired indicators of the cardiovascular system and complications in the development of the fetus. Conclusion: Thus, based on modern data, changes in the clinical manifestation of CP were revealed, in addition, against its background, anemia and changes in the cardiovascular system often occur, which are detected even before clinical manifestations. As a result, it is relevant to study these pregnant women in the early stages for the prevention of comorbid events.

Key words: chronic pyelonephritis (CP), pregnancy, comorbidity, anemia, changes in the cardiovascular system.

Relevance. 70% of pregnant women have chronic somatic pathology, 76% experience exacerbations of diseases during pregnancy (anemia, pyelonephritis, etc.) [12]. According to many authors, diseases of the cardiovascular system are a common cause of pregnancy and childbirth complications. Among the causes of maternal mortality, diseases of the circulatory system are second only to bleeding and preeclampsia [16].

One of the urgent problems of modern obstetrics is combined somatic pathology, which has a negative impact on the reproductive function of a woman, complicates the course of pregnancy and childbirth, which is manifested by the development of hypertensive disorders of pregnancy, miscarriage, the birth of immature children, an increased frequency of postpartum renal and extrarenal complications, leading to antenatal death of the fetus, complications from the mother.

Purpose - to review the literature over the past 10 years on modern provisions on the course and manifestations of chronic pyelonephritis to identify comorbidities in pregnant women with CP.

Materials and methods. The study was conducted on the basis of the database of modern literature of the last 10 years through the websites of CyberLeninka, Google Academy, arxiv.org, DOAJ, Russian State Library, SSRN. Elibrary.

Results: Chronic pyelonephritis (CP) is a long-term infectious and inflammatory process in the walls of the pyelocaliceal system, in the stroma and parenchyma - the tubulointerstitial apparatus of the kidney. This disease is the most common among urological problems, and among somatic pathologies it ranks third, yielding to diseases of the respiratory and cardiovascular systems [1, 5, 16, 23]. Among the somatic pathologies of pregnant women, it is second only to diseases of the cardiovascular system [2, 4, 8].

According to the ICD 11 coding [11], which came into force in January 2022, today there is the following coding for diseases of the urinary system:

- Glomerular diseases (GB40-GB4Z)
- Renal tubulo-interstitial disease (GB50-GB5Z)
- Kidney failure (GB60-GB6Z)
- Urolithiasis (GB70-GB7Z)
- Cystic or dysplastic kidney disease (GB80-GB8Z)

- Certain specified diseases of the kidneys or ureters (GB90)

- Certain specified diseases of the urinary system (GC00-GC0Y)

- Diseases of the urinary system, unspecified (GC2Z)

HP from this coding category belongs to GB50-GB5Z and is coded as the following subdivisions:

- Tubulo-interstitial nephritis, not specified as acute or chronic (GB54)

- Other specified chronic tubulo-interstitial nephritis (GB55.Y)

- Chronic tubulo-interstitial nephritis, unspecified (GB55.Z)

- Chronic tubulo-interstitial nephritis (GB55)

- Hydronephrosis with ureteropelvic junction obstruction (GB56.0)

- Hydronephrosis with ureteral obstruction (GB56.1)

- Hydronephrosis with ureteral obstruction (GB56.2)

- Hydronephrosis due to bladder obstruction (GB56.3)

- Other or unspecified hydronephrosis (GB56.4)

- Hydronephrosis and reflux nephropathy with vesicoureteral or vesicoureteral-renal reflux (GB56.5)

- Other specified obstructive or reflux nephropathy (GB56.Y)

- Obstructive or reflux nephropathy, unspecified (GB56.Z)

- Other specified renal tubulo-interstitial diseases (GB5Y)

The etiology of chronic pyelonephritis is non-specific and is represented by both gram-negative and gram-positive bacteria, where *Escherichia coli* occupies a dominant place in 75-95% of cases; in addition, *Staphylococcus saprophyticus*, *Proteus mirabilis*, *Klebsiella pneumoniae*, *P. Aeruginosa*, *Serratia* spp. and *Providencia* spp., as well as Coagulase-negative staphylococci (*Staphylococcus saprophyticus*) [1, 7, 13, 16, 20, 22].

In the pathogenesis of chronic pyelonephritis, the influence of factors contributing to the formation of the disease can be considered. The main pathogenetic factors can be represented as follows: the introduction of infection into the kidney by the

urogenic (ascending) route, lymphogenous, hematogenous routes, further damage to the kidney tissue by bacterial flora, endotoxins, and, accordingly, the development of infectious inflammation. Infection and the chronic course of the disease are facilitated by: violation of the urodynamics of the lower urinary tract, pathological refluxes. Recently, in the development of chronic pyelonephritis, they began to attach importance to the secondary sensitization of the body, the development of autoimmune reactions [1, 5, 7, 8, 23].

The prevalence of CP varies from 8 to 20%, according to the causes of death [4, 5, 6, 9, 11, 19]. The World Health Organization classifies chronic pyelonephritis as a problem of social importance, since the disease usually develops in people of working age and often causes disability in patients. In industrialized countries, among kidney diseases, chronic pyelonephritis occurs with a frequency of 16 to 86 per 1000 population, in Russia up to 100 people per 100 thousand population [20, 25], in Uzbekistan every fifth woman suffers from chronic pancreatitis [1].

In the studies of Trunova et al. (2017), 70 women in the third trimester of pregnancy with chronic pyelonephritis (40 women in remission and 30 women in the acute stage) were examined with a control group of 15 women with a physiological pregnancy (third trimester). In blood serum, the concentrations of IL-4, IL-6, IL-8, IL-17, IFN γ , autoantibodies to native DNA antigens (AAT to nDNA antigen) and trophoblastic β 1-glycoprotein were determined. It has been established that not only exacerbation, but also the stage of remission of chronic pyelonephritis are characterized by the activity of the immunoinflammatory process. The authors found that in both stages of chronic pyelonephritis in pregnant women of the third trimester, the development of the immunoinflammatory process is accompanied by the activation of the Tx1-mediated immune response, which is manifested by an increase in the concentrations of IFN γ and the ratio of IFN γ /IL-4 in the blood serum. A decrease in the concentrations of the inducer of the development of the Th2-mediated immune response IL-4 and trophoblastic β 1-glycoprotein was revealed. These disorders during remission of the pathological process are unfavorable prognostic factors that can lead to placental insufficiency, premature birth, and increase the risk of intrauterine infection of the fetus [18].

Although the issue of the course, diagnosis and treatment of chronic pyelonephritis has been well studied, its course in pregnant women does not always have a certain sequence. Recently, a number of researchers have noted a change in the clinical picture of the disease: an increase in the frequency of a latent course, an asymptomatic nature of exacerbations, as well as a long-term persistence of individual clinical

and laboratory symptoms during therapy [6, 10, 17, 20].

The study revealed that in patients with chronic pyelonephritis and impaired purine metabolism, there is a statistically higher frequency of pathological changes in the ECG, as well as EchoCG, which is expressed in a higher significant incidence of rhythm and conduction disturbances, as well as left ventricular hypertrophy. A correlation was found with the level of blood uric acid and the degree of violations of echocardiographic parameters in children with chronic pyelonephritis against the background of impaired purine metabolism [4, 8, 27-29].

Features of the course of chronic pyelonephritis in pregnant women is characterized by an increased risk of developing urinary infections, including exacerbations of chronic pyelonephritis, due to anatomical, hormonal and immunological changes in the urinary system (the total risk is about 10% in the absence of targeted prevention). In risk groups - rheumatological pathology, diabetes mellitus, structural disorders of urodynamics, the likelihood of exacerbation of chronic pyelonephritis is even higher. Features of the clinic and course: due to changes in the relative position of the pelvic organs and abdominal organs, the pain syndrome in diseases of the urinary system is often atypical and thus more often needs an additional differential diagnosis with pathologies that are clinically manifested by an acute abdomen and obstetric / gynecological pathology [18, 25]. In the case of chronic pyelonephritis and CKD III Art. pregnancy is not recommended, but possible. In the case of chronic pyelonephritis and CKD IV-V st. pregnancy is contraindicated.

Pre-existing hypertension is likely to worsen during pregnancy, so fluid intake, diet, and prescribed antihypertensive treatment should be closely monitored [15, 25, 29]. During pregnancy, there is an increased risk of purulent-septic complications. Chronic pyelonephritis in pregnant women is characterized by a persistent course, difficult to treat, often combined with urolithiasis and can itself contribute to nephrolithiasis, hydronephrosis. There is also a tendency to a relapsing clinical course: periods of exacerbations of the disease alternate with periods of remission [12, 15, 23].

In pregnant women, the clinical signs of chronic pyelonephritis may overlap with symptoms associated with pregnancy complications, provoked by the disease or developing independently. For example, pain in the lumbar region with irradiation to the groin and lower abdomen may be associated with an increase in uterine tone with the threat of abortion; proteinuria, hypertension, edematous syndrome may indicate the addition of preeclampsia; leukocyturia may be a sign of infection of the lower genital tract, and prolonged subfebrile condition in the early stages of

pregnancy is often characteristic of the physiological course of pregnancy [5, 19, 28].

In women with chronic pyelonephritis during pregnancy, intrauterine growth retardation (15%), chronic placental insufficiency (35%), and chronic fetal hypoxia (30%) are often noted. Often the cause of premature termination of pregnancy is often a severe combination of gestosis that has arisen against the background of chronic pyelonephritis [4, 9, 22, 27].

In addition, the phenomena of comorbidity with chronic pyelonephritis, both abroad and in our country, have been little studied. At our university, therapists and pediatricians were interested in this issue, but the study of these processes in pregnant women was not observed before. That is why we want to study this issue and take effective methods for the prevention of comorbid events in pregnant women with chronic pyelonephritis.

Conclusion: Thus, based on modern data, changes in the clinical manifestation of CP were revealed, in addition, against its background, anemia and changes in the cardiovascular system often occur, which are detected even before clinical manifestations. As a result, it is relevant to study these pregnant women in the early stages for the prevention of comorbid events.

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СОВРЕМЕННЫЕ ВЗГЛЯДЫ НА ПРОБЛЕМУ ХРОНИЧЕСКОГО ПИЕЛОНЕФРИТА И ТЕЧЕНИЕ БЕРЕМЕННОСТИ

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Резюме. Актуальность. Хроническую соматическую патологию имеют 70% беременных женщин, у 76% во время беременности возникают обострения заболеваний (анемия, пиелонефрит и прочее). Одной из актуальных проблем современного акушерства является сочетанная соматическая патология, которая оказывает отрицательное воздействие на репродуктивную функцию женщины, осложняет течение беременности и родов, что проявляется развитием гипертензивных нарушений беременности, невынашиванием беременности, рождением незрелых детей, повышенной частотой послеродовых ренальных и экстраренальных осложнений, приводящий к антенатальной гибели плода, осложнениям со стороны матери. Это показывает необходимость изучения частоты встречаемости, структуры сердечно-сосудистой патологии у беременных с пиелонефритом, тактики ведения и пути профилактики осложнений. Цель – провести обзор литературы за последние 10 лет по современным положениям о течении и проявлениях хронического пиелонефрита для выявления коморбидностей у беременных с ХП. Материал и методы: Исследование проводилось на базе данных современной литературы последних 10 лет через сайты КиберЛенинка, Google Академия, arxiv.org, DOAJ, Российская государственная библиотека, SSRN. Elibrary. Результаты: Любая беременность сопровождается функциональными изменениями как всего организма, так и мочевыделительной системы. Дизурические явления у 20-25% беременных появляются в первые недели беременности, ХП чаще проявляется основными 5-ю симптомами – болевым, дизурическим, анемическим, гипертензивным и интоксикационным. В свою очередь эти изменения приводят к коморбидным явлениям – анемией, нарушениями показателей сердечно – сосудистой системы и осложнениями в развитии плода. Заключение: Таким образом, исходя из современных данных было выявлено изменения в клиническом проявлении ХП, кроме того, на его фоне часто возникают анемия и изменения сердечно-сосудистой системы, которые выявляются еще до клинических проявлений. Вследствие чего является актуальным изучение данных беременных еще в ранние сроки для профилактики коморбидных явлений.

Ключевые слова: хронический пиелонефрит (ХП), беременность, коморбидность, анемия, изменения в сердечно-сосудистой системе.