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# RISK FACTORS AND PREDICTION OF OBSTETRIC COMPLICATIONS IN PREGNANT WOMEN WITH CHRONIC ARTERIAL HYPERTENSION

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### Abstract

Chronic arterial hypertension in pregnant women is one of the leading causes of maternal and perinatal complications, including preeclampsia, placental insufficiency, and preterm birth. Despite advances in modern medicine, the risk of adverse outcomes in this group of patients remains high. The lack of unified prognostic criteria for complicated pregnancy necessitates the identification of significant risk factors and the development of early prediction methods to optimize preventive and therapeutic strategies.

**Keywords:** chronic arterial hypertension; pregnancy; obstetric complications; risk factors; prediction; preeclampsia.

## ФАКТОРЫ РИСКА И ПРОГНОЗИРОВАНИЕ АКУШЕРСКИХ ОСЛОЖНЕНИЙ У БЕРЕМЕННЫХ С ХРОНИЧЕСКОЙ АРТЕРИАЛЬНОЙ ГИПЕРТЕНЗИЕЙ

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### Аннотация

Хроническая артериальная гипертензия у беременных является одной из ведущих причин материнских и перинатальных осложнений, включая преэклампсию, плацентарную недостаточность и преждевременные роды. Несмотря на достижения современной медицины, риск неблагоприятных исходов у данной категории пациенток остаётся высоким. Отсутствие унифицированных прогностических критериев осложнённого течения беременности обуславливает необходимость выявления значимых факторов риска и разработки методов раннего прогнозирования с целью оптимизации профилактических и лечебных мероприятий.

**Ключевые слова:** хроническая артериальная гипертензия; беременность; акушерские осложнения; факторы риска; прогнозирование; преэклампсия.

### **SURUNKALI ARTERIAL GIPERTENZIYASI BO‘LGAN HOMILADOR AYOLLARDA AKUSHERLIK ASORATLARNING XAVF OMILLARI VA ULARNI PROGNOZLASH**

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### Аннотация

Homilador ayollarda surunkali arterial gipertenziya ona va homila uchun perinatal asoratlarning sabablaridan biri bo‘lib, preeklampsiya, platsentar yetishmovchilik va muddatidan oldin tug‘ruq rivojlanishiga olib keladi. Zamonaviy tibbiyotning yutuqlariga qaramay, ushbu bemorlar guruhida ayanchli natijalar xavfi yuqoriligicha qolmoqda. Homiladorlikning asoratli kechishini prognozlash bo‘yicha yagona mezonlarning mavjud emasligi muhim xavf omillarini aniqlash va erta prognozlash usullarini ishlab chiqish zaruratini belgilaydi.

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**Kalit so‘zlar:** surunkali arterial gipertenziya; homiladorlik; akusherlik asoratlari; xavf omillari; prognozlash; preeklampsiya.

### Relevance

Chronic arterial hypertension (CAH) is one of the most significant extragenital conditions complicating pregnancy and childbirth. According to available data, CAH is diagnosed in approximately 1–5% of pregnancies and is associated with a 2–4-fold increase in the risk of obstetric and perinatal complications. Pregnant women with CAH have a substantially higher incidence of preeclampsia, placental insufficiency, fetal growth restriction, and preterm birth. Despite the introduction of modern diagnostic and therapeutic approaches, the rate of adverse maternal and perinatal outcomes in this group remains high. The incidence of superimposed preeclampsia in women with CAH reaches 20–30%, while the frequency of fetal growth restriction and preterm delivery is reported in up to 25–35% of cases. The problem is particularly relevant in the Republic of Uzbekistan, where arterial hypertension remains highly prevalent among women of reproductive age. The absence of unified prognostic criteria for complicated pregnancy in women with CAH necessitates the identification of significant risk factors and the development of early prediction models for obstetric complications.

### Aim of the Study

To identify clinical and instrumental risk factors and to develop approaches for predicting obstetric complications in pregnant women with chronic arterial hypertension.

### Materials and Methods

The study included 120 pregnant women with chronic arterial hypertension who were followed up in obstetric and gynecological healthcare institutions of the

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Republic of Uzbekistan. Depending on pregnancy outcomes, the patients were divided into two groups: a group with complicated pregnancy outcomes ( $n = 68$ ) and a group with uncomplicated pregnancy outcomes ( $n = 52$ ). Clinical characteristics, office blood pressure levels, ambulatory blood pressure monitoring (ABPM) data, laboratory parameters, as well as ultrasound examination and Doppler assessment of uteroplacental blood flow were analyzed. Statistical analysis included descriptive statistics and comparative analysis. Differences were considered statistically significant at  $p < 0.05$ .

### Results

Pregnant women with complicated pregnancy outcomes had a significantly longer duration of arterial hypertension compared to those with uncomplicated pregnancies ( $7.4 \pm 2.1$  vs  $4.2 \pm 1.8$  years,  $p < 0.05$ ). Mean systolic and diastolic blood pressure levels were higher in the complicated group ( $148.6 \pm 12.4 / 94.3 \pm 8.6$  mmHg) compared to the uncomplicated group ( $136.2 \pm 10.8 / 86.1 \pm 7.9$  mmHg,  $p < 0.05$ ). Disturbances of circadian blood pressure patterns (non-dipper and night-peaker profiles) were detected in 62.1% of women with adverse outcomes versus 28.8% in the uncomplicated group ( $p < 0.01$ ). Proteinuria was observed in 41.2% of patients with complicated pregnancies compared to 11.5% in the control group ( $p < 0.01$ ). Reduced uteroplacental blood flow indices were identified in 47.1% of cases in the complicated group and in 17.3% of cases in the uncomplicated group ( $p < 0.01$ ). Ultrasound signs of placental insufficiency were significantly more frequent in women with adverse outcomes (39.7% vs 13.4%,  $p < 0.05$ ). The presence of these factors was predominantly associated with the development of preeclampsia (32.4%), fetal growth restriction (26.5%), and preterm birth (21.3%). Based on the obtained results, a high-risk group for obstetric complications was identified, enabling early preventive interventions and optimization of pregnancy management.

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### Discussion

The findings of the present study are consistent with the results of both national and international research demonstrating the pivotal role of chronic arterial hypertension in the development of obstetric complications. According to studies by Kurbanov B.B. et al., chronic arterial hypertension increases the risk of preeclampsia by 2.5–3.0 times, while the incidence of perinatal losses in this group of patients reaches up to 15–20% [1].

In the works of Kurbanov J.J., impaired uteroplacental circulation was identified in 40–55% of pregnant women with hypertensive disorders and was significantly associated with placental insufficiency and fetal growth restriction [2]. These findings are in agreement with the results of the present study, where reduced uteroplacental blood flow was observed in nearly half of patients with complicated pregnancy outcomes. According to Jamilova Kh.A., the combined assessment of clinical, laboratory, and instrumental parameters increases the accuracy of predicting complicated pregnancy outcomes by 25–30% compared with isolated clinical evaluation [3]. Similar data have been reported in other studies conducted in Uzbekistan, which indicate that early risk stratification and individualized management strategies reduce the incidence of severe obstetric complications by 20–25% and improve perinatal outcomes in women with chronic arterial hypertension [4,5]. Thus, the identified risk factors may serve as a reliable basis for the development of prognostic algorithms and preventive strategies for routine clinical practice.

### Conclusions

Chronic arterial hypertension in pregnant women is associated with a significantly increased risk of obstetric complications. The most important risk factors include disease duration, elevated blood pressure levels, proteinuria, and impaired uteroplacental blood flow. Early identification of these risk factors

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enables prediction of complicated pregnancy outcomes and optimization of clinical management.

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