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Features of Gynecological and Somatic History in Pregnant Women with Preeclampsia

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Abstract Preeclampsia is a multifactorial syndrome characterized by hypertension and systemic endothelial dysfunction. It remains one of the leading causes of maternal and perinatal morbidity and mortality. Despite advances in modern perinatology, its pathogenesis is not fully understood, and prediction and prevention remain challenging. This study aims to assess the relationship between chronic inflammatory, infectious, and somatic diseases and the development of vascular and metabolic disorders underlying preeclampsia. By analyzing the gynecological and somatic history of pregnant women with varying severity of preeclampsia, we identify key risk factors and clarify its mechanisms, which are essential for early diagnosis, prevention, and improved pregnancy management strategies.

Keywords Preeclampsia, Endothelial dysfunction, Risk factors, Inflammation, Pregnancy complications, Metabolic disorders

1. Introduction

Preeclampsia is a multifactorial syndrome characterized by arterial hypertension and systemic endothelial dysfunction. Preeclampsia remains one of the leading causes of maternal and perinatal morbidity and mortality, ranking among the foremost complications of pregnancy [5,6,8]. Despite significant advances in modern perinatology, the pathogenesis of preeclampsia has not been fully elucidated, and the prediction and prevention of this complication remain challenging tasks [2,3,4].

In recent years, particular attention has been paid to the role of chronic inflammatory, infectious, and somatic diseases in the development of vascular and metabolic disorders underlying preeclampsia [1,9,10]. The study of gynecological and somatic history in pregnant women with varying degrees of preeclampsia severity allows for the identification of the most significant risk factors and clarification of its developmental mechanisms, which is of great importance for early diagnosis, prevention, and the improvement of pregnancy management strategies [7].

Aim of the Study

To determine the features of gynecological and somatic history in pregnant women with severe preeclampsia compared with women without preeclampsia, in order to identify the factors contributing to the development and aggravation of this pregnancy complication.

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2. Materials and Methods

All pregnant women were examined at the Department of Obstetrics and Gynecology of the Tashkent Pediatric Medical Institute, at City Maternity Complex No. 6. An analysis of age characteristics among 113 women in the control and main groups revealed an average age of 28–29 years. The age of the examined women ranged from 20 to 41 years.

3. Analysis of Comorbidities

According to the analysis of concomitant diseases (Table 1), anemia, childhood infections, and respiratory viral diseases were the most common conditions in both groups. Anemia was observed in 59.3 ± 3.6% of pregnant women with severe preeclampsia and in 51.9 ± 7.8% of women in the control group, indicating a high prevalence of this condition among pregnant women, although the difference between the groups was not statistically significant ($p > 0.05$). Childhood infections were reported in 49.2 ±5.1% of women in the main group and 46.3 ±8.5% in the control group, while respiratory viral diseases were noted in 32.2 ±5.1% and 31.5 ± 9.0%, respectively. The incidence of chronic tonsillitis, pneumonia, and ENT disorders was comparable between the groups, with no statistically significant differences observed.

Cardiovascular diseases (CVD) were somewhat more common among women with preeclampsia (23.7 ± 3.5% vs. 13.0 ± 2.5%), although this difference did not reach statistical significance. A similar trend was observed for gastrointestinal tract (GIT) diseases — 18.6 ± 4.8% in the main group versus 14.8 ±6.7% in the control group. A higher

incidence of viral hepatitis was found among pregnant women with preeclampsia (22.0 ±4.8% vs. 14.8 ±6.7%), but this difference was also statistically insignificant. At the same time, cystitis and kidney diseases were significantly more frequent in women with preeclampsia (11.9 ±4.3% vs. 5.6 ±2.1%; $p < 0.05$). Particular attention should be paid to obesity, which was diagnosed in 15.3 ± 3.0% of pregnant women with preeclampsia compared to 7.4 ± 2.1% among women in the control group ($p < 0.05$). Thyroid gland disorders occurred with a similar frequency in both groups (13.6 ± 5.1% and 18.5 ± 6.4%, respectively). Thus, among pregnant women with severe preeclampsia, there is a clear trend toward a higher prevalence of chronic somatic diseases, particularly obesity and urinary system pathology, which may represent additional risk factors contributing to the development of this pregnancy complication.

Gynecological History and Associated Pathology in Pregnant Women with Preeclampsia

An analysis of the gynecological history revealed that inflammatory diseases of the genital organs were significantly more frequent among pregnant women with severe preeclampsia compared to women in the control group. Thus, colpitis was diagnosed in 66.1 ± 5.0% of patients with preeclampsia, which was significantly higher than in pregnant women without signs of preeclampsia (44.4 ±5.8%, $p < 0.05$). Cervical erosion and endocervicitis were identified in 20.3 ±4.6% of women with severe preeclampsia compared with 9.3 ± 2.5% in the control group ($p < 0.05$). The incidence of inflammation of the uterine appendages was also higher among patients with preeclampsia (25.4 ±4.4%) than among pregnant women without this complication (15.0 ± 3.2%), although the difference did not reach statistical significance.

Chronic endometritis and TORCH infections occurred with comparable frequency in both groups (8.5 ±5.0% and 15.3 ±3.8%, respectively, versus 7.4 ±1.6% and 13.0 ±3.2% in the control group; $p > 0.05$). It should be noted that a history of infertility was found only among patients with severe preeclampsia — 15.3 ±3.8%, which was statistically significant compared to the control group, where no such cases were reported ($p < 0.05$). Chronic adnexitis was also more common in women with preeclampsia (8.5 ± 3.6% vs. 3.7 ± 2.3%, $p < 0.05$). Thus, pregnant women with severe preeclampsia demonstrate a higher frequency of inflammatory diseases of the genital organs and reproductive disorders. The obtained data suggest a possible pathogenetic association between chronic infectious and inflammatory processes of the reproductive system and the development and progression of preeclampsia.

Table 1. Somatic history of pregnant women

Diseases	Pregnant women without PE (n=54)		Severe preeclampsia (n=59)	
	Abs.	%	Abs.	%
Childhood infections	25	46,3±8,5	29	49,2±5,1
Respiratory viral infections	17	31,5±9,0	19	32,2±5,1
Chronic tonsillitis	9	16,7±6,9	8	13,6±5,1
Pneumonia	5	9,3±5,3	7	11,9±4,0
ENT diseases	9	16,7±6,7	7	11,9±4,0
Cardiovascular diseases	7	13,0±6,3	14	23,7±3,6*
Gastrointestinal diseases	8	14,8±6,7	11	18,6±4,8
Viral hepatitis	8	14,8±6,7	13	22,0±4,8
Cystitis and kidney diseases	3	5,6±2,1	7	11,9±4,3*
Anemia	28	51,9±7,8	35	59,3±3,6
Thyroid diseases	10	18,5±6,4	8	13,6±5,1
Obesity	4	7,4±2,1	9	15,3±3,0*

Table 2. Gynecological history of pregnant women

Diseases	Pregnant women without PE – control group (n = 30)		Pregnant women with severe preeclampsia (n = 59)	
	Abs.	%	Abs.	%
Colpitis	24	44,4±5,8	39	66,1±5,0*
Cervical erosion, endocervicitis	5	9,3±2,5	12	20,3±4,6*
Inflammation of the uterine appendages	7	13,0±3,2	15	25,4±4,4*
Chronic endometritis	4	7,4±1,6	5	8,5±5,0
TORCH-infections	7	13,0±3,2	9	15,3±3,8
Infertility	0	0,0	9	15,3±3,8*
Chronic adnexitis	2	3,7±2,3	5	8,5±3,6*

*Note: significant compared to control group ($p < 0.05$; **$p < 0.01$; ***$p < 0.001$).

4. Results and Discussion

The conducted analysis showed that pregnant women with severe preeclampsia are significantly more likely to present with inflammatory diseases of the reproductive system, such as colpitis, endocervicitis, chronic adnexitis, and a higher prevalence of infertility in medical history. These findings indicate a possible pathogenetic role of chronic infectious and inflammatory genital processes in the formation of vascular disorders and the development of preeclampsia. In addition, women with preeclampsia exhibit a tendency toward a higher prevalence of somatic diseases, particularly anemia, obesity, and urinary system pathology. The combination of infectious-inflammatory and metabolic disturbances may represent an unfavorable background that contributes to the development and exacerbation of preeclampsia.

5. Conclusions

The obtained results emphasize the necessity of a comprehensive approach to the examination and management of pregnant women at risk, taking into account their gynecological and somatic history. Such an approach is essential for effective early prevention and timely management of pregnancy complications.

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