



## *Integrating New and Existing Therapies for Placental Insufficiency*

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### ABSTRACT

In recent years, much attention has been paid to immunological studies of PN, which are associated with hopes for understanding the general biological basis of various obstetric complications. It has been established that with PN, there is a change in the indicators of cellular and humoral factors of immunological protection, in particular, T-, B-lymphocytes, immunoglobulins of class A, M, G and circulating immune complexes, which dictates the need for timely adequate correction of the above pathology. The arsenal of modern medications used during pregnancy is quite diverse and effective, but there are increasingly reports in the literature that they often cause significant harm to both mother and fetus

Therefore, there is a need to develop and implement new, more advanced forms of therapy, particularly combining medications with physical therapy.

To date, the impact of laser radiation on the functional state of pregnant women and the intrauterine development of the fetus and newborn remains poorly understood. Therefore, improving the treatment of PN, taking into account the hormonal system, hemorheological, and immune status of pregnant women, using laser beams is of particular interest. The aim of the study was to evaluate the effectiveness of complex treatment for placental insufficiency using intravascular laser blood irradiation (IVLI), taking into account the hormonal system, hemorheological and immune status of the pregnant woman, and the development of the fetus and newborn. To achieve this goal, it was necessary to solve the following tasks:

1. To study some indicators of the hormonal system, hemorheological and immune status in women with physiological pregnancy.
2. To study dynamically some indicators of the hormonal system, hemorheological and immune status in pregnant women with PN.
3. To evaluate the impact of complex treatment of PN using intravascular laser blood irradiation on the functional state of pregnant women, intrauterine development of the fetus and the condition of newborns.
4. To develop criteria for rational treatment of placental insufficiency using intravascular laser irradiation of blood.
- 5.

**Keywords:** *Placental insufficiency, Treatment optimization, Therapeutic strategy*

## CONCLUSIONS

- Pregnant women with an unfavorable premorbid background, with a significant number of chronic extragenital and gynecological diseases, the majority of which are anemia, diseases of the urinary system, gastrointestinal tract, as well as inflammatory diseases of the genitals, constitute a risk group for the development of placental insufficiency and complications of intrauterine fetal development.
- Intrauterine growth retardation of the fetus is accompanied by a complex of changes indicating the presence of placental insufficiency of varying severity: a decrease in the hormone-producing function of the placenta by 68.4%; suppression of cellular and humoral immunity by 73.5%; an increase in the content of circulating immune complexes by 53.8%; erythrocyte aggregation and blood viscosity by 70.6% and 84.9%, respectively.
- Therapy for placental insufficiency with the inclusion of intravascular laser irradiation of blood with helium-neon laser beams has a more intense normalizing effect on the indicators of the hormone-producing function of the placenta, cellular and humoral factors of immunological defense and rheological parameters of the blood.
- Combined therapy for placental insufficiency using intravascular laser blood irradiation has a positive effect on the intrauterine development of the fetus, increasing its growth according to ultrasound fetometry data by 1.7 times (60% versus 36.2%), normalizes the condition of the fetus and newborn, which is expressed in a greater tendency to increase body weight and height and assessment of the condition of the newborn according to the Apgar scale.

## Suggestions for implementation into practice

- Women with an unfavorable premorbid background and a significant number of extragenital and gynecological diseases constitute a risk group for the development of placental insufficiency, complications of intrauterine fetal development and require timely and adequate therapy.
- The examination of women with placental insufficiency must include a study of the hormonal system, hemorheological and immune status in order to timely correct microcirculation and metabolic disorders in the fetoplacental complex.
- The treatment complex for placental insufficiency is recommended to include 8 sessions of intravascular blood irradiation with helium-neon laser beams with a power density of 1.5 mW, with an exposure of 10-15 minutes every other day.

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