



# Application of plasmapheresis in obstetrics and gynecology

## Obstetrics-Gynecology

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The method of membrane plasmapheresis has been used in medicine since the 90s of the twentieth century and allows achieving good results in the treatment of obstetric and gynecological diseases. It is important that the efficacy and safety of plasmapheresis has been confirmed in a series of clinical trials conducted under evidence-based medicine.

Membrane plasmapheresis consists in removing part of the blood, purifying it of toxic metabolites and harmful substances, and then returning it back to the bloodstream. The method also allows you to stimulate the body's own reserves to fight the pathological process. Thus, a comprehensive healing effect is achieved.

## Plasmapheresis in preparation for pregnancy and IVF

The reproductive health of a modern woman can be undermined by a variety of factors:

- chronic infections, the treatment of which often does not reach its logical end and does not end with recovery;
- carrying out a large number of transvaginal interventions and minor operations, after which short courses of antibiotics are prescribed, which form antibiotic resistance and trigger the synthesis of autoantibodies (directed against their own tissues);
- a high level of stressfulness, which triggers disorders in the immune system;
- poor overall health of a woman.

The method of membrane plasmapheresis helps to cope with the consequences of these disorders. The therapeutic effect of the procedure is as follows:

- Removal of a part of the plasma containing "dangerous" substances - bacterial toxins, viral particles, circulating immune complexes (antibody + antigen), cellular decay products and others.
- A decrease in the aggregation potential of plasma and a decrease in the likelihood of thrombosis, which are a key factor in adverse outcomes in antiphospholipid syndrome, chronic infections, etc. This effect is achieved due to the fact that upon returning the plasma to the bloodstream, it must be pre-diluted with blood substitutes and crystalloids to the required volume.
- Activation of the body's own defenses, which increases stress resistance and helps to restore the correct course of immune responses.

Unfavorable environmental conditions can also negatively affect the ability of a married couple to have children. Chronic intoxication reduces the reproductive potential of women and men. The method of membrane plasmapheresis allows you to directly remove from the human body products of violation of purine, lipid and glyceimic metabolism, i.e. the main cause of an unfavorable reproductive condition.

5-11% of married couples face infertility. Membrane plasmapheresis is also effective in the treatment of this disorder. The method has a complex effect on the woman's reproductive system - it helps to restore ovulation, improve the peristalsis of the fallopian tubes, suppress latent infections, normalize immune mechanisms, increase the receptor sensitivity of the endometrium to its own and medication hormones.

The method of membrane plasmapheresis can be used at the stage of preparation for both natural conception and the onset of pregnancy using in vitro fertilization. Artificial methods of reproduction are becoming more and more popular - their prevalence all over the world is growing every year. However, the success of their use largely depends on the optimal preparation of the woman's body. The healthier she is, the higher the chances of achieving the desired result.

### **Plasmapheresis during pregnancy**

The problem of miscarriage is faced by every 5th couple who have conceived. The frequency of this obstetric pathology is 15-20%. However, in 30-40%, miscarriages are repeated 2 or more times. In this case, gynecologists talk about the habitual miscarriage.

The main reasons that lead to premature termination of the gestational process are:

- anomalies in the development of the female reproductive system;
- disorders in the chromosome set of the embryo / fetus;
- sexually transmitted infections;
- neurohormonal disorders;
- antiphospholipid syndrome, in which antibodies are formed against one's own tissues, incl. against the placenta;
- poor environmental situation;
- improper nutrition;
- chronic stress;
- operations transferred to the pelvic organs.

The threat of preterm birth is also created by some obstetric and gynecological complications - ovarian hyperstimulation, preeclampsia / eclampsia (a condition with increased blood pressure and the appearance of protein in the urine), incompatibility of the blood of the mother and the fetus in the Rh and ABO system, activation of latent genital infections, etc. ... In all these clinical situations, factors of biogenic aggression accumulate in the body of a pregnant woman. Efferent therapy helps to get rid of them, the "advanced" version of which is membrane

plasmapheresis. The method promotes the elimination of bioaggressive substances, thereby providing the best conditions for the continuation of pregnancy.

### **Technique**

The technique of membrane plasmapheresis is quite simple to perform. It can be used at any age, as well as during pregnancy. The developers of the method have done everything possible to ensure a high degree of safety for the patient.

During the procedure, the woman sits in a comfortable chair or couch. The nurse punctures the vein and inserts a special catheter into it. Blood is drawn through a vein in one arm, and blood, passed through the special filters of the apparatus, is returned to the bloodstream through a vein in the other arm.

The blood taken from the patient is divided into 2 fractions - plasma and corpuscles. Plasma is removed and cells are diluted with crystalloid or colloidal solutions. In this form, they return to the bloodstream.

The duration of one session in obstetric and gynecological practice is from 1 to 2 hours. Patients tolerate the procedure well. However, in the process of plasmapheresis, the physician is next to the woman, assesses the general condition, measures the pulse, pressure, etc. The course treatment consists of several procedures, the required number will be selected by the doctor, focusing on the clinical features of the case.

### **Conclusion**

Membrane plasmapheresis is included in the program for the comprehensive rehabilitation of women with infertility, recurrent miscarriage and a burdened obstetric and gynecological history. The Reproductive Health Center is an example of a clinic that values its reputation, uses modern equipment and regularly trains its doctors on the latest world medical advances.