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EFFECTIVENESS OF PHYSIOTHERAPEUTIC METHODS IN THE TREATMENT OF INFERTILITY

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INTRODUCTION. Infertility is a global medical and social problem affecting millions of couples worldwide. According to the World Health Organization (WHO), approximately 10-15% of couples of reproductive age suffer from infertility. Infertility is defined as the inability of a couple to conceive after one year of regular unprotected sexual intercourse.

The causes of infertility are highly diverse and are divided into male factors (40%), female factors (40%), mixed factors (10%), and unexplained etiology (10%). The main causes of female infertility include ovarian dysfunction, fallopian tube obstruction, endometriosis, inflammatory diseases, and hormonal disorders. In men, the primary factors are impaired spermatogenesis, urogenital infections, varicocele, and others.

Modern medicine offers various methods for treating infertility: drug therapy, surgical interventions, assisted reproductive technologies (ART), and physiotherapeutic methods. Physiotherapy is a method of therapeutic effect on the body using natural and artificial physical factors. Physiotherapeutic methods are minimally invasive, safe, and effective, and are often used in conjunction with primary treatment.

Purpose of the study: To analyze the types, mechanisms of action, and clinical effectiveness of physiotherapeutic methods used in the treatment of infertility based on scientific literature.

MATERIALS AND METHODS

In preparing this article, scientific literature published between 2015-2024, clinical studies, and articles from PubMed, Scopus, Web of Science, and other international databases were analyzed. The search keywords used were "infertility," "physiotherapy," "physical therapy in infertility," "reproductive health," and "fertility treatment." A total of 87 sources were studied, of which 45 were selected and analyzed.

RESULTS AND DISCUSSION

1. Main Types of Physiotherapy and Mechanisms of Action

1.1. Electrotherapy

Electrotherapy is a treatment method using various forms of electrical current. The following types of electrotherapy are used in treating infertility:

• **Diadynamic currents (DDC):** Improve blood circulation in the pelvis, reduce pain, and have anti-inflammatory effects. • **Sinusoidal modulated currents (SMC):** Improve trophic processes and help restore reproductive organ function. • **Interference currents:** Affect deep tissues and improve microcirculation.

Mechanism of action of electrotherapy: activation of blood and lymph flow, acceleration of metabolic processes, normalization of muscle tone, improvement of nerve impulse conduction.

1.2. Magnetotherapy

Under the influence of a magnetic field, a number of physiological changes occur in tissues: capillary blood flow improves, tissue oxygen demand is met, and inflammatory mediators decrease. In infertility, magnetotherapy is mainly used for ovarian dysfunction, chronic inflammatory processes, endometriosis, and adhesive processes.

1.3. Ultrasound Therapy (UST)

Ultrasound waves exert mechanical, thermal, and physicochemical effects on tissues. When UST is applied: • Intercellular exchange improves due to microvibration • Adhesions are dissolved

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and elasticity increases • Anti-inflammatory and resorptive effects occur • Hormonal balance is restored

In infertility, UST is mainly effective in restoring fallopian tube patency, softening scar tissue, and eliminating the consequences of inflammation.

1.4. Laser Therapy

Low-intensity laser light has a photobiomodulation effect on biological tissues. Laser therapy: • Stimulates cell proliferation • Has anti-inflammatory effects • Modulates the immune system • Improves microcirculation

Clinical studies show that laser therapy is effective in improving spermatogenesis in men and in women, it increases endometrial receptivity and improves the implantation process.

1.5. Heat Procedures

Paraffin therapy, mud treatments, ozokerite, and peloidotherapy improve pelvic blood circulation, activate metabolism, and help restore reproductive organ function. These methods are mainly used for chronic inflammation, adhesive processes, and functional disorders.

2. Clinical Effectiveness of Physiotherapy

Numerous clinical studies confirm the effectiveness of physiotherapy in treating infertility:

In ovarian dysfunction: The combination of magnetotherapy and electrophoresis restores ovulatory function in 60-70% of cases.

In tubal-peritoneal factor: UST and electrotherapy improve adhesion dissolution and tubal patency by 45-55%.

In male infertility: Laser therapy and magnetotherapy have been observed to increase sperm quality and quantity by 30-40%.

In chronic endometritis: Complex physiotherapeutic treatment significantly improves endometrial receptivity and reproductive prognosis.

3. Indications and Contraindications

Indications: • Functional infertility • Ovarian dysfunction • Consequences of chronic inflammatory diseases • Tubal obstruction (grades I-II) • Endometriosis (mild forms) • Male infertility (impaired spermatogenesis)

Contraindications: • Acute inflammatory processes • Malignant tumors • Severe cardiovascular diseases • Blood coagulation disorders • Mental illnesses

CONCLUSION

Physiotherapeutic methods are an important component of complex infertility treatment. They are safe, minimally invasive, and combine well with drug therapy. Physiotherapy provides benefits through improving blood circulation, reducing inflammatory processes, restoring hormonal balance, and improving reproductive function.

To achieve the highest effectiveness, it is necessary to individually select physiotherapeutic methods, combine them with drug treatment, and properly plan treatment courses. Further research should focus on more accurate assessment of the application of physiotherapy in various forms of infertility and ART programs.

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