Ozone Therapy in Female Infertility

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Abstract

The purpose of this work was to study the effect of ozone in the treatment of female infertility of inflammatory aetiology.

We administered ozone to 56 patients (50 out of which were infertile), who had previously unsuccessfully undergone various kinds of treatments for inflammatory diseases of the genitalia,.

Ozone therapy in the concentrations used by us has good curative effect on infections caused by bacteria, chlamydia, mycoplasma, ureaplasma, toxoplasma, herpes simplex and cytomegalovirus and eliminates inflammation thus facilitating patency of the fallopian tubes which in turn has a positive effect on female infertility of inflammatory origin.

Introduction

Infertility even today remains one of the most significant medical as well as social problems of the world. Approximately 8 - 10 % couples are classified as infertile. This means, that infertility is quite a global phenomenon and affects about 50 - 80 million people around the world. Infertility might be a result of host of factors although for a majority of infertile women inflammation of the genitalia remains the most important cause.

From the very beginning of human civilisation, inflammation has been synonymous with disease, which is true to this day. Among women suffering from inflammatory diseases of the genitalia, 75 % are young and not undergone parturition. Lately, both the frequency as well as the clinical picture of inflammatory diseases of the genitalia have undergone considerable changes. In almost 80 - 82 % patients, the inflammation process is chronic. Significant rise is noted in sexually transmitted gynaecological diseases, e.g. in 1989 there were about 50 million fresh cases of chlamydiosis in the world and in 1995 there were about 89 millions. Moreover, these diseases increase the patient's susceptibility to HIV and quite often complicate into infertility. The infections are quite often found in various combinations, such as chlamydiosis alongwith Herpes simplex (17%), alongwith gardnerellesis (14%),

alongwith ureaplasmosis (33%), alongwith mycoplasmosis (21%) and alongwith candidosis (13%).

It is a well known fact, that changes in the immunological system form not only the basis for chronic inflammatory diseases of the female genitalia but also has a significant influence on the clinical picture of the disease, on the effect of treatment and its prognosis. It is for this reason, that antimicrobial preparations to which the microbes are susceptible *in vitro*, are ineffective *in vivo*, which makes the management much difficult.

Despite great strides by the pharmaceutical industry in developing very potent antibiotics, antiviral, fungicidal, immunomodulators, proteolytic enzymes and also modern management techniques such as ultraviolet radiation of blood, laser therapy, ultrasound treatment; yet effective management of inflammatory diseases of the genitalia still remains a challenge. Main reasons, which complicate therapy are disbalance between systems of lipid peroxidation and antioxidant defence.

Lately, search for newer methods of treatment of infertility due to genital inflammatory diseases has introduced ozone therapy as a modern and viable management technique.

It is widely known that ozone therapy stimulates production of immunoglobulins in the blood (IgG, IgA, IgM), increases resistance of the macroorganism to microbes, improves the rheological properties and oxygen transportation mechanism of the blood and also destroys all contacts of the virus with the cells. These properties of ozone are similar to those of antibiotics, but in contrast to the latter, ozone does not have any adverse effects at therapeutic doses and microbes do not develop resistance to ozone. This made it possible for us to use ozone in the treatment of various gynaecological diseases.

Taking into account the chronic nature of the inflammatory diseases with frequent exacerbations, depressed immunological state and lack of effect of usual methods of treatment; use of ozone as one of the methods of treatment of infertile women is quite justified.

Materials and methods

We administered ozone to 56 patients, who had previously undergone unsuccessfully various kinds of treatments for inflammatory diseases of the genitalia. 50 out of which were infertile - 27 with primary infertility and 23 with secondary infertility. Examination of the patients revealed various genito-urinary infections in various combinations of chlamydiosis, mycoplasmosis, ureaplasmosis, gardnerellesis, toxoplasmosis, herpes simplex and cytomegaloviral infection.

- 18 patients suffered with polyinfections - chlamydiosis, ureaplasmosis, mycoplasmosis and gardnerellesis both in blood and cervical canal.
- 10 patients suffered with polyinfections - chlamydiosis, ureaplasmosis in the cervical canal and herpes simplex, cytomegaloviral infection, toxoplasmosis in blood.
- 7 patients suffered with toxoplasmosis, herpes simplex and cytomegaloviral infections.
- 10 patients suffered with herpes simplex and cytomegaloviral infections.
- 5 patients suffered with chlamydiosis and ureaplasmosis.
- 3 patients suffered with chlamydiosis, gardnerellesis and cytomegaloviral infection.
- All the 56 patients suffered from various vaginitis - trichomonal vaginitis, candida albicans vaginitis and mixed vaginitis.

We carried out the following ozone therapy procedures:

1. Stimulation course - minor autohaemotherapy with ozonised blood for 5 sessions.
2. Basic course - rectal insufflation with 800 - 1000ml ozone (5 - 10 mg/l), - 5 sessions. For 7 patients with viral infections the concentration of ozone was increased to 8 - 12 mg/l and the number of sessions was also increased to 8.
3. Topical application course - vaginal application - 12 sessions. Vaginal application meant vaginal irrigation with ozonised distilled water (ozone concentration 4 - 7 mg/l), thereafter vaginal insufflation with ozone - oxygen mixture (1.0 -1.5 mg/l) for 5 minutes and thereafter insertion of tampons with ozonised olive oil.
4. Patients were prescribed ozonised distilled water *per os*.
5. 11 patients with viral infections were admitted Intravenous insufflation of ozonised isotonic NaCl 200 ml with the concentration of ozone 1.2 mg per litre of oxygen.- 5 sessions along with topical application - 12 sessions, rectal insufflation - 5 sessions , stimulation course - 5 sessions.
6. Patients were advised against sexual intercourse throughout the period of treatment.

7. After completion of full 12 days course, 44 patients were prescribed an interval of 15 days after which rectal insufflation and vaginal applications were carried out daily for 3 days, after which laboratory examinations were done. The remaining 12 patients were given a gap of 25 - 30 days. During this period they were advised to insert tampons with ozonised olive oil, where the results were better than the previous.

All the patients were carefully examined before and at the end of treatment with laboratory methods such as microscopy of vaginal secretions, culture of cervical secretions, immunofluorescence method, immunoenzymatic analysis and polymeric chain reaction.

Results of the Study

1. In all 36 cases (100%) chlamydiosis infection was eliminated.
2. In all 18 cases (100%) mycoplasmosis infection was eliminated.
3. In 30 out of 33 cases (90.9 %) ureaplasmosis were cured.
4. In 19 out of 21 cases (90.00%) gardnerellesis were cured.
5. Among 13 cases of herpes simplex, who had undergone only five sessions of rectal insufflation as basic course, 3 (23%) were completely cured, in 7 patients (53.80%) the titre was reduced by half, in 2 patients (15.38%) the titre remained unchanged and in 1 patient (7.69%) the titre doubled.
6. 6.In 10 out of 12 cases (83.33%) of cytomegaloviral infection there was complete cure, in 2 patients (16.67%) there was no effect.
7. In 5 out 7 (71.42%) with herpes simplex and cytomegaloviral infection were cured, who were administered raised concentration of ozone and increased number of sessions. 2 (28.57%) patients were cured from cytomegaloviral infection, herpes simplex titre was reduced by half which became to negative (zero) after 1 month of rest .
8. 8. Among 11 patients with viral infections who were administered Intravenous insufflation of ozonised isotonic NaCl - 5 sessions along with topical application - 12 sessions, rectal insufflation - 5 sessions, stimulation course - 5 sessions & with a gap of 25-30 days and more, 10 patients (90.90%) were cured, and in 1 case (9.10%) the titre was reduced.
9. In 3 out of 17 cases (17.65%) of toxoplasmosis was cured, in 6 cases (35.29%) the titre was reduced by half and in the remaining 8 cases (47.06%) the titre remained unchanged.
10. Symptoms of vaginitis were eliminated in all 56 patients.
11. Pre-menstrual pains were eliminated in some of the cases.

12. In most of the cases rise in the basal temperature was observed.
13. Among the 56 women who under went ozone therapy only one patient complained of discomfort in her lower abdomen for 9 consecutive days from the beginning, because of which treatment was stopped on the 9th day. All the rest had no major complaints except for occasional minor discomforts.
14. 30 patients were laboratory examined after 3 months of completion of ozone therapy course, and in none of the cases there were no signs of residual infection.
15. Until today 8 out of 50 infertile women conceived within 3 months after undergoing complete ozone therapy course.

Conclusions

1. Ozone therapy in the concentrations used by us initially, has a good curative effect on bacteria, chlamydia, mycoplasma, ureaplasma, gardnerella and partial effect on viruses and toxoplasmosis.
2. Experiments showed that administration of intravenous insufflation of ozonised isotonic NaCl 200 ml with the concentration of ozone 1.2 mg per 1 lit. Oxygen - 5 sessions along with topical application - 12 sessions, rectal insufflation - 5 sessions, stimulation course - 5 sessions had better effect on viral infection.
3. Ozone being antiviral, antibacterial, antifungal, it eliminates inflammation and thus facilitates the easy passage of sperm through fallopian tubes, thus acts on infertility of inflammatory origin.

Thus Ozone therapy can be very useful in the treatment of genital inflammatory diseases and thus of infertility

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