



**International Scientific Committee of
Ozone Therapy**

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**Vaginal insufflation of an ozone-oxygen mixture (VIO3O2M)
ISCO3 MET/00/13.**

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1.1. Brief background

The method of vaginal ozone therapy - usually in a form of direct application of ozonized olive oil into the vaginal in a form of insertion of tampons soaked in the same oil - have existed for quite a long time (Schwartz A., 2011). The traditional aim of this form of ozone therapy - is the treatment for recurrent fungal vaginitis (Schwartz A., 2015) The idea that the ozone-oxygen mixture can be used for sanitation of vagina (Grechkanev G.O., 2000, 2001, 2011) is based on the well-known antiseptic properties of ozone that are usually applied for external management of infected wounds, treatment of burns, etc. (Viebahn-Hänsler R., 2007). It is necessary to note that the vaginal insufflation is a systemic route of administration of ozone.

1.2. Purpose

The purpose of this SOP is to describe the procedure of a vaginal insufflations with ozone-oxygen mixture (VIO3O2M).

1.3. Scope

This procedure specifies doses, volume of gas and frequency of application.

1.4. Acronyms, abbreviations and definitions

SOP	Standard Operation Procedure
VIO3O2M	Vaginal insufflations of an ozone-oxygen mixture
Total doses	Total amount, in micrograms, of ozone given per session, calculated as volume in mL multiplied by concentration in $\mu\text{g}/\text{NmL}$

2. Responsibility

Physician

Patients' Clinical records registration (ISCO3/REC/00/02).

Assessment of the indication, contraindications

Request the informed consent (ISCO3/QAU/00/21) and the privacy consent

Applications and monitoring

Prescription of investigations to assess the effectiveness of the treatment (e.g. microbiological or immunological assays)

Reporting any late complications (ISCO3/REC/00/03)

Patient follow-up



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Nurses

Accommodate the patients

Preparation of the clinical procedure

Supervision of patients, and vital signs control

Detects and alerts the doctor to anomalies due to possible reactions

Notification of possible complications

A VIO3O2M session should be done by a physician, adequately trained in ozone therapy. Also a trustworthy assistant, nurse, or paramedical professional, may do the procedure, provided this person is adequately trained for this work and they are under medical supervision. It is the physician's responsibility to see that all steps of the procedure are done in the correct manner, in order to always avoid errors, accidents, and to prevent incidents.

3. Procedure

3.1 Indications

Acute and chronic colpitis, endo- and exocervicitis, regardless of their etiology, bacterial vaginosis, papilloma virus.

3.2 Contraindications

Absolute contraindications: virginity, bleeding from the vagina and/or the cervix, external huge genital condyloma, or anatomical abnormalities, preventing insertion of a speculum into vagina. Favism*. Pregnancy in the first 3 months (For clinical and/or legal reasons).

*The prevalence of Glucose 6 phosphate dehydrogenase (G6PD) deficiency varies among ethnic groups with overall lower frequency in the Americas (3.4%), Europe (3.9%), and the Pacific (2.9%) as compared to sub-Saharan Africa (7.5%), the Middle East (6.0%), and Asia (4.7%) (Nkhoma *et al.* 2009). Test of G6PD is recommended prior to O₃ therapy in order to avoid complications.

Relative contraindications / special situations:

- ✓ Acute myocardial infarction
- ✓ Uncompensated toxic hyperthyroidism - Basedow Graves status
- ✓ Thrombocytopenia less than 50.000 and serious coagulation disorders
- ✓ Severe cardiovascular instability
- ✓ Acute alcohol intoxication
- ✓ Massive and acute hemorrhage
- ✓ During convulsive states
- ✓ Hemochromatosis
- ✓ Patients receiving treatment with copper or iron.



3.3 Recommended doses intervals

VIO3O2M may be given daily or every other day. Cycles to be administered once a year or more. The **volume of ozone-oxygen mixture** to use varies between 2.0 and 5 L.

Frequency of treatment: The number of treatment sessions administered depends on the general result and the main disease.

Ozone concentrations for VIO3O2M

The ISCO3 recommended dose for VIO3O2M (10-30) $\mu\text{gN/mL}$ in a total volume of (1-2) L at a constant flow of (0.1 to 0.2) L/min for 10 min. Lower concentrations of 5-9 $\mu\text{gN/mL}$ can be used at a greater flow rate (0.5 – 1) L/min and with a shorter duration of a session. Concentrations above 30 $\mu\text{gN/mL}$ should be avoided because of the theoretically increased risk of suppression of Lactobacilli, immune-competent cells and induction of local oxidative stress.

3.4 Clinical evaluation

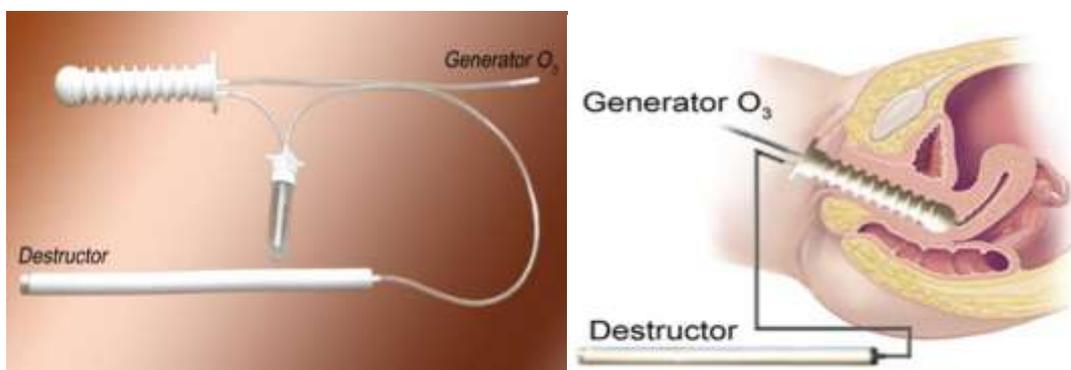
A clinical and/or laboratory evaluation is necessary to establish a precise diagnosis and to permit comparisons between the patient's status before, during and after ozone therapy.

3.5 Preliminary operations

The patient must be fully informed in advance about the method itself, about all the steps of the procedure, about the desired effect(s) and also about the possible unwanted side effects. Also a written Term of Informed Consent should be read, understood and signed by the patient or the person responsible for the patient.

Device: must fit the standard requirement ISCO3/DEV/00/01

Syringes: special gynecological accessory set including the vaginal device. All devices used in procedure must be ozone-resistant and must not release phthalates.



3.6 Main procedure

The ozone treatment is carried out as follows: Right before the insufflation, the vagina has to be washed with ozonized distilled water at concentration of (10-30) $\mu\text{g/mL}$. Follows the introduction in the vagina the lubricated device and to connect it throughout two cannulas, one to the ozone



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generator and the other to the ozone destructor. Proceed to insufflate the ozone-oxygen mixture at concentration between (5-30) $\mu\text{gN/mL}$ during (5- 10) min at 200 mL/min of a constant flow. Flow rate (0.1 – 2) L/min. When finished with the insufflation, apply 1 mL of any vaginal lubricator followed by 1 mL of ozonized oil at 600IP. In total 10 procedures are advised.

3.7 Side effects

Since the ozone causes dryness of the vaginal epithelium, it is advised to lubricate the vagina right after the procedure with any vaginal lubricator. No systematic side effect is reported. Only light local side effects can be observed - discomfort on speculum withdrawal. The doctor who apply the procedure must wear a carbon mask as a self-protection. In case of incident see ISCO3/CLI/00/01.

3.8 Patients Follow-up

Patients may be followed and re-evaluated from time to time, from the clinical / subjective point of view and with laboratory according to a standard of the given pathology. It is necessary to make vaginal crops at the beginning and at the end of the treatment.

4. Effect Mechanism

Vaginal insufflations is one of the types of cavitary/systemic ozone therapy that owing to the use of a vaginal device provide a full contact of an acting agent with the vaginal epithelium, which normally has a fold structure.

Technically, the procedures allow the following variations: 1) ozone concentration in a gas mixture (5 - 30) $\mu\text{gN/mL}$; 2) rate of insufflation (0.1 - 2) L/min; 3) duration of the procedure (5 - 10) min; 4) number of the procedures 5-10. It gives an opportunity to choose an optimal combination of these variables, depending on the generator's output, following the main principle: the higher the concentration of ozone in the mixture - the shorter the duration of the procedure and the lower the rate of the gas flow. The number of the procedures is determined by clinical and laboratory recovery.

Prolongation of the procedure at higher rates of the flow and concentration of ozone can lead to dryness of the vaginal walls, suppression of the saprophytic flora and induce local oxidative stress.

Circulation of the ozone-oxygen mixture in the vagina - after previous treatment with ozonized distilled water and removal of mucus, pus and desquamated epithelium from the vaginal walls - provides bactericidal and fungicidal effects without elimination of the normal vaginal flora and also corrects some of the local immune parameters.



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All patients, during treatment, demonstrate clinical improvement: pathologic discharge, unpleasant odor, itch, hyperemia, discomfort and dyspareunia - decrease or completely disappear. The effect is stable and lasts for 2 - 8 months. Bacterioscopic and bacteriologic studies of the vaginal discharge show elimination of pathogenic and opportunistic microorganisms. Laboratory tests reveal improvement in antibiotic susceptibility, a decrease in the levels of IgM, an increase in the concentrations of IgA and lysozyme in vaginal secretions (Schwartz A., 2015).

It should be noted, that ozone therapy doesn't exclude the use of the antibacterial, antifungal or antiviral drugs - depending on the etiology of the infectious process (Grechkanev G.O., 2009, 2013; Yarustovskaya O. V., 2015).

In the light of the foregoing, it may be concluded that vaginal insufflations of the ozone-oxygen mixture as a part of a complex treatment for infectious pathology of the lower genital tract is highly efficient. Ozone therapy, sanitizing the vagina and normalizing the humoral immunity and cell-mediated immunity, facilitates persistent recovery and also reduces the use of antibacterial drugs and disinfectants.



5. References

5.1 SOP References

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ISCO3/DEV/00/01 Guidelines and Recommendations for Medical Professionals Planning to Acquire a Medical Ozone Generator.
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6. Documentation and Attachments

6.1 List of recommended medical disposables

Plastic-based devices (special gynecological accessory set including intravaginal tip and vaginal catheter fastened into vaginal speculum).

Sterile ozonized distilled water

Gloves

7. Change History

SOP no.	Effective Date	Significant Changes	Previous SOP no.
ISCO3/MET/00/13	16/05/2016	First version draft under revision	First version

8. Document Records

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