International Scientific Committee of Ozone Therapy ISCO3

ISCO3/QAU/00/04 Definitions of terms in ozone therapy

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Original drafter of the paper:
Gregorio Martínez-Sánchez. President ISCO3 (International Scientific Committee of Ozone Therapy).

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Contact for correspondence: ISCO3 Secretariat: Email:info@isco3.org

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1. Background

The definition of definition is "a statement expressing the essential nature of something." But why is a definition so important? Because definitions enable us to have a common understanding of a word or subject; they allow us all to be on the same page when discussing or reading about an issue. Science is a discipline that relies heavily on the ability to understand new terms and concepts. A strong focus on vocabulary helps to understand and communicate using appropriate terminology. Medical terminology is important in the healthcare field. It is the basis for all. It is used to describe symptoms, diagnoses, tests that need to be ordered and ran, and special medical equipment. This document intents to establish a common definition for ozone therapist in order to allow all healthcare workers and scientists to communicate in one language. Those harmonized definitions of concepts and acronyms, additionally intend to avoid confusion in the use of the terminology in the area of ozone therapy.

2. Criteria

The main concepts, definitions and proposed acronyms were extracted from the scientific papers and from sources believed to be reliable concerning the use of ozone in medicine. In other cases, the information is based on technical information and experience currently available from members or external experts of the ISCO3.

Currently there are no other organizations or institutions who count with a harmonized scientific definition of terms in ozone therapy worldwide. The lack of a common definition of term induce confusion. For example, current papers who use major autohemotherapy or ozonized saline solution include terms like "intravenous administration of ozone"[1-6] originating confusion with the term "Direct Intravenous" that involved the direct administration of ozone into a vein. This a serious confusion, because direct intravenous administration of ozone is a non-recommended route of application in ozone therapy, involving a high risk of gas embolism.

3. Terms and suggested acronyms

Listed in alphabetical order.

Term	Definition	Acronyms
Medical Ozone Generator	Medical reliable and certified generator, complying as any other medical device with the standard certification. The generator must allow the measurements of precise ozone concentrations (1 μg/mL - 80 μg/mL), and must generate a homogeneous oxygen-ozone mixture. The concentration expressed in μg/mL must have a margin of error equal or better than ±10%. No other substances besides O_2 and O_3 may be present in the produced gas mixture. The generator must produce ozone exclusively from medicinal grade, at least 99.5% pure medical grade oxygen, coming from a medical quality certified container. The use of oxygen concentrator is limited to exceptional situations. See: ISCO3/DEV/001/01	MOG
Direct intravenous injection of ozone	Is a non-recommended routes of application in ozone therapy. ISCO3/LEG/00/10. It involves the direct intravenous injection of ozone gas into the circulatory vessels. This therapy has a high risk of gas embolism.	DIV
Extracorporeal blood oxygenation-ozonation	Represents a simultaneous oxygenation and ozonation of blood which is transferred from one vein system of the patient to a gas exchange device (GED), and then from GED into another venous system. Upper and lower veins can be used for this procedure. ISCO3/MET/00/22	EBOO
High dose ozone therapy	Is a non-recommended route of application in ozone therapy. ISCO3/LEG/00/10. Consists in the use of dose ranges above the limit established in the Madrid Declaration.[7] No clinical trial supports this use.	HDO_3
Hyperbaric Ozone multi passes method	Is a non-recommended route of application in ozone therapy. ISCO3/LEG/00/10. Is a variant of MAH involving 3-10, or more passes with 200 mL blood + 200 mL O_3 at 70 µg/mL at 1 bar pressure, and using 2000- 25 000 IU heparin per pass. The observed side effects during de HBO3 multi pass are indicative of the toxicity of high ozone.	HBO_3
International Scientific Committee of Ozone Therapy	Is an independent scientific medical body from national and international associations or federations of ozone therapy; and commercial companies. As a consequence, its twenty-one members do not represent any or various national or international ozone therapy associations; its members will act within ISCO3 only in their own capacity. ISCO3 has been created with the clear intention that it has to turn into an international scientific authority due to the composition of its members; and that its recommendations may become source of reference to all those who practice this medical therapy. Ahead of us there is a long way to go, and the ISCO3 wants to go ahead with the support, assistance, cooperation and wisdom that ozone therapists around the world and national and international ozone therapy associations may provide.	ISCO3
Intraperitoneal Ozone	Is a non-recommended route of application in ozone therapy. ISCO3/LEG/00/10. Consists in the intraperitoneal injection of up to 2.5 L of O_3/O_2 with an ozone concentration of 10-20 µg/m. It is claimed to be useful in cancer without any clinical validate trial.	IPO_3
Madrid Declaration on Ozone Therapy	Is an International guiding and reference document. This official ISCO3 document is updated every five years in conformity with the scientific researches carried out in different places around the world. MDO_3 is translated into different languages so far. MDO_3 reflects the advances in the field of ozone therapy, provides tools for its right application to patients, and reflects a great amount of unanimity among the community of ozone therapists around the world. 1er Ed. 2010-2015. 2 Ed. 2015-2020.	MDO_3
Major Autohemotherapy	Is a treatment that involves mixing the patient's blood with medical grade ozone and its immediate reinfusion by intravenous infusion. Ozone concentrations for systemic uses range from 10 µg/mL to 40 µg/mL. The volume of blood varies between 50 mL and 100 mL. See: ISCO3/MET/00/01	MAH

Term	Definition	Acronyms
Medical grade oxygen	Medical grade oxygen should fit the quality standard of the local Pharmacopoeia. If local Pharmacopoeia is not available, the reference Pharmacopoeia should be: European Pharmacopoeia, United States Pharmacopoeia, Japanese Pharmacopoeia or Russian Regulation GOST 5583-78. See: ISCO3/DEV/001/01	O_2
Medical Ozone	Homogeneous oxygen-ozone mixture with a range of ozone concentration between 1 (one) µg/mL and 80 (eighty) µg/mL. Produced by a certified medical device from medical grade oxygen. No other substances besides O_2 and O_3 may be present in the mixture. Concentration between (1-3) µg/mL are mainly used in the procedure of ozonized saline solution. The ranges (5-80) µg/mL are used in most clinical procedures, and concentrations of 80 µg/mL are most frequently used in the preparation of ozonized water. See: ISCO3/DEV/001/01	O_3/O_2
Minor Autohemotherapy	Is a treatment that involves mixing the patient's blood removed intravenously (2 mL -10 mL) drawn into a sterile, pyrogen-free disposable syringe (already containing the ozone-oxygen mixture, 10 µg/mL to 40 µg/mL). Blood is intensively shaken and slowly reinjected intramuscularly in the gluteal region. See: ISCO3/MET/00/02	MiAH
Normalized ozone concentration	The measure of ozone gas concentration should be compensated for temperature and pressure. Should be taken as standard the pressure of 1 atm (760 mmHg, 1.10325 bar, and temperature of 0 °C (273.15 K). Those conditions should be referred as "International Standard Conditions" and the unit is "normalized ozone concentration" preferable expressed as µg/NmL.	µg/NmL
Ozonated water	The water obtained after the *ozonation* (a process of bubbled water with ozone or spay water into chamber contained ozone) of water. During the ozonation of water there are no chemical reactions between ozone and pure water. The only chemical reactions take place between ozone and organic, inorganic, or biological material present in the water. The solubility of ozone in water depends on different variables: pH, temperature, salt contents, and others. The half-life of ozone in water also depends on these variables.[8]	O_3W
Ozone	Ozone /ˈoʊzoʊn/, is an inorganic molecule with the chemical formula O_3. It is a pale blue gas with a distinctively pungent smell. It is an allotrope of oxygen that is much less stable than the diatomic allotrope O_2, breaking down in the lower atmosphere to O_2.	O_3
Ozone bagging	Or *gasification in plastic bag.* Is a local way of application of ozone, consists in pumping O_3/O_2 into an airtight ozone resistant bag. The bag surrounds the area to be treated, allowing the body tissues to keep in contact with the gas mixture.	O_3B
Ozone Concentration	The concentration's unit of measurement of medical ozone is μg/mL. The *value must* take into account the pressure and room temperature. Then, should be normalized according to the Standard Conditions of Temperature (0ºC) and Pressure (1 bar). This is the only unit recognized by the International Ozone Association - IO3A.	
Ozone Dose	The total ozone dose is equivalent to the gas volume (mL) multiplied by the ozone concentration (μg/mL) (Dosage= Volume · Concentration). It is expressed in mg.	
Ozone oxidative postconditioning	Phenomenon that involves the induction of an oxidant stimulus and then a repeated administration of a gas mixture composed of O_3/O_2. In these conditions one can observe a sort of cross-tolerance to free radicals.[9]	OzoneOPt
Ozone oxidative preconditioning	Phenomenon that involve a repeated administration of a gas mixture composed of O_3/O_2 to induce a sort of cross-tolerance to free radicals released after one single dose of and oxidant stimulus.[10]	OzoneOPr
Ozone resistant materials	Inert materials to ozone. E.g: glass, silicone, stainless steel 316, fluoropolymer plastics, PTFE polytetrafluoroethylene (Teflon®), PVDF polyvinylidene difluoride (Kynar®), Fluorocarbon (Viton®), laboratory-grade glass, titanium.	

Term	Definition	Acronyms
Ozone Therapist	The doctor who practices this Ozone Therapy is called an ozone therapist. The word therapy refers to the person who is dedicated to curing diseases, in this case with oxygen-ozone mixture.	
Ozone Therapy	Is a complementary medical treatment that uses an oxygen-ozone mixture (95% - 99.95% of oxygen and 0.05 % - 5% of ozone) generated by a medical device, in a therapeutic range and using a medical protocol, as a therapeutic agent to treat a wide range of diseases.	O_{3X}
Ozonized oil	Is a product of the reaction between ozone and a vegetal oil. It's made by bubbling ozone into the liquid for an extended period of time. For medical use it should be characterized using different quality control assays and peroxide values should be determined as criterion of dose. See: ISCO3/LAB/00/04	
Ozonized Saline Solution	Is the intravenous infusion with a O_3/O_2 satured normal saline solution (NaCl 0,9 %) using a defined clinical protocol involving low dose of O_3/O_2. The dose is proportional to the body weight of the patient.	O_3SS
Peroxide values	Quantity of peroxides in the sample, expressed in terms of active oxygen, that oxidize potassium iodide under the specified conditions. It is used ad criterium of dose of ozonized oils. See: ISCO3/LAB/00/04	PV
Rectal insufflation of Ozone	A mixture of O_3/O_2 is introduced into the rectum by a canula. The gas is quickly dissolved in the luminal contents of the bowel, where mucoproteins and other secretory products with antioxidant activity readily react with ozone to produce reactive oxygen species and lipid peroxidation products. These compounds penetrate the muscular mucosa and enter the circulation of venous and lymphatic capillaries. For details see ISCO3/MET/00/23.	RIO_3
Vaginal insufflation of an ozone-oxygen mixture	Insufflation of ozone (10-20) µgN/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 µgN/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 µgN/mL should be avoided because of the theoretically increased risk of suppression of Lactobacilli, immune-competent cells and induction of local oxidative stress.	VIO_3
Globe technique	Is a subcutaneous infiltration of hands: (10 - 40) mL of oxygen-ozone mixture at (5-20) μg/NmL of concentration, with a 30 G (0.3 mm) needle. This infiltration is efficient in the treatment of neuropathic pain and osteoarthritis.[11]	

4. Acknowledgements

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ISCO3. (Madrid, 2016). ISCO3/LAB/00/04. Physico-chemical characterization of ozonized oil. Peroxide Value.
ISCO3. (Madrid, 2017). ISCO3/LEG/00/10. Non-recommended routes of application in ozone therapy.

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