

Evidencia ozonoterapia

Anotaciones acerca de la SSO3

Se conoce que..

- Un ensayo clínico es un estudio PROSPECTIVO donde se comparan efectos o valores de un grupo sujeto a una intervención Vs un grupo control, en población humana.
 - Los participantes se siguen en un periodo de tiempo X..
 - No necesariamente todos inician en la misma fecha calendario
 - Existe un T0 (inicio de l estudio).
 - Se emplea una o más técnicas de intervención, que se debe comparer contra la major terapia estándar
 - Los grupos al inicio deben ser comparables (aleatorización).
 - Idealmente doble ciego.

Fases de un ensayo

- Preclínico
 - Estudios in vitro
 - Modelos en animales.
- Clínicos
 - Fase I: Buscan
 - estimar la “tolerancia”
 - Caracterizar la farmacocinética y la farmacodinámica (emergen conceptos como biodisponibilidad y distribución compartimental en el organismo).
 - Establecer las dosis
 - Cual es el umbral de toxicidad. Por ejemplo 45 µg/mL para evitar daño al enterocito en IR. (la regla del 1/3)
 - Estimar la seguridad:
 - El caso de la deficiecnia de Gluocsa 6 fosfato deshidrogenasa.
 - Adelantados en “voluntarios sanos” (No necesariamente).
 - Pacientes que han fracasado con otras terapias.

Fase preclínica....Zotero....ISCO3..SSO3

https://www.zotero.org/groups/46074/isco3_ozone/collections/WJZF8X9W/items/JGI9UZZ5/collection

Abstract Book
ATROMO, 2016. © Revista Española de Oxitерапия Vol.6 No.2 Supplement 1 2016, ISSN 2174-3215
X RUSSIAN SCIENTIFIC CONFERENCE IN OZONE-THERAPY
V INTERNATIONAL JOINT CONFERENCE RUSSIAN-IMMEX

ROLE OF OZONE IN CHANGE OF NA-K-ATPase ACTIVITY AND CONTENT OF ATP AND 2,3DPG IN ERYTHROCYTES BY MODELING ACUTE BLOOD LOSS AT RATS

A.V. Baryugina¹, Ya.V. Galina¹, A.A. Martsavich¹, I.S. Samoil², G. A. Boyanov³

¹N.I. Lobachevsky Nizhny Novgorod State University, Nizhny Novgorod, Russia

²City Clinical Hospital #40, Nizhny Novgorod, Russia

³Nizhny Novgorod State Medical Academy, Nizhny Novgorod, Russia

The aim of this work was to study the dynamics of changes in the activity of Na-K-ATPase and the concentration of organic phosphates in the erythrocytes of rats after the translocation of ozonated erythrocyte mass in acute blood loss.
The study was conducted on 20 nonlinear rats. Animals were divided into 2 groups of 10 animals in each group. Blood loss rats were created by sampling 3 ml of blood from the tail artery. After an hour, the blood loss was compensated by the introduction of Packed red cells (washed erythrocytes of the same animal taken 3 days prior modeling of blood loss) with physiological saline. Rats of the 1st group were administered 0.5 ml of the washed erythrocytes and 2 ml of ozonized physiological solution. Rats of group 2 (control) were administered 0.5 ml of the washed erythrocytes and 2 ml of saline. Ozonized physiological solution contained 2 mg/ml of ozone. The ozonated physiological solution produced immediately before its introduction into erythrocyte mass to install ozone therapeutic automatic VAT-60-01 "Medozon" (Russia). Blood sampling for analysis was performed after 1 hour, 1 and 5 days after modeling of blood loss. Evaluation of systemic effects of the obtained erythrocyte suspension on the indicators of 2,3-DPG and ATP in the suspension of washed erythrocytes was investigated non-enzymatic method. The activity of Na-K-ATPase of erythrocytes was estimated by the increase of inorganic phosphate, inorganic phosphate was determined spectrophotometrically.

Analysis of the results revealed that the hemorrhage in rats noticeably the activity of Na+K+-ATPase in erythrocytes, accompanied by a reduction in the concentration of ATP and increasing the concentration of 2,3-DPG. Probably, the recorded changes of the studied indicators is due, on the one hand, the development of compensatory processes aimed at the elimination of hypoxia, loss of blood, due to the increase in the concentration of 2,3-DPG reduces affinity of hemoglobin for oxygen, on the other hand, the decrease of concentration of ATP - factor short-term regulation of the activity of Na+K+-ATPase. With the increase in the activity of Na+K+-ATPase involves transport of substrates of cell activity, in particular of glucose. It also improves the metabolism of red blood cells and increases the content of ATP and 2,3-DPG in erythrocytes.

Thus, the use of ozonated erythrocyte mass in its transfusion of rats with acute blood loss made it possible to optimise the oxygen-transport function of erythrocytes. It proves a pathogenetic rationale for the use of ozone for the correction state of the organism in acute blood loss.

Abstract Book
ATROMO, 2016. © Revista Española de Oxitерапия Vol.6 No.2 Supplement 1 2016, ISSN 2174-3215
X RUSSIAN SCIENTIFIC CONFERENCE IN OZONE-THERAPY
V INTERNATIONAL JOINT CONFERENCE RUSSIAN-IMMEX

THE EVALUATION OF BLOOD OXIDATIVE STATUS UNDER THE INFLUENCE OF REACTIVE OXYGEN SPECIES IN THE EXPERIMENT IN VITRO

N.V. Didenko¹, A.G. Solov'eva¹, K.L. Belyaeva²

¹Vorob'yov Federal Medical Research Center, Nizhny Novgorod, Russia

²N.I. Lobachevsky Nizhny Novgorod State University, Nizhny Novgorod, Russia

Under lowered contents in the atmosphere of superoxide radicals animals and people sick, and prolonged their absence die. One of the most known and used in medicine form free radicals are ozone (O_3), singlet oxygen (O_2^{\cdot}), and nitric oxide (NO). The aim of this work was to study the effects of different concentrations of active forms of oxygen (O_2 , O_2^{\cdot}) and NO on change of oxidation-reduction potential (ORP), pH, indicators of pro- and antioxidant protection of blood in vitro.

Material and methods

Experiments were conducted on blood from patients-donors. The processing of blood was carried out by direct sparging by gas mixture for 2 minutes. We used 100 ppm NO, O_3 in dose – 500 mcg, power/gas flow 0.7–100%. We measured the activity of superoxide dismutase (SOD), pH, ORP, indicators of lipid peroxidation (LPO), total antioxidant activity (TAA) of blood plasma, peroxide resistance of erythrocytes (PRE), the level of malonic dialdehyde (MDA).

Results and discussions

It was shown that under the impact of O_2 , O_2^{\cdot} and NO on conserved blood have been statistically significant changes in ORP with the shift of pH to the alkaline side. Under the impact O_3 in blood was observed the increase in the intensity of LPO in the plasma in 1.51 times, the decrease of SOD activity in 1.1 times, the increase in MDA in the blood plasma in 4.14 times and in erythrocytes in 1.33 times. PRE decreased to 1.23 times. The processing of donor blood by NO and O_2^{\cdot} intensified to her LPO to a lesser extent than ozone. After the impact of NO and O_2^{\cdot} the increase of the LPD was in 1.22 and 1.26 times. Under the influence of NO the level of MDA in plasma was increased in 3.58 times, in erythrocytes – in 1.05 times. When exposed to O_2^{\cdot} , the concentration of MDA increased by only 1.49 times in the plasma and by 1.43 times in erythrocytes. SOD activity was higher by 1.13 times.

Conclusion

The results of the experiment showed that after the impact of all the studied ROS and NO in blood pro- and antioxidant systems in vitro intensity with clear development of the phenomena of oxidative stress (using ozone). The degree of manifestation of the resulting changes, apparently, is determined by the number used

Fase preclínica....Zotero....ISCO3..SSO3

https://www.zotero.org/groups/46074/isco3_ozone/collections/WJZF8X9W/items/JGI9UZZ5/collection



[Effect of ozonized saline on signaling pathway of Keap1-Nrf2-ARE in rat hepatocytes]

Article in Chinese
Liu Jun-Zhi¹, He Jing-Ping¹, Li Lin¹, Shi Li-Ying¹, Xu Ning-Dai²
Affiliations: ¹ Institute of Hepatology, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing, China
PMID: 29484844 DOI: 10.3748/jpmj.jpmj2001013

Abstract

Objective: To study the effect of ozonized saline on the activity of the Keap1-Nrf2-ARE signaling pathway in rat hepatocytes.

Method: Twenty male Sprague-Dawley rats were randomly divided into control saline (CC) group, ozone group, ozonized saline control (OC) group and ozonized control (OC) group. The rats in CC group and control group were administered 100 mg/kg ozone or saline (1 ml/kg) respectively, once a day for 15 days, and then hepatocytes injected with CCl₄ dissolved in olive oil. The rats in OC group were pretreated with CC for 10 days. The rats in OC groups were fed normally for 15 days. On the 16th day the rats in CC group and OC group were intraperitoneally injected with either oil of C20:0 (5 µl) without CCl₄ after 24 h or oil of CCl₄ after oil of C20:0 injection. The tissue levels of malonaldehyde (MDA) and malondialdehyde (MDA) were measured. The liver tissues were also used to test the expression of total and cytoplasmic Nrf2, p65, p65-nF-κB, nuclear (NF-κB), S-glutathione peroxidase (GPx). Western blot was used to detect Nrf2 and increased nuclear staining assay to display intracellular distribution of Nrf2.

Results: Compared with the rats in control group, the tissue MDA and MDA levels of rats in CC group were significantly lower ($P < 0.01$), while those in OC group, OC and OC group were significantly higher which were 0.72 ± 0.09 nmol/mg, 1.85 ± 0.29 nmol/mg, 1.05 ± 1.15 nmol/mg, 1.43 ± 1.43 nmol/mg, 1.07 ± 0.09 nmol/mg, 0.23 ± 0.03 nmol/mg, 0.04 ± 0.01 nmol/mg and 0.02 ± 0.01 nmol/mg respectively. In contrast with OC group, p65 expression of CC and OC group enhanced 33.2%, 52.5% and 52.1% respectively ($P = 0.01$ or $P = 0.02$). Enhanced nuclear expression of Nrf2 increased by 10.6%.

Conclusion: Present findings implicate the ozonized saline can reduce rats' liver toxicity induced by CCl₄. The ozonized saline, as a novel Nrf2 activator, can induce the nuclear storage of total of cytosolic Nrf2 and the enhanced salutary by activating the Keap1-Nrf2-ARE signaling pathway and its downstream genes expression.

Abstract Book
AEPROMO, 2016 - © Revista Española de Ozonoterapia Vol.6 No.2 Supplement I 2016, ISSN 2174-3215
X RUSSIAN SCIENTIFIC CONFERENCE IN OZONE-THERAPY
V INTERNATIONAL JOINT CONFERENCE RUSSIAN-IMEOF

MATHEMATICAL MODELING IN DETERMINING OF THE EFFECTIVE OZONE DOSE IN THE TREATMENT OF LIVER TOXICITY

V.A. Kudryavtsev¹, P.I. Tsapok¹, A. Shatov²

¹Kirov State Medical Academy, Kirov, Russia

²Vyatka State University, Kirov, Russia

The aim of this work was to assess the impact of ozone on changing of the parameters of the dynamics of individual indicators and to determine the most effective dose of ozone in therapy using a mathematical model.

Materials and methods. Experimental studies were conducted on Wistar rats weighing 180 – 200g. the Model of toxic hepatitis was created by the introduction carbon tetrachloride (CCl₄) to all animals. The severity of liver damage was modeled by number of injections of CCl₄. The study was performed at altitude of pathology – in a day and after 10 days. Animals were injected ozonized physiological solution at doses of 0.01, 1, 10 and 100 mg/kg of body weight for 10 days. Animals of control group for 10 days was administered non-ozonized physiological solution. Material for biochemical studies were the blood and liver tissue. We investigated the number of hepatocytes, the relative density of connective tissue, number of mitoses, plasma cholesterol, malonic dialdehyde depending on the degree of intoxication and the dose of ozone.

Results. The basis of the mathematical model proposed by us is a continuous approximation of experimental data of dependences of type $w^f = f(CCl_4)$ characterizing the effect of carbon tetrachloride on the studied parameters (f). The dynamics parameters were determined using derivative of first $f' = f(x)/\partial x$, $\partial f/\partial x$ and second $f'' = \partial^2 f/\partial x^2 = \partial f'/\partial x$ order. It should be noted that f' reflects the speed of the process, and f'' is the acceleration. It allows to estimate the change of generalized energy of status indicator. For statistical processing and mathematical models were used software packages Microsoft Excel, Statistica 6.0 for Windows and MathCad 14.

Conclusion. Thus, the study of the effect of ozone on morpho-functional indicators, by using mathematical modeling, allows to make the conclusion that ozone doses of 1 and 10 mg/kg have a stimulating effect on the liver, the dose of 100 mg/kg has already damaging effect.

Fase preclínica....Zotero....ISCO3..SSO3

https://www.zotero.org/groups/46074/isco3_ozone/collections/WJZF8X9W/items/JGI9UZZ5/collection

X RUSSIAN SCIENTIFIC CONFERENCE IN OZONE THERAPY
V INTERNATIONAL JOINT CONFERENCE RUSSIAN-BSOF

Microcirculation state at prolonged use of ozonated saline in a chronic experiment

P.V. Peretyagin^{1,2}, A.K. Martusevich¹, V.N. Krylov²

¹Perovskiy Federal Medical Center, Nizhny Novgorod, Russia

²N.I. Lobachevsky State University of Nizhny Novgorod – National Research University, Nizhny Novgorod, Russia

The aim of this study was estimation of influence of ozonated saline infusions on rats' microcirculation state.

Material and methods:

The experiment was performed on 40 Wistar rats, divided into 4 equal groups. Duration of experiment was 60 days; during the first 30 days the animals of the first experimental group daily intraperitoneally injected with 1 ml of 0.9% sodium chloride saturated with an ozone concentration of 3000 µg/l (ozone dose of 0.6 mg). For animals of the second experimental group, the saturated ozone concentration was 10,000 µg/l (the ozone dose - 2 mg); for the third experimental group – 40,000 µg/l (the ozone dose of 8 mg). Animals in the control group received oxygenated physiological solution.

We evaluated the state of the microvasculature at the end of the experiment and 30 days after its completion with laser Doppler flowmetry using the LAKR-M ("LAZMAT", Moscow), the intensity of microcirculation (microcirculation index - PM), the activity of its regulatory components and the degree of involvement of shunt paths were studied.

Results:

It has been shown that long-term use of ozone for 30 days, has a dose-dependent effect on the microcirculation, while the effect of low concentration of the compound (0.6 mg) stimulating microcirculation surround keeps this effect even for 30 days after discontinuation of exposure. Large doses of ozone (2.0 and 8.0 mg), stimulating microcirculation system during long-term exposure, after its cancellation lose their modulatory effect on the microcirculation, compensating for it remains low shunt mechanisms.

Free Radical Research
Volume 50, 2016 - Issue 9

198
8
0

Ozone mediators effect on "in vitro" scratch wound closure
Stefano Velasco, Claudia Stocchi, Jacopo Zanetti, Giuseppe Beltramo, Franco Cenelle, Vito Bozzoli, ... [+]
Pages 1953-1960 | Received 16 Jun 2015; Accepted 29 Jul 2016; Accepted author manuscript; Available online 03 Aug 2016; Published online 11 Aug 2016
DOI: 10.1080/10715762.2016.121973 | <http://dx.doi.org/10.1080/10715762.2016.121973>

Full Article | [HTML](#) | [PDF](#) | [Citation](#) | [Permissions](#) | [Get Citation](#)

Abstract:

The beneficial effect of low doses of ozone on wound healing has been well documented and attributed mainly to its bactericidal and pro-oxidant properties. Because ozone itself does not penetrate the cells but immediately reacts with polyunsaturated fatty acids, its effects are the results of oxidative mediators. Among the molecules produced by the interaction of ozone with biological systems, there are HNE and H₂O₂. At today, the cellular mechanisms accounting for the positive effects of mild ozonation on wound closure are still largely unexplored. The aim of the present study was to evaluate the effect of different non-toxic doses of ozonated saline ranging from 2 to 300 µM, in an *in vitro* wound scratch model by the use of human keratinocytes. The results showed that ozonated saline is able to improve *in vitro* wound healing by stimulating cell proliferation as measured by BrdU assay and PDK4 protein levels. In order to better elucidate the molecules that play the main role in the beneficial effect of ozonated saline in wound healing, HNE and H₂O₂ were used alone or in combination to mimic ozonated saline effect. Surprisingly, keratinocytes treated with different doses of HNE and H₂O₂ did not significantly improve the wound closure, while the combination of the two compounds was able to improve wound closure. In addition, Hm2 pathways were also activated as determined by its translocation to the nucleus and the increased HO1 gene expression. The present work suggests that ozonated saline effect on wound closure is the result of the combination of more molecules among which HNE and H₂O₂ play a key role.

Fase preclínica....Zotero....ISCO3..SSO3

https://www.zotero.org/groups/46074/isco3_ozone/collections/WJZF8X9W/items/JGI9UZZ5/collection



Ozone Therapy Global Journal vol. 10, nº 1, pp. 36-53, 2020
Official Journal of Aspronio (Spanish Association of Medical Professionals in Ozone Therapy), Madrid, Spain
Publicación Oficial de Aspronio (Asociación Española de Profesionales Médicos en Ozonterapia), Madrid, España
ISSN: 2174-3215

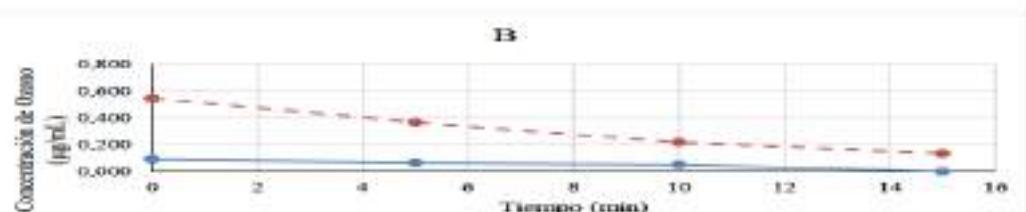
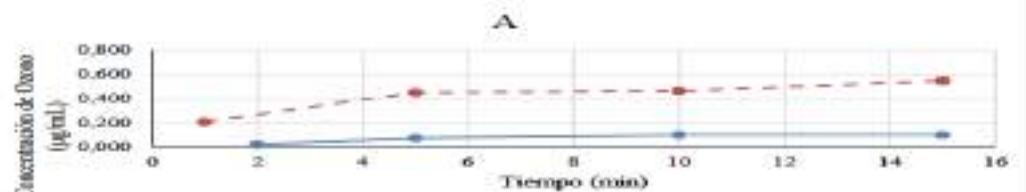


Artículo original

Aspectos prácticos en ozonoterapia: Estudio de la concentración de ozono en la solución salina ozonizada

Gregorio Martínez-Sánchez

Asociación Andaluza de Ozonoterapia (AAZO), Málaga



ENSAYOS CLÍNICOS

https://www.zotero.org/groups/46074/isco3_ozone/collections/G6T56RGE

The screenshot shows a Zotero library interface. On the left, a sidebar lists 'My Library' sections: Group Libraries, ISCO3 OZONE (with subfolders Book and Monographs, DIV O3, Envir. Disinfection, Good Clin Pract, Historical Documents, ISCO3 Expert C, Legal Documents, Letter / Editorial, Meeting, Ozonated Oils / Water, Ozonated Saline, Ozone Therapy, Press News), Acute Disease, Adolescent, Adult, albumin, ALBUMINS, alkenals, Antibody Specificity, antioxidant response, Antioxidants, Antiviral Agents, Balneology, Bile, Chronic Disease, Combined Modality Therapy, Drug Evaluation, Duodenitis, endometrial histology, and Filter Tags. The 'Ozonated Saline' section is circled in red. A red box highlights the main content area, which is a table of search results.

Title	Author	Date
A Rational Solution for the Problem of the Ozonated Saline Infusion	Bocci	2012
Actual issues of the practical use of parenteral ozone therapy in emergency medicine	An...	2019-11-01
Clinical Use of Ozonized Saline Solution Infusion. Report of Clinical Cases	Sos...	2019
[Combined treatment including ozonotherapy of patients with viral hepatitis.]	Che...	2008-06
[Influence of antitumoral treatment and ozonotherapy on the lipid peroxidation and several microelement concentration values in blood plasma of patients with a m	Ma...	2006-09
[Influence of intravenous ozone treatment on the level of different specificity antibodies]	Kat...	2016-
Influence of the course of treatment by injections of ozonized saline on rheological properties of erythrocytes in patients with complex pathology	She...	2016
NEW METHOD OF TREATMENT OF PYOINFLAMMATORY SOFT TISSUE COMPLICATIONS IN PATIENTS WITH DIABETES MELLITUS	Kar...	2017-03
[Ozone therapy in gastroduodenal pathology associated with Helicobacter pylori]	Fed...	2006-12
Ozone Therapy in the Comprehensive Treatment of Diabetic Foot Syndrome	Teu...	2017-12-21
OZONETHERAPY HAS BECOME OF AGE IN RUSSIA	Bocci	
Ozonized Saline Solution (O3SS): Scientific Foundations	Sch...	2016-05-24
PHLEBOTROPIC ADJUVANT REGIONAL OZONE THERAPY OF LOWER LIMB LYMPHOVENOUS FAILURE	Kny...	2016
[Prophylaxis of postsurgical hypercoagulation of patients having colorectal cancer]	Gat...	2014
Solución Salina Ozonizada (SSO3): Fundamentos Científicos	Sch...	2016-05-24
Study on the scientific basis of ozonized saline solution	WF...	2017
[The Comprehensive Non-Pharmacological Treatment of Obliterating Atherosclerosis (Stage II) by Combined Application of Ozone and Gravitational Therapy. A Rand		
The effect of ozonated sterile saline irrigation on the endometrium - A preliminary study	Cal...	2016-02-02
[The efficacy of using ozone preparations in the combined treatment of paranasal sinusitis]	Petr...	1996-12
THE INFLUENCE OF OZONE THERAPY ON THE AUTONOMIC NERVOUS SYSTEM IN PATIENTS WITH ATRIOVENTRICULAR BLOCK SECOND DEGREE	Pes...	2016
THE INFLUENCE OF SYSTEMIC OZONE THERAPY ON MICROCIRCULATION STATE AT PATIENTS WITH ALCOHOL WITHDRAWAL SYNDROME	Zhu...	2016
The use of medical ozone in complex treatment women with fetal growth retardation	Boy...	2016
The use of Ozonized Physiologic Saline in Gynecologic patients with Uterine Myoma and Endometrial Cancer in the Postsurgical Period	Yan...	2017-05-20
Treatment of Pyoinflammatory Complications with Individually Selected Ozone Dose in Patients with Diabetes	Kar...	2018-02
ULTRASTRUCTURAL CHANGES OF WOUND MACROPHAGES UNDER THE INFLUENCE OF INTRAVENOUS OZONE THERAPY IN PATIENTS WITH DIABETES AND INFLAM		

Ensayos clínicos. Múltiples congresos internacionales. Cuba, México, España, Rusia

Abstract Book

AIPROMO, 2016 © Revista Española de Ozonoterapia Vol.6 No.2 Supplement 1 2016, ISSN 2174-5215
X RUSSIAN SCIENTIFIC CONFERENCE IN OZONE-THERAPY
V INTERNATIONAL JOINT CONFERENCE RUSSIAN-IMEOF

THE INFLUENCE OF OZONE THERAPY ON THE CONCENTRATION OF NITRIC OXIDE IN HYPERTENSION

I.E. Okrut, C.N. Kortorshikova, D.A. Dautova

Nizhny Novgorod State Medical Academy, Nizhny Novgorod, Russia

N.N. Lobachevsky Nizhny Novgorod State University, Nizhny Novgorod, Russia

The work is dedicated to the study a concentration of nitric oxide (nitrate and nitrite) during the arterial hypertension under the influence of ozone therapy. The object of the study was the blood samples of 80 persons with hypertension before and after treatment. The subject of the research was indicators of the exchange of nitric oxide - nitric oxide metabolites (nitrates/nitrites) in plasma in patients with arterial hypertension. The level of nitrates and nitrites was evaluated in a protein-free extract by spectrophotometry on a spectrophotometer Apel PD 303 (Japan). The course of treatment was 10 procedures for the introduction of ozonated physiological solution through the day. Ozone was generated using a ozone generator "Kveza" when a current of the barrier discharge using medical oxygen. The ozonation of the solution was carried out by a 10-minute sparging with 200 ml of 0.9% NaCl solution, ozone-oxygen gas mixture with ozone concentration at the outlet of the ozonator from 1500 mcg/l of gas. The increase in the concentration of NO metabolites in blood of patients with arterial hypertension was marked compared to the control group at 40%, which indicated the presence and progression of pathological vascular mechanisms in the body. Conducted ozone therapy of patients with arterial hypertension led to a decrease in the concentration of nitrate and nitrite in 28% on average. Thus, the inclusion of ozone therapy in the treatment and prevention of hypertension allows to get a significant and lasting clinical effect.

Key words: ozone therapy, hypertension, nitrates, nitrites

Indice

Comité Científico / Scientific committee	3
Comité Organizador / Organizing committee	5
Sponsors	6
Bienvenida	9
Conferencia Agenda	14
Lecturas IMOF	20
Mecanismo de acción del O ₃ . Vías de señalización genómicas	22
Oxigenación y Ozono	24
Efectos del ozono médica sobre el sistema redox y la neurotransmisión en la síndrome alcohólica	25
Estado del Arte de los Estudios Preclínicos de Tosacel en el Instituto de Oncología y Radiobiología de Cuba (INOR)	26
Evaluación del Efecto de la Administración de ozono gáscaro y del derivado del ozono renal saludable de ratones Balb/C	26
Inhalación con Plasmódium Sargan Anka	26
Admonstración Mayor en Institución Rusa. Previéndose en el futuro	27
Protocolo de trabajo: nitratos y ozono synergic para combatir el cáncer	27
Tratamiento del pie diabético con ozono y terapia combinada	33
Oncología y ginecología	35
Manejo poroso óseo y náusea oral asociadas con infiltraciones de ozono. Experiencia clínica	37
Oncología en Lesiones Crónicas	39
Infiltración intra-arterial de Sulfato Sódico Ozonizado. Reporte de Casos Clínicos	41
Bronquitis crónica de origen astmico. Ozono y Ozor	43
Electroterapia de las infiltraciones de Ozono en pacientes con ganglio craneo estomacal y Rimsekematos	45
Analisis: actualización en Diagnóstico y Tratamiento	47
Manejo del neumonitis viral y pura viral	49
Congresos reñidos. El rol de la infiltración de Ozono y Radioterapia en el control del dolor. Reporte de 1 caso	51
Estado prospectivo comparativo de las diferentes técnicas empleadas en Dolorcrisis percutánea lumbar	53
El uso de la Ozonoterapia en infecciones vertebral	55
Medicina regenerativa y células troncales inmunoterapía	57
Osteodistrofia y Osteoneurosis. Presentación de un Caso	59
Oncología en pacientes con dolor crónico de hombro, reacción al tratamiento convencional	61
Planta con ozono para la inhibición química de los nectos epilípticos, para el manejo del dolor abdominal complejo	63
Diabetes-diabéticos y tratamientos con Ozono de lesiones de hombro	64
Mejoría clínica con Ozonoterapia en pacientes con dolor del sacro-estómago. Reporte de 106 casos	66
Aplicaciones clínicas de Clínica del dolor con ozono guidado por Ultrasonido	68
Manejo-clínico del dolor en zona glútea con Ozonoterapia en patología deportista y no deportista. Reporte de 144 pacientes	70
Efectividad de los concentrados plaquetarios ozonizados en lesiones musculo-esqueléticas	72
PRP y ozono un fácto plantar vía endovenosa	74
Afiliación de Friburgo y su importancia para el nacimiento del PRP-clínicamente efectivo. Experiencia de 10 años. Presentación de cada clínica	76
Ozono terape en complemento en la terapia del cáncer	79
La ozonoterapia como complemento natural en el tratamiento de la Celulitis	80
Tratamiento de varón y varicosis varonil con presión y ozono. Review histórico	82
Uso de la Ozonoterapia en el Tratamiento de Heridas Crónicas en Diferentes Patologías	84
Electroterapia de la Ozonoterapia en niños con alteraciones del neurodesarrollo. Hospital Pediátrico de Ciudaggo, Cuba	86
Fototerapia de irradiación sanguínea ultravioleta y Ozonoterapia: Una Revolución Immunológica	88
Otros medios ópticos en pacientes menores de 12 años tratados con ozono	90
Resposta de monarcas de estre oclusiva a diferentes concentraciones de ozono terapéutico en salas	92

Seguridad...eficacia

This article was downloaded by: [Moscow State Univ Bibliot]

On: 19 January 2014, At: 02:37

Publisher: Taylor & Francis

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



Ozone: Science & Engineering: The Journal of the International Ozone Association

Publication details, including instructions for authors and subscription information:
<http://www.tandfonline.com/loi/bose20>

Ozone Therapy in Patients with Viral Hepatitis C: Ten Years' Experience

M.N. Mawsouf,¹ T.T. Tanbouli,² & R. Viebahn-Hänsler³

¹National Cancer Institute , Cairo University , Cairo , 11796 , Egypt

²New Life Specialized Clinics, Mohandiseen , Giza (Greater Cairo) , 12411 , Egypt

³Medical Society for the Use of Ozone In Prevention and Therapy , Stuttgart , D-76473 , Germany

Published online: 05 Dec 2012.

To cite this article: M.N. Mawsouf , T.T. Tanbouli & R. Viebahn-Hänsler (2012) Ozone Therapy in Patients with Viral Hepatitis C: Ten Years' Experience, *Ozone: Science & Engineering: The Journal of the International Ozone Association*, 34:6, 451-456, DOI: 10.1080/01919512.2012.720161

To link to this article: <http://dx.doi.org/10.1080/01919512.2012.720161>

Downloaded by [Moscow State Univ Bibliot] at 02:37 19 January 2014

Ozone Therapy in Patients with Viral Hepatitis C: Ten Years' Experience

M.N. Mawsouf,¹ T.T. Tanbouli,² and R. Viebahn-Hänsler³

¹National Cancer Institute, Cairo University, Cairo 11796, Egypt

²New Life Specialized Clinics, Mohandiseen, Giza (Greater Cairo) 12411, Egypt

³Medical Society for the Use of Ozone in Prevention and Therapy, Stuttgart D-76473, Germany

AIM OF THE STUDIES

These studies were performed to evaluate the effectiveness and safety of ozone therapy in Hepatitis C genotype 4 infections, and to evaluate a proposed ozone therapy protocol in HCV genotype 4 treatment. Several studies and clinical observations were conducted between 1999 and 2008.

INTRODUCTION

Hepatitis C is a medical problem in Egypt. The usual line of treatment is very expensive, with major side effects and low efficacy especially in genotype 4, which is common in Egypt. Several studies were performed between 1999 and 2008 to evaluate the role of ozone therapy in HCV (Hepatitis C). The first study included 69 genotype 4 Hepatitis C patients, who received combined ozone treatment with major autohemotherapy three times per week for 8 weeks, followed by twice per week for 16 weeks. It was found that, following 8 weeks of ozone therapy, the viral load decreased in 91.67% of the cases attaining negative PCR in 20%. Following 24 weeks of ozone therapy, there was a further decrease in viral load reaching 95% of the cases, with a negative PCR level in 36.67%. After 8 weeks of ozone therapy, the abnormal enzyme levels were back to normal in 21.67% of the cases for the SGOT enzyme, and were back to normal in 20% for the SGOT enzyme. A second study included 59 genotype 4 Hepatitis C patients. The number of visits was three times per week for 12 weeks followed by twice per week for 12 weeks. The general condition improved in 94% of the cases. There was a decrease in quantitative PCR in 71.8% of the cases that reached negative PCR in 24% after 8 weeks' treatment. The number of negative PCR cases for HCV virus increased to cover 36% of the cases after 24 weeks' treatment. There was a statistically significant improvement as regards the parameters of SGOT, SGPT, alkaline, alkaline phosphatase and prothrombin after 8 weeks from the start of the study. A third study was carried out on 39 HCV patients, yielding results similar to the previous two.

Keywords: Ozone Therapy, Hepatitis C (HCV)

Hepatitis C leads in most cases to complications, e.g., liver cirrhosis, ascitis, liver carcinoma and, ultimately, liver cell failure. It is estimated that liver cirrhosis develops in 20–25% of the patients with HCV within 20 years. Hepatocellular car-

artículo original

The use of Ozonized Physiologic Saline in Gynecologic patients with Uterine Myoma and Endometrial Cancer in the Postsurgical Period

Dr. Olga S. Yanchenko

Dr. Elena U. Kontorschikova

Dr. Tatiana C. Kachalina

The Medical Academy of Nizhny Novgorod, Nizhny Novgorod, Russia

Dr. Victor V. Novikov

NIZHNY NOVGOROD STATE UNIVERSITY NAMED AFTER M. L. LOMAKINSKI, NIZHNY NOVGOROD, RUSSIA

can be influenced by unforeseen influences from the environment. With the help of a process-based approach it is possible to model the deterministic, process based parts. By employing agent-based rules, it would then be possible to create a more realistic model of the complex system to be simulated.

The data for the simulation model built with this approach are to be selected by data mining.⁶ In particular, not all data coming from ozone-based treatments can be useful for the model. Whereas in discrete event process simulation the emphasis is on the functional description of the modelled parts in detail, in agent-based simulation the most important facet is the interaction among those parts. As a matter of fact, it is interaction that produces a variety of behaviours that have could even not explicitly be described in the model of the individual parts. In agent-based simulation, there are therefore two main areas levels that use different data, with different goals. A micro level to describe a simple local behaviour and a macro level, whose effects partly result from the micro level and partly from the interaction of more elements. Such emerging behaviours could be revealed by non-explicit patterns in the simulation data and a subsequent phase may be needed for simulation to reveal the model that subdivides the data. Data mining techniques can therefore be the key to unveiling non-trivial knowledge through the initial assumption used to build the micro level, the model and structure of the agent aggregation that emerged from the simulation. Data mining and machine learning in general can be used in different ways in agent-based simulation;^{6,7} it is possible to divide these contributions into two main tasks: i) *Ex ante*, where machine learning and data mining techniques can be used to achieve the one kind of intelligent behaviour that combines the data of past executions of simulation learning from experience and tuning some initial parameters of the simulation to a local maximum; ii) *Ex post*, where final results of a simulation are analysed using data mining techniques to uncover interesting patterns in data, helping to better model the behaviour of the overall systems. Note that the behaviour of the system is usually more than the sum of the parts and is not described in the first phase of the simulation task. Data mining could be used to create a model that is supported by statistical evidence that could be an initial hypothesis about the system.

Conclusions

This paper has a theoretical aim; its purpose is about introducing a hybrid simulation technique to be applied to the pharmaco-economic analysis of ozone therapy. In particular, the approach of pharmaco-economics is that of comparing the outcome of a traditional therapy with that of a different therapy. Ozone therapy is very interesting for medicine, since the effects and actions of O_3 are mainly positive and beneficial for many different diseases. This

makes ozone therapy as a very good candidate to be studied with the approach of pharmaco-economics. While costs (both direct, indirect and intangible) are very important for deciding which therapy should be favoured, also other factors have to be taken into account like, for instance, lives saved, life years after therapy, quality of life and so on. This is why traditional approaches to pharmaco-economics could come short (e.g. statistics); that's where simulation could be an effective method for evaluating a broader range of outcomes. For this reason, two simulation paradigms are discussed in this work, namely discrete event process simulation - to simulate those parts of the process which are well known and easily mouldable as a flow of actions and ifthen clauses - and agent based simulation - to represent those parts or interactions where only general rules are known and the emergent aggregate behaviour is not determined *a priori* but rather coming out from the whole system and its ever-changing essence. So the combination of these two approaches can be a powerful analytical method to be applied to pharmaco-economics in general and to ozone therapy in particular, as a case study. Moreover, in order to select the data to be used in such simulations, but also to analyse results coming from them, a data mining approach is proposed.

References

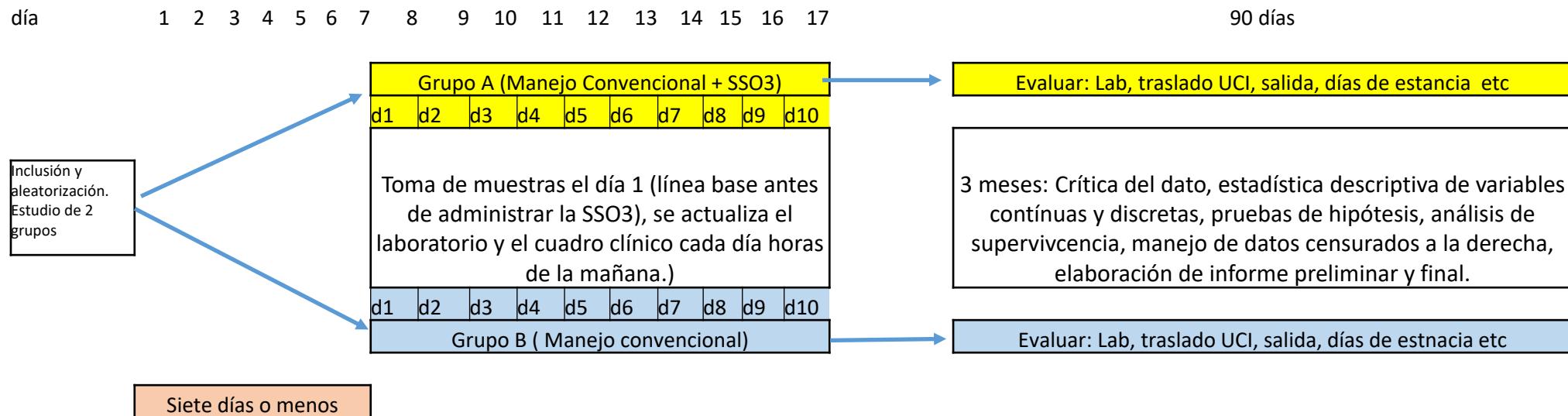
1. Stahl JE. Modelling methods for pharmaco-economics and health technology assessment: an overview and guide. *Pharmaco-economics* 2008;26:131.
2. Valdenassi L, Franzini M, Richelmi P, Bertè F. Ossigeno-ozono terapia. Atti del I Convegno Simfer, 2005 Nov 22, Pavia, Italy.
3. Ostrom TM. Computer simulation: the third symbol system. *J Experim Soc Psychol* 1988;24:381-92.
4. Remondino M. Agent based process simulation and metaphors based approach for enterprise and social modelling. *Proceedings of the 4th International Conference on Agent Based Simulation*. Ghent, Belgium: SCS European Publishing House; 2003. pp 93-7.
5. Remondino M. Agent based process simulation for management and economics. *Econ Complex* 2003. Available from: www.cs.unibo.it/cianca/wwwpages/labspo/Remondino.pdf
6. Remondino M, Correndo G. Data mining applied to agent based simulation. In: *Proceedings of the 19th European Conference on Modelling and Simulation*. Riga, Latvia; 2005. pp 1-4.
7. Remondino M, Correndo G. Mabs validation through repeated execution and data mining analysis. *Intern J Simulation: Syst Sci Technol* 2006;7:6.

Pharmaco-economic analysis of ozone therapy supported by agent based process simulation and data mining

Marco Remondino,^{1,3} Luigi Valdenassi,^{1,3} Mariano Franzini^{2,3}

¹Department of Economics, University of Genoa; ²Department of Internal Medicine and Medical Therapy, University of Pavia; ³Italian Scientific Society of Oxygen-Ozone Therapy (SIOOT), Gorle (BG), Italy

Esquema del ensayo clínico SSO3 (Diseño Add-on a grupo de control activo)



La regla del 3...fase 1.

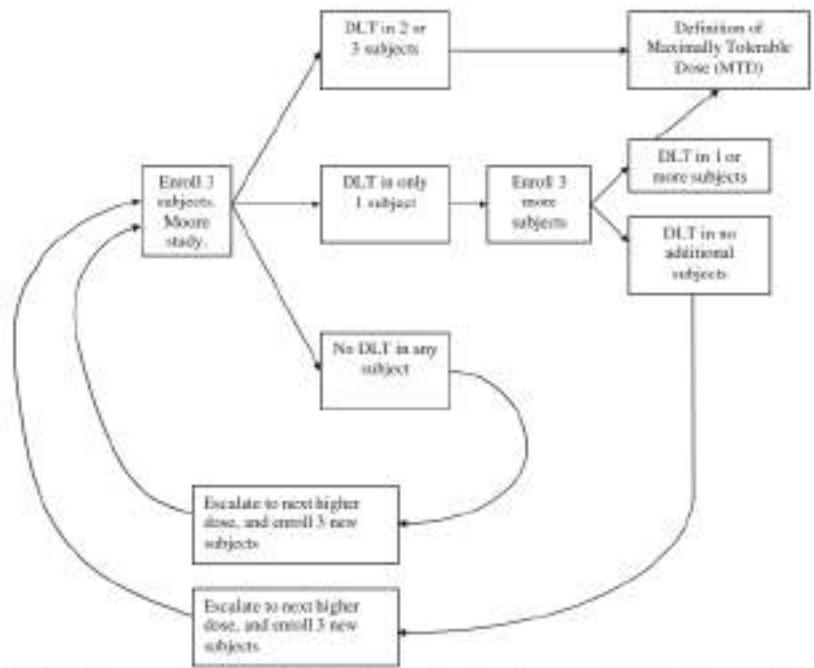


FIGURE 2-17 Schema used in dose-escalation study. The schema involves a number of decision trees where the decisions are in response to toxicities that are present in the study subjects, and where the decisions are to increase the dose for subsequently enrolled subjects.

- Con 100 µg/kg peso se observan efectos adversos por hepatotoxicidad en ratas.
- Dada la presunción de flebitis y ardor en zona de veno punción, en humanos no se aconseja burbujejar SSN 0,9 % con una concentración mayor de 8 µg/ml -recordar que se diluye solo el 10 %, por tanto la concentración de O3 en la solución es de 0,8 µg/ml- (al aplicar 200 ml de SSN, la dosis total es de 160 µg de O3—equivale aprox a 2 µg de O3/kg de peso para una persona de 80 kg de peso corporal).
- Para mantenerse debajo del umbral de la flebitis y el dolor tipo ardor en zona de venopunción Se propone desarrollar el ensayo con un rango de dosis total de 60 µg a 100 µg de O3, equivale a dosis de 0,75 µg/kg a 1,25 µg/kg de peso corporal para una persona tipo de 80 kgr.

Ventajas del diseño Add-on a grupo de control activo.

- No se abandona manejo protocolizado establecido para reducir la mortalidad y morbilidad compleja en paciente hospitalizado. Se reduce el riesgo legal y de imagen corporativa.
- Si es superior el manejo convencional al obtenido con el grupo de SSO3, simplemente se descarta la SSO3 como opción terapéutica alternativa para paciente COVID 19 en fase 2,
- Si el desempeño en la batería de laboratorios y los desenlaces resolutivos (traslado a UCI o salida del centro asistencial, es superior en el grupo de SSO3 respecto del manejo convencional, se propone avalar su uso como manejo **COMPLEMENTARIO** del paciente COVID 19 en fase 2. Se exploraría en otras fases (fase 1 y fase 3) modulando dosis. Desarrollar estudio de cohortes para explorar calidad de vida 3 y 6 meses después en pacientes con salida (en el contexto del síndrome post covid).
- Si NO HAY DIFERENCIAS –es decir son comparables en resultados o no es inferior el manejo con SSO3 respecto del manejo convencional, se debe explorar su uso en un contexto de manejo **seguro, flexible y complementario de manera discrecional**.