Review of Ozone Therapy in MS

Revisão da Ozonoterapia na EM

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Vincenzo Simonetti
Dr Surgeon, Board Member of Società Scientifica di Ossigeno-Ozono Terapia (SIOOT)
Institution: Società Scientifica di Ossigeno-Ozono Terapia (SIOOT)
Address: Via Lamarmora 43, 10128, Torino, Italy
E-mail: simonetti.vinc@gmail.com

William Liboni
Dr. Neuropathology and Psychiatry, Radiology and Nuclear Medicine
Institution: Rehabilitation Center "We are All"
Address: Via Mombasiglio 29, 10136, Torino, Italy
E-mail: wil.liboni@alice.it

ABSTRACT
In 2014 we published WHY OZONE THERAPY IN MULTIPLE SCLEROSIS? V. Simonetti, W. Liboni, F. Molinari, Rev. Esp.de OZONOTHERAPY Vol 4, N 1-2014 We have described the results observed on some MS patients treated with ozone therapy. Since then we have strengthened our knowledge on the etiopathogenetic mechanisms of MS and on the importance of the epigenetic factors that influence its manifestation and progression. By reacting with OZONE different pathologies, not only in the neurological field, we have expanded the knowledge on the ozone effects 1,2,3,9,10,11,17,18 : we have better understood why ozone therapy can be useful in patients with SM. Compared to what was published in 2014, despite the increase in the number of patients treated by us, from 43 to over 500, the short and long-term results obtained by us and by other colleagues who follow our protocol confirm what we had already published in 2014 12 and in the book we have published 8

Keywords: ozone therapy, epigenetic factors, Nr-F2 factor, Nf-Kb, Immune regulation, MAHT (Major Auto Haemotherapy), ¥ (µg/ml) Microbiota, MS.

RESUMO
Em 2014 publicamos POR QUE TERAPIA DE OZONO EM MÚLTIPLA ESCLEROSE? V. Simonetti, W. Liboni, F. Molinari, Rev. Esp.de OZONOTERAPIA Vol 4, N 1-2014 Descrevemos os resultados observados em alguns pacientes com esclerose múltipla tratados com ozonoterapia. Desde então, reforçamos nosso conhecimento sobre os mecanismos etiopatogenéticos da EM e sobre a importância dos fatores epigenéticos que influenciam sua manifestação e progressão. Ao reater com OZONO diferentes patologias, não apenas no campo neurológico, expandimos o conhecimento sobre os efeitos do ozônio 1,2,3,9,10,11,17,18 : compreendemos melhor porque a ozonoterapia pode ser útil em pacientes com SM. Em comparação ao que foi publicado em 2014, apesar do aumento do número de pacientes tratados por nós, de 43 para mais de 500, os resultados de curto e longo prazo obtidos por nós e por outros colegas que seguem nosso protocolo confirmam o que já tínhamos publicado em 2014 12 e no livro que publicamos 8

Palavra-chave: ozonoterapia, fatores epigenéticos, fator Nr-F2, Nf-Kb, Regulação Imunológica, MAHT (Maio Hemoterapia Automática), ¥ (µg/ml) Microbiota, MS.
1 RATIONALE OF OUR PROPOSAL

The greater knowledge acquired on ozone therapy has strengthened our conviction to propose ozone therapy in the treatment of patients with MS\(^1,2,3,4,7,8\).

Not having noticed substantial differences, we propose the same statistical graphs of the results we obtained on MS patients already published (photos 1, 2, 3): we limit ourselves to adding to the text published in 2014 the observations derived from the experience of other researchers and ours who confirmed the validity of our proposal. Compared to then, we have treated bladder dysfunctions more consistently with subcutaneous dorsal-lumbar injections: this therapeutic approach allows us to obtain favorable results on all the dysfunctions of the recto-bladder sphincters treated\(^8\).

In the last 15 years we have insisted more on the opportunity to suggest to our patients, in addition to ozone therapy, to follow a diet with a low glycemic index, anti-inflammatory, and to stimulate, when possible, moderate physical activity and a reduction of psycho stress. -physical: those who, together with the ozone treatment, have adhered to the modification of their lifestyle, have had a greater and more lasting reduction in asthenia, spasticity and the number of exacerbations. Furthermore, those who were able to undergo neuro-rehabilitation cycles immediately after each ozone therapy session obtained a greater benefit in recovering motor skills, both in walking and in manual functions\(^8\).

To get better patient participation, we should remember more often what Hippocrates said (5th century BC): Before healing someone, ask him if he is willing to give up the things that made him sick. Depression and an attitude of low confidence in therapies, insufficient or disturbed night rest, inappropriate nutrition, cigarette smoking, living in a humid and / or polluted environment negatively affect the course of the disease. These observations led us to write Book\(^8\), where we were able to better explain our therapeutic proposal and how sensitive the clinical manifestations of this pathology were to various epigenetic factors and to the intestinal microbiota\(^4,5,6\).

They certainly contributed to making us better understand the results we obtained on MS patients treated with ozone therapy:

1) the discovery of cerebral lymphatic circulation\(^31\), and a better understanding of the effects of ozone therapy on the vascular system\(^32\)

2) the possible synergy of ozone therapy with drug therapy\(^2,10,11\)

3) the observation of the synergy between Methyl-Prednisolone and ozone in reducing the cerebral inflammation of MS, increasing the tumor suppressor transcription factor p53\(^15\): this last work led us to study the usefulness of ozone therapy in tumors\(^10,11\).

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4) the confirmation of the neuronal plasticity associated with the post-stroke rehabilitation process made us understand the possibilities and reasons for the recovery of neurological deficits

5) Bernales CQ's observation that even homozygous genetic diseases, in order to manifest themselves, require the contribution of epigenetic factors: gene mutations play the role of predisposing factors to different clinical manifestations

6) the demonstrated ability of ozone in the reduction of proinflammatory cytokines, including IL 17, produced by Th17 lymphocytes, called immortal because they have a programming error that makes them resistant to their natural death.

7) the observation that oxygen ozone therapy would help improve MS patients by increasing Treg cell responses.

We were the first to obtain satisfactory results on patients treated with ozone therapy.

Other colleagues, in various countries, are following our indications, overcoming the perplexities on the use of MAHT (240 g of blood + 12,000 y of ozone), significantly higher than those historically and commonly in use.

We believe that amounts of ozone higher than 13,000 y can cause an excessive stimulation of the transcription factor NrF2, consequent reduction of the inflammatory response capacity and induce serious undesirable effects; while much lower dosages do not allow us to obtain the same results obtained with 12,000 y of ozone.

We do not know that other authors have obtained evident benefits in MS patients with an amount of ozone less than 12,000 y in 240 ml of blood and without very slowly re-infusing the ozonated blood before it took on a deep red color.

We hope to be able to carry out a multicenter study, which will allow us to examine the results on a statistically more significant number and to optimize both the modality and quantity of ozone therapy, and the necessary synergy with other epigenetic factors.

The number of our patients treated, despite the skepticism of many neurologists, is constantly growing, but the clinical results are confirmed.

Compared to 2014, following the discovery of CCSVI made by Zamboni, we hypothesized that we could stimulate the outflow of the azigos vein by practicing, in addition to MAHT, small subcutaneous wheals with oxygen-ozone at a concentration of 10 µg / ml in correspondence with all vertebral spinous processes, up to the second sacral vertebra. This treatment allows us to now be able to state that all recto-vesicular dysfunctions can clearly benefit from the protocol we propose.

From our experience we know that, if we practice an autohemus infusion during a crisis of MS exacerbation, the patient always reports a clear reduction or disappearance of paresthesias and/or
disabilities, which had raised the suspicion of exacerbation, after a few minutes: autohemus can therefore also be used as a diagnostic tool and, if the symptoms subside immediately after the first therapy, we can often avoid the cortisone bolus or reduce the amount. 

We have been following this therapeutic approach for over 25 years and the clinical results observed by us, as already reported, have been constant: the patients treated have had a favorable evolution; the frequency of exacerbations and related symptoms were reduced (Photos 1,2,3); in no patient did the progression of the disease, in the period of observation carried out and application of the proposed therapeutic protocol, pass from the RR form to the SP; the cognitive and memory faculties have always improved; the functionality of the sphincters is improved; we have also partially recovered the disability in patients with the SP form, even if present for many years; no patient, even after 20 years of therapy, showed side effects. Contrary to what Montalban hypothesized, none of our patients, even if treated only with ozone therapy and anti-inflammatory diet, passed from the Relapsing Remitting Form to the Secondarily Progressive Form.

2 MATERIALS AND METHODS

Medical 95 CPS Multioxigen ozone dispenser, SanO3 bags

- Indications: patients with MS, especially in the relapsing-remitting form
- Contraindications: pregnant women (there are no studies on the possible teratogenic effects of ozone), hyperthyroidism, glucose-6-phosphate dehydrogenase deficiency.
- Interactions: no known interaction with other drugs
- Biological action of ozone: anti-inflammatory and immunomodulatory effects, muscle relaxant, better perfusion of the microcirculation, activation of the mitochondrial antioxidant system, greater efficacy of pharmacological or rehabilitative therapies; the synergy between ozone therapy, lifestyles and drugs often allows us to reduce the dose of drugs and side effects.

The reduction of spasticity and pain associated with the improvement of autonomic functions and sphincter control, the improvement of the kinesthetic, the reduction of the time of remission of the poussé and the slowing of the progression of the disease, leads to a significant improvement in the quality of life of these patients.

- Side effects: ozone, in the recommended quantities, is not nephrotoxic, hepatotoxic or cardiotoxic, does not induce tumors or other metabolic disorders, does not increase the risk of thrombosis, is not allergenic and does not induce the formation of autoantibodies. The only side effects, in addition to those due to needle puncture, can be consequent to emotional causes (vaso-vagal reflexes).
• Dosage: Twenty MAHT, 2 / week, 120-240 gr + Ozone-Oxygen in the blood 120 - 240 ml / 40-50 mcgr / ml followed by 1 session every 50 - 60 days. In case of relapses: MAHT every 2 days until the symptoms of relapses disappear.

If ozone therapy is associated with a healthier lifestyle, the results will be better and longer lasting.

3 CONCLUSIONS

Ozone, for its actions mentioned above, could be a valid therapy for the physiopathological alterations and symptoms of MS where it can bring a significant improvement in quality and life expectancy, without side effects and with low-cost therapeutic interventions. We believe that its association with commonly used treatment protocols can improve clinical outcomes with a lower incidence of side effects. Furthermore, ozone therapy, especially if associated with a healthy lifestyle, could represent a real therapeutic alternative for patients who cannot undergo traditional pharmacological treatment.
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ANNEXES

This is why we publish the same summary tables of the results obtained (photos 1,2,3)

Photo 1

**SYMPTOMATOLOGY OF MS**

Photo 2

**EDSS CHANGE**

*P < 0.05*
Photo 3

FREQUENCY OF RECIDIVATION/YEAR lesser after ozone

* P < 0.05