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12.2. **2 Zwischenfälle: Herzinfarkte**
13. **1 Zwischenfall: Miktionsstörungen**

Jacobs, MT, 1981

Ozonioterapia

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Am J Forensic Med Pathol. 2000 Jun;21(2):144-7.

An unexpected death during oxygen-ozone therapy.

Marchetti D[1], La Monaca G.

Author information

Abstract

An unexpected death is described that was caused by gas embolism that occurred during oxygen-ozone (O2/O3) therapy administered by autohemotransfusion for psoriasis. This unusual complication suggests the necessity of investigating benefits and adverse effects of medical ozone application.

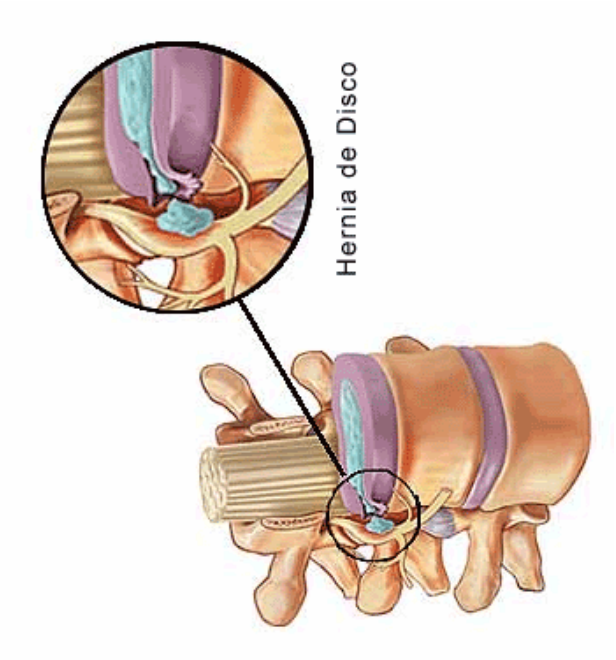
PMID: 10871129

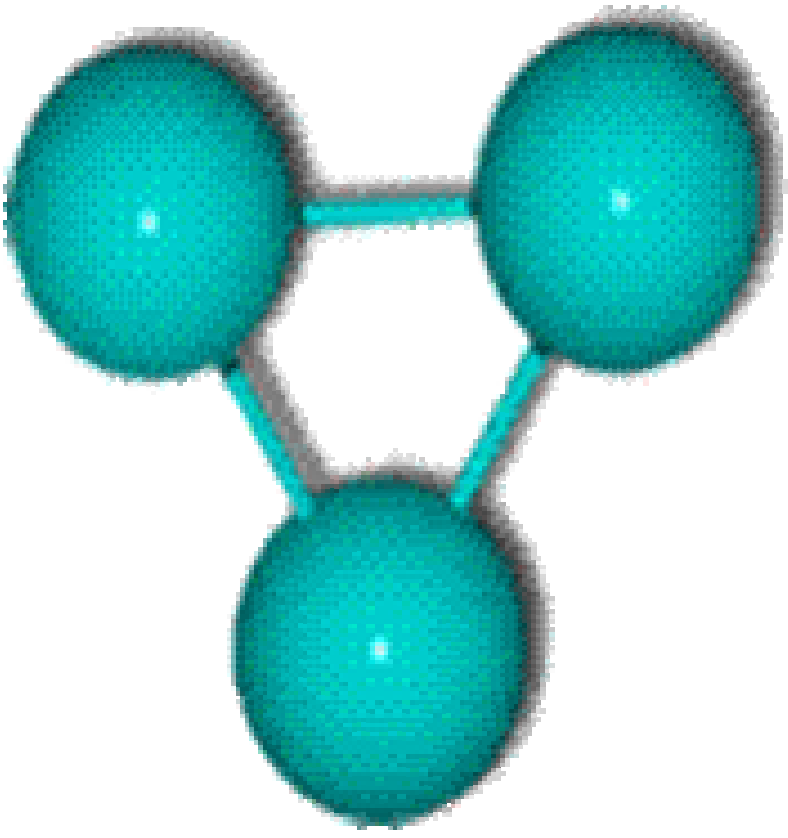
[Indexed for MEDLINE]

https://www.ncbi.nlm.nih.gov/pubmed/10871129

Apenas 01(uma) morte associada à Ozonioterapia descrita no PubMed, a Biblioteca do Governo norte-americano, desde 1966 (há 51 anos).

Apresenta evidências científicas?


Hernia de Disco



Hérnia de Disco

A Metaanalysis of the Effectiveness and Safety of Ozone Treatments for Herniated Lumbar Discs

Jim Steppan, PhD, Thomas Meaders, BS, Mario Muto, MD, and Kieran J. Murphy, MD, FRCPC

PURPOSE: To determine statistically significant effects of oxygen/ozone treatment of herniated discs with respect to pain, function, and complication rate.

MATERIALS AND METHODS: Random-effects metaanalyses were used to estimate outcomes for oxygen/ozone treatment of herniated discs. A literature search provided relevant studies that were weighted by a study quality score. Separate metaanalyses were performed for visual analog scale (VAS), Oswestry Disability Index (ODI), and modified MacNab outcome scales, as well as for complication rate. Institutional review board approval was not required for this retrospective analysis.

RESULTS: Twelve studies were included in the metaanalyses. The inclusion/exclusion criteria, patient demographics, clinical trial rankings, treatment procedures, outcome measures, and complications are summarized. Metaanalyses were performed on the oxygen/ozone treatment results for almost 8,000 patients from multiple centers. The mean improvement was 3.9 for VAS and 25.7 for ODI. The likelihood of showing improvement on the modified MacNab scale was 79.7%. The means for the VAS and ODI outcomes are well above the minimum clinically important difference and the minimum (significant) detectable change. The likelihood of complications was 0.064%.

CONCLUSIONS: Oxygen/ozone treatment of herniated discs is an effective and extremely safe procedure. The estimated improvement in pain and function is impressive in view of the broad inclusion criteria, which included patients ranging in age from 13 to 94 years with all types of disc herniations. Pain and function outcomes are similar to the outcomes for lumbar discs treated with surgical discectomy, but the complication rate is much lower (<0.1%) and the recovery time is significantly shorter.

J Vasc Interv Radiol 2010; 21:534–548

Abbreviations: FIO = Italian Oxygen–Ozone Therapy Federation, MCID = minimum clinically important difference, MCD = minimum detectable change, ODI = Oswestry Disability Index, VAS = visual analog scale, SD = standard deviation

A Metaanalysis of the Effectiveness and Safety of Ozone Treatments for Herniated Lumbar Discs

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From the SIR 2009 Annual Meeting.

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DOI: 10.1016/j.jvir.2009.12.393

DISCUSSION

Our metaanalyses demonstrate the effectiveness and safety of oxygen/ozone therapy for the treatment of herniated discs with data from almost 8,000 patients and from multiple centers in multiple locations. Because the overall treatment effect is greater than the MCID and MDC levels, it is concluded that the treatment has a significant effect that is greater than the sensitivity of the scales being used, and it is beneficial from the patient's perspective. This is impressive in light of the broad inclusion criteria that included patients ranging in age from 13 to 94 years.

Pain Physician 2012; 15:E115-E129 • ISSN 2150-1149

Systematic Review

Ozone Therapy as a Treatment for Low Back Pain Secondary to Herniated Disc: A Systematic Review and Meta-analysis of Randomized Controlled Trials

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Background: Low back pain (LBP) is one of the most common and important health problems affecting the population worldwide and remains mostly unsolved. Ozone therapy has emerged as an additional treatment method. Questions persist concerning its clinical efficacy.

Objective: The purpose of our study was to evaluate the therapeutic results of percutaneous injection of ozone for low back pain secondary to disc herniation.

Study Design: A systematic review and meta-analysis of randomized controlled trials.

Methods: A comprehensive literature search was conducted using all electronic databases from 1966 through September 2011. The quality of individual articles was assessed based on the modified Cochrane review criteria for randomized trials and criteria from the Agency for Healthcare Research and Quality.

Outcome Parameters: The outcome measure was short-term pain relief of at least 6 months or long-term pain relief of more than 6 months.

Results: Eight observational studies were included in the systematic review and 4 randomized trials in the meta-analysis. The indicated level of evidence for long-term pain relief was II-3 for ozone therapy applied intradiscally and II-1 for ozone therapy applied paravertebrally. The grading of recommendation was 1C for intradiscal ozone therapy and 1B for paravertebral ozone therapy.

Limitations: The main limitations of this review are the lack of precise diagnosis and the frequent use of mixed therapeutic agents. The meta-analysis included mainly active-control trials. No placebo-controlled trial was found.

Conclusions: Ozone therapy appears to yield positive results and low morbidity rates when applied percutaneously for the treatment of chronic low back pain.

Key words: Low back pain, oxygen-ozone, ozone therapy, chronic pain, failed back surgery syndrome.

Pain Physician 2012; 15:E115-E129

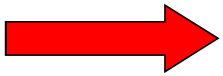
Low back pain (LBP) is one of the most common and important clinical, social, economic, and public health problems affecting the human population worldwide (1). Around 70% of adults suffer from LBP at some point in their lifetime with various degrees of symptom severity. Additionally, 1.6% to 43% of these patients have LBP associated with sciatic symptoms (2). In the United States, the incidence of chronic low back pain ranges from 15% to 45%, with a prevalence of 30% (1). Most back pain has no recognizable cause

Hérnia de Disco

243 Level of Evidence

The indicated level of evidence is II-3 for ozone therapy applied intradiscally and II-1 for ozone therapy applied paravertebrally on long-term relief in low back pain secondary to disc herniation (12).

Paravertebral



Intradiscal

Table 1. *Levels of evidence based on the Quality data available in the literature (USPSTF).*

I:	Evidence obtained from multiple properly conducted diagnostic accuracy studies.
II-1:	Evidence obtained from at least one properly conducted diagnostic accuracy study of adequate size.
II-2:	Evidence obtained from at least one properly designed small diagnostic accuracy study.
II-3:	Evidence obtained from diagnostic studies of uncertainty.
III:	Opinions of respected authorities, based on clinical experience descriptive studies Evidence obtained from case reports or reports of expert committees.

Adapted and modified from the U.S. Preventive Services Task Force (USPSTF)(12).

Lombalgias e Lombociatalgias

Patología del Aparato Locomotor, 2007 · Vol.5 · Nº 1 · 46-54 Original

Estudio prospectivo y aleatorizado en pacientes con lumbalgias o lumbociatálgias tratados con ozonoterapia

Prospective and randomized study in patients with low back pain or sciatic pain with ozonetherapy treatment

Ansede Alonso J.C., Contreras Joya M., Pérez Hidalgo S.

Servicio COT – Unidad de Columna
Hospital FREMAP. Sevilla

RESUMEN

Objetivo: estudiar los resultados clínicos en pacientes con lumbalgias y ciáticas, tratados con ozono (O_3) paravertebral e intradiscal.

Pacientes y método: se incluyeron 103 pacientes, 44 diagnosticados de lumbalgia y 59 de ciatalgia tratados, prospectiva y aleatoriamente, con ozono o con reposo y analgesia. Se evaluaron con la escala de intensidad de dolor, cuestionario Oswestry, distancia mano-suelo, Lasseguè e incorporación laboral. El seguimiento clínico fue de 6 meses.

Resultados: en el grupo de lumbagos encontramos diferencias con el tratamiento en ambos grupos ($p \leq 0{,}001$) sin ver diferencias entre el grupo control y el tratado con ozono.
En el grupo de ciatalgia tratado con O_3 encontramos diferencia inicial y final del dolor ($p \leq 0{,}001$) y la escala de Oswestry presentó una mejoría del 40,4% ($p \leq 0{,}001$). En el grupo control con ciatalgia no mejoró el dolor y empeoró en la escala de Oswestry ($p \geq 0{,}5$).
En el grupo control un 36,2% mostraron un Lasseguè negativo después del tratamiento, mientras que en los tratados con O_3 fueron un 83,2%.
En el grupo de lumbalgia control causaron alta laboral, por curación o mejoría el 46,6% y el 58,3% tratados con O_3; en el grupo ciatalgia control fueron el 18,2% frente al 78,6% de los tratados con O_3. Las hernias de disco contenidas respondieron mejor al tratamiento con O_3.

Conclusiones: el O_3 paravertebral no mejora la evolución clínica de las lumbalgias. El tratamiento con O_3 intradiscal y paravertebral puede indicarse en el tratamiento de ciáticas y lumbociáticas secundarias a hernias discales cuando fracasa el tratamiento conservador.

Palabras claves:
Lumbago, lumbociática, hernia disco, ozono (O_3).

ABSTRACT

Objective: A prospective and randomized study to compare the clinical results between conservative vs. intra-discal/para-lumbar vertebrae ozone treatment in patients with low back pain and patients affected of sciatic pain.

Patients and method: This is a randomized study for 103 patients (44 with low back pain and 59 with sciatic pain) whose treatment was ozone versus relative rest and analgesic (control group). To evaluate: scale for measuring the intensity of pain, the Oswestry questionnaire for the disability caused by lumbar pain, the hand-flow distance, the Lasseguè test and the reinsertion of the patients to their labour activities. The clinical follow-up was 6 months.

Results: Using the scale for the intensity of pain and the Oswestry questionnaire for all the patients with low back pain (ozone or conservative treatment) we found an improvement of their symptoms ($p \leq 0.001$), with no differences in the results between the control group and the ozone group. For the group of patients affected of sciatic pain treated with ozone we found improvement of the pain after the treatment ($p \leq 0{,}001$) and the Oswestry questionnaire 40,4% ($p \leq 0.001$).The Lasseguè test was negative or improved in 83,2% patients after the treatment in the ozone group. In the patients with low back pain treated with ozone the 58,3% re-started working in their jobs. For the ozone group with sciatic pain the 78,6% were able to develope their ordinary work. The contained discal herniasdisk responded better to the treatment with O_3.

Conclusions: paralumbar vertebrae ozone does not improve the clinical evolution of low back pain, although it present analgesic effects in the short term. The treatment with intradisk more paralumbar ozone can be one first option in the treatment of the sciatic pain when the conservative treatment fail.

Key words:
Ozone (O_3),low back pain, sciatic, disk herniated.

Patología del Aparato Locomotor, 2007; 5 (1): 46-54

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Revisão Cochrane Dor Lombar

Associação Brasileira de Ozonioterapia

Ozonioterapia no tratamento da dor lombar

PERGUNTA

A ozonioterapia é efetiva e segura no tratamento da dor lombar?

CENTRO COCHRANE DO BRASIL

ABOZ
Associação Brasileira de Ozonioterapia

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CENTRO COCHRANE DO BRASIL

Associação Brasileira de Ozonioterapia

RESUMO

Contexto: A dor lombar é um dos mais frequentes e importantes problemas que afetam a população mundial e seu tratamento ainda é controverso. A ozonioterapia tem surgido como um método de tratamento, mas ainda persistem questões quanto a sua efetividade e segurança.

Objetivos: Determinar a efetividade e segurança da ozonioterapia no tratamento da lombalgia inespecífica e da lombociatalgia.

Métodos: Revisão sistemática, segundo a metodologia da Colaboração Cochrane. Foram incluídos apenas ensaios clínicos randomizados que testaram a ozonioterapia isolada ou associada comparada a placebo ou outra opção de tratamento ativo.

Resultados principais: Foram incluídos oito ensaios clínicos randomizados. Há uma grande heterogeneidade entre os estudos no critério de inclusão de participantes, tipo de intervenção realizada, controle e mensuração de desfecho, o que dificultou a realização de metanálise. Não foi observada efetividade da ozonioterapia no tratamento de lombalgia inespecífica (dois estudos). Dois estudos observaram melhores resultados com a ozonioterapia em médio e longo prazo, comparado a placebo ou a anti-inflamatório, para o tratamento de lombociatalgia aguda. Três estudos verificaram maior efetividade da ozonioterapia em longo prazo se comparado à injeção de esteroides no tratamento da lombociatalgia crônica, secundária a hérnia de disco. Um estudo verificou maior efetividade em longo prazo da ozonioterapia se comparado a radiofrequência pulsada, e outro estudo também verificou superioridade da injeção intradiscal de ozônio associado à colagenase se comparada a cirurgia de discectomia.

Conclusões: Existe evidência de superioridade em longo prazo da ozonioterapia para o tratamento da lombociatalgia crônica se comparada à injeção de esteroides, radiofrequência e cirurgia aberta. São necessários mais estudos com metodologia adequada e comparação da ozonioterapia a procedimentos placebos, assim como estudos comparando as diversas doses e meios de aplicação de ozônio.

CENTRO COCHRANE DO BRASIL

Associação Brasileira de Ozonioterapia

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4440430/pdf/dddt-9-2677.pdf

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REVIEW

The usefulness of ozone treatment in spinal pain

Dor Lombar

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Emma Borrelli[2]
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Objective: The aim of this review is to elucidate the biochemical, molecular, immunological, and pharmaceutical mechanisms of action of ozone dissolved in biological fluids. Studies performed during the last two decades allow the drawing of a comprehensive framework for understanding and recommending the integration of ozone therapy for spinal pain.

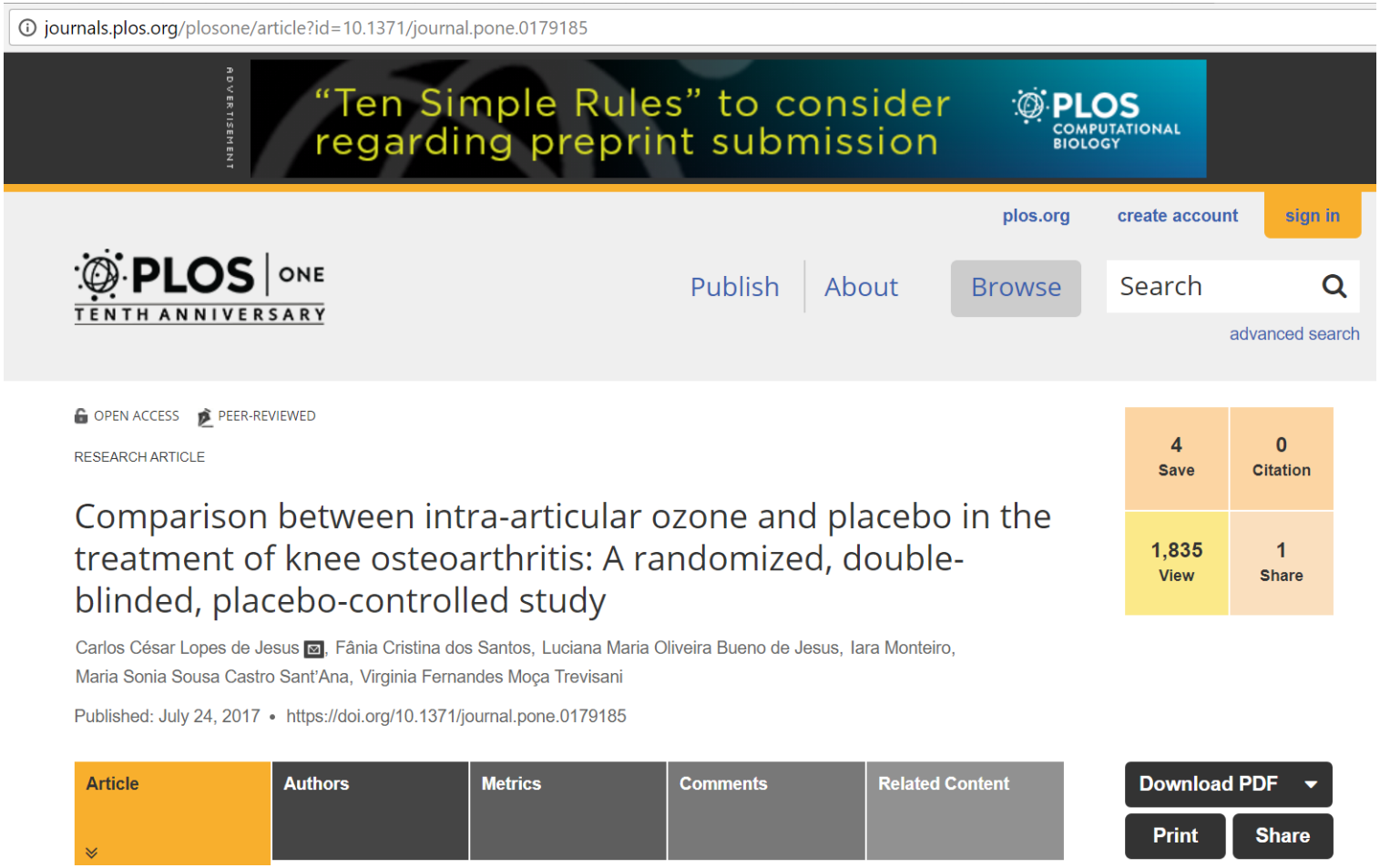
Methods: An in-depth screening of primary sources of information online – via SciFinder Scholar, Google Scholar, and Scopus databases as well as Embase, PubMed, and the Cochrane Database of Systemic Reviews – was performed. In this review, the most significant papers of the last 25 years are presented and their proposals critically evaluated, regardless of the bibliometric impact of the journals.

Results: The efficacy of standard treatments combined with the unique capacity of ozone therapy to reactivate the innate antioxidant system is the key to correcting the oxidative stress typical of chronic inflammatory diseases. Pain pathways and control systems of algesic signals after ozone administration are described.

Conclusion: This paper finds favors the full insertion of ozone therapy into pharmaceutical sciences, rather than as either an alternative or an esoteric approach.

Keywords: oxidants, oxidative stress, antioxidants

Osteoartrite de Joelho



http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0179185

Úlceras de Pé Diabético

DIABETES TECHNOLOGY & THERAPEUTICS
Volume 13, Number 11, 2011

DOI: 10.1089/dia.2011.0018

Original Article

Efficacy of Ozone–Oxygen Therapy for the Treatment of Diabetic Foot Ulcers

Julio Wainstein, M.D.,[1] Ze'ev Feldbrin, M.D.,[2] Mona Boaz, Ph.D.,[3] and Ilana Harman-Boehm, M.D.[4]

Abstract

Background: Diabetic foot ulcers are associated with significant morbidity. Conventional treatment modalities are often of limited success in promoting complete wound closure. The aim of the present study was to examine the efficacy of noninvasive ozone–oxygen therapy in the treatment of diabetic foot ulcers.

Methods: Diabetes patients with a Wagner classification stage 2 or 3 ulcer or a stage 4 ulcer after debridement of at least 8 weeks in duration were included in this double-blind, randomized, placebo-controlled clinical trial. Patients received conventional treatment in combination with either ozone–oxygen treatment or sham treatments for 12 weeks, and after an additional 12 weeks, wound status was re-examined.

Results: In total, 61 patients (62% male, 62.6±9.8 years old) participated in the study; 32 were randomized to ozone treatment, and 29 to placebo. The proportion of subjects with full wound closure did not differ significantly by treatment assignment (41% vs. 33%, $P=0.34$). Among the 34 subjects who completed the study per protocol (PP) (16 in the ozone group, 18 in the placebo group), a significantly higher rate of complete wound closure was observed in the ozone group (81% vs. 44%, $P=0.03$). Among PP patients with wound size $\leq 5\,cm^2$, the rate of total wound closure was 100% versus 50% in the sham treatment group ($P=0.006$). A nonsignificant, 55.5% relative increase in healed wound area was detected in the ozone group versus the placebo group ($4.2\pm4.9\,cm^2$ vs. $2.7\pm1.5\,cm^2$, $P=0.23$).

Conclusions: Among PP patients, ozone treatment in addition to conventional treatment was superior to conventional treatment alone in promoting the complete healing of diabetic foot ulcers.

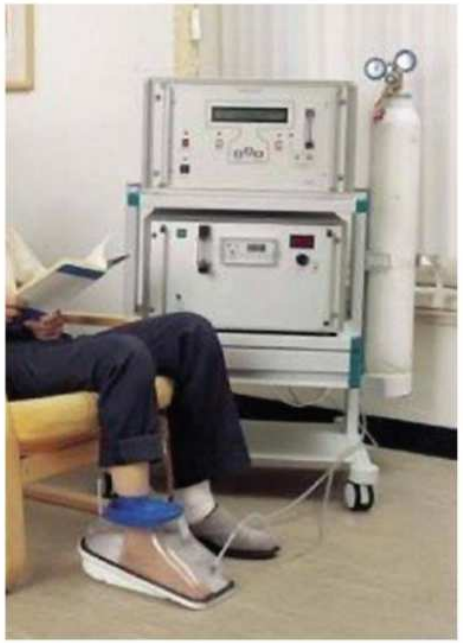


FIG. 1. The Ozoter 101 device. Color images available online at www.liebertonline.com/dia

DIABETES TECHNOLOGY & THERAPEUTICS
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Original Article

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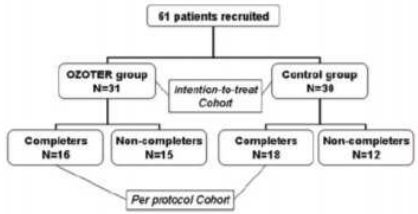

FIG. 2. Consort diagram of study flow.

OZONE: SCIENCE & ENGINEERING
http://dx.doi.org/10.1080/01919512.2016.1191992

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Ozone in Medicine: Clinical Evaluation and Evidence Classification of the Systemic Ozone Applications, Major Autohemotherapy and Rectal Insufflation, According to the Requirements for Evidence-Based Medicine

Renate Viebahn-Hänsler[a], Olga Sonia León Fernández[b], and Ziad Fahmy[a]

[a]Medical Society for the Use of Ozone in Prevention and Therapy, D-76473 Iffezheim/Baden-Baden, Germany; [b]Pharmacy and Food Institute, University of Havana, Havana, 10 400 Cuba

ABSTRACT

Now that indications are clearly defined, applications have mostly become standardized and the active mechanisms have been well confirmed, medical ozone application in the form of the low-dose concept, is established and proven as a complementary medical method in the treatment of chronic inflammations or diseases associated with chronic inflammatory conditions. More than 11,000 systemic ozone treatments in the form of Major Ozone Autohemotherapy (MAH) in 577 patients and ≥ 47,000 Rectal Insufflations (RI) in 716 patients in various clinical studies are subjected to critical clinical assessment and classification according to the criteria of evidence-based medicine (EBM). Statistically significant clinical and/or pharmacological improvements without side-effects or adverse reactions are found in all studies; special attention is drawn to maintaining hygiene when working with blood and to the use of ozone-resistent and biocompatible materials. On summarizing the evidence classification under RCT + CT (Randomized Controlled Trials + Controlled Trials), i.e., Levels Ib and IIa, 12 studies with 657 ozone-treated patients are obtained for MAH and 6 studies with 227 patients for RI. As a result of the evidence here assessed, the two systemic ozone applications, MAH and RI are part of evidence-based medicine. Both applications are effective, safe and economic.

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KEYWORDS
Evidence-Based Medicine; Major Autohemotherapy; Ozone Medicine; Rectal Insufflation

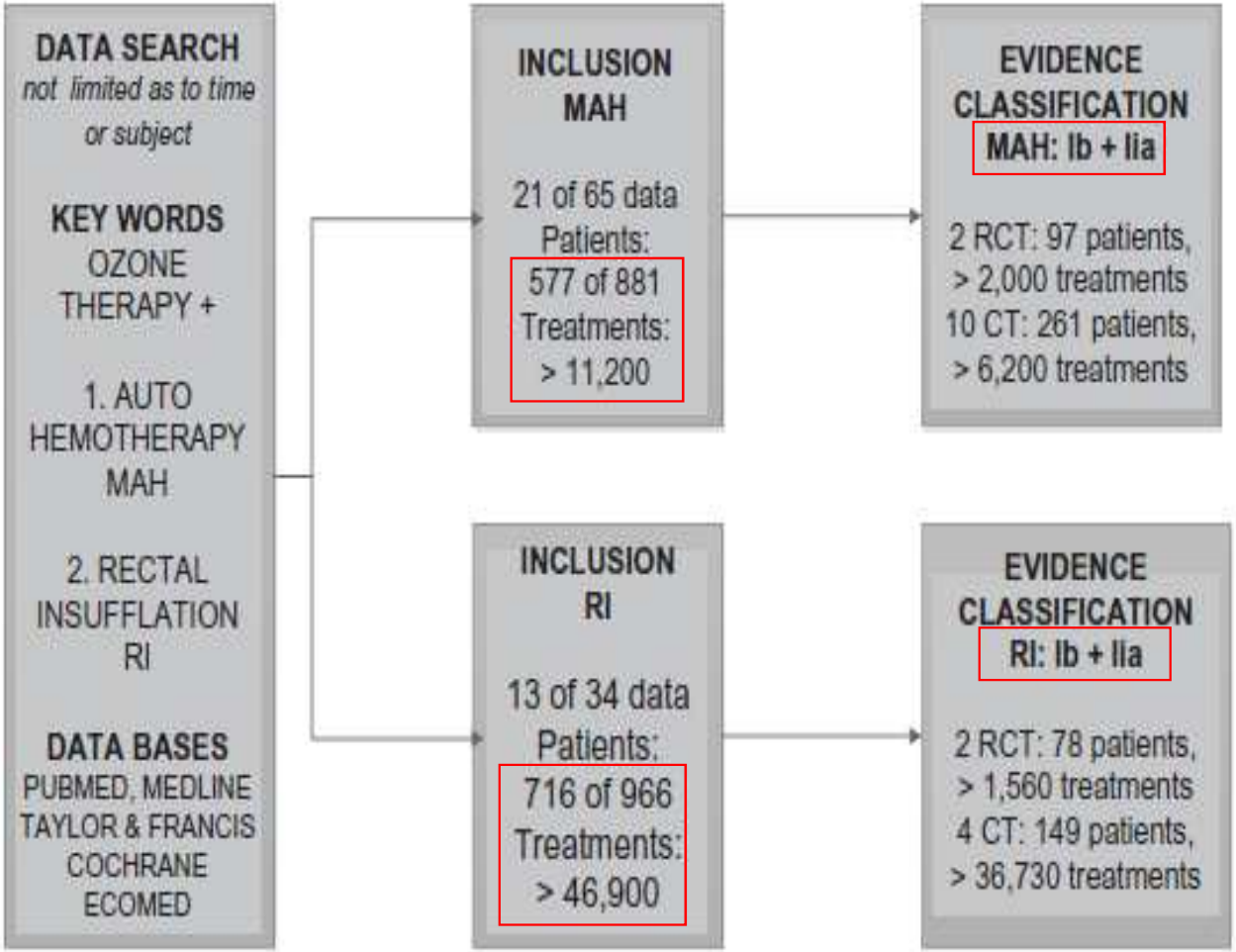

Figure 5. Results of data search and evaluation. MAH: major auto hemotherapy, RI: rectal insufflation RCT: randomized, controlled trial, CT: controlled trial.

Table 1. Levels of evidence according to Cochrane Library 1992 based on Oxford 2009.

Level	Evidence-type
Ia	At least 1 systematic review of high quality randomized controlled studies (RCTs)
Ib	At least 1 high-quality randomized controlled trial RCT
IIa	At least 1 high-quality nonrandomized trial
IIb	At least 1 high-quality trial without control group
IIIa	More than 1 high-quality controlled case study
IIIb	High quality noncontrolled case study
IV	Expert opinion as clinical experience is concerned

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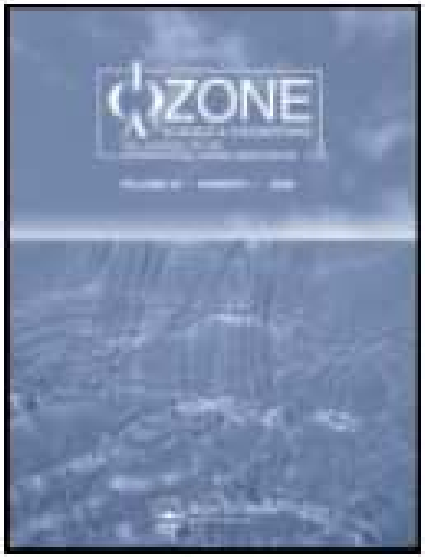

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Ozone in Medicine: The Low-Dose Ozone Concept—Guidelines and Treatment Strategies

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TABLE 2. Application-Relevant Concentration and Dosage Ranges in Ozone Therapy

Application	Ozone Concentration Range	Ozone Volume	Dosage/Ozone Amount Per Treatment
Systemic Treatment			
Major autohemotherapy (MAH)	10–30 µg/ml (max. 40 µg/ml)	50 ml	500–1,500 µg (max. 2000)
Rectal insufflation	10–25 µg/ml	max. 300 ml	3,000–7,500 µg
Minor autohemotherapy	10–20 µg/ml	10 ml	100–200 µg
Topical Treatment			
Wound cleansing	80–100 µg/ml		
Wound healing	10–25 µg/ml		
Injections in pain Syndrome	1–10 µg/ml	1 ml–20 ml	1–200 µg
In combination with local anesthetic	10–20 µg/ml	1 ml–20 ml	10–400 µg

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REVIEW

Ozone therapy: an overview of pharmacodynamics, current research, and clinical utility

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Abstract

The use of ozone (O_3) gas as a therapy in alternative medicine has attracted skepticism due to its unstable molecular structure. However, copious volumes of research have provided evidence that O_3's dynamic resonance structures facilitate physiological interactions useful in treating a myriad of pathologies. Specifically, O_3 therapy induces moderate oxidative stress when interacting with lipids. This interaction increases endogenous production of antioxidants, local perfusion, and oxygen delivery, as well as enhances immune responses. We have conducted a comprehensive review of O_3 therapy, investigating its contraindications, routes and concentrations of administration, mechanisms of action, disinfectant properties in various microorganisms, and its medicinal use in different pathologies. We explore the therapeutic value of O_3 in pathologies of the cardiovascular system, gastrointestinal tract, genitourinary system, central nervous system, head and neck, musculoskeletal, subcutaneous tissue, and peripheral vascular disease. Despite compelling evidence, further studies are essential to mark it as a viable and quintessential treatment option in medicine.

Key words: ozone; ozone therapy; ozone gas; autohemotherapy; oxidative stress; reactive oxidative species; lipid ozonation products; oxidative preconditioning

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Patologias Cardiovasculares

Additional Table 1: Cardiovascular indications for O_3 therapy

Study	Pathology	Concentration and route of O_3 administration	Type of study	Measured parameter(s)	Results	Side effect(s)	Mechanism of action
Martinez-Sánchez et al.[14]	Coronary artery disease	57 patients with massive cerebral infarction	Ungrouped; cocktail therapy: nimodipine (10 mg) intravenously, once per day, for 10 consecutive days	Prothrombin time	Significantly improved ($P < 0.001$)	None	Upregulation of adenosine A_2 receptor
				Oxidative stress levels	Increased antioxidant activity	None	Increased SOD and catalase enzyme activity
Hernandez et al.[41]	Previous myocardial infarction (3 months to 1 year)	200 mL of blood subjected to O_3-AHT, for a final concentration of 50 mg/L; treatment was given 5 days a week for up to 15 sessions	Pretest-posttest design ($n = 22$)	Serum lipid pattern	Cholesterol and low-density lipoprotein were significantly reduced with no changes in high-density lipoprotein and triglycerides	Not reported	Initiating radical formation which increasing lipid peroxidation
				Activity of antioxidant defense system	Biologically significant increases on erythrocyte GPx and glucose-6-phosphate dehydrogenase	Not reported	O_3-AHT stimulates ROS scavenger enzymes

Note: O_3: Ozone; O_2: oxygen; O_3-AHT: O_3 autohemotransfusion; GPx: glutathione peroxidase; SOD: superoxide dismutase; ROS: reactive oxidative species.

Úlceras Cutâneas

Additional Table 2: Subcutaneous tissue indications for O_3 therapy

Study	Pathology	Concentration and route of O_3 administration	Type of study	Measured parameter(s)	Results	Side effect(s)	Mechanism of action
Wainstein et al.[41]	Diabetic foot ulcer	A noninvasive sealed chamber was used in two phases. Phase I delivered 96% O_2 and 4% O_3 (80 µg/mL) for up to 4 times a week for 4 weeks. Phase II delivered 98% O_2 and 2% O_3 (40 µg/mL) until the 12th week	Double-blind, randomized, placebo-controlled clinical trial (n = 61)	Wound closure	Of the patients completing per protocol, wound closure was significantly greater than controls (P = 0.03), expressly in patients with small ulcers initially (≤ 5 cm^2)	Control group (n = 2) O_3 group (n = 5); none of the adverse events were linked causally with the O_3 treatment used	Induced negative pressure by the device may enhance fluid removal and increase perfusion; O_3 bactericidal capabilities and a reduction of blood viscosity improves perfusion
Martinez-Sanchez et al.[42]	Diabetic foot ulcer	20 sessions of O_3 *via* rectal insufflation (50 mg/L) and local treatment (60 mg/L) *via* sealed bag with O_3	Randomized controlled clinical trial (n = 101)	Wound size	Significant decrease in area and perimeter	None	Activation of SOD, control of hyperglycemia, and decreased endothelial damage
				Glucose levels	Reduced hyperglycemia (P < 0.05)	None	Increased antioxidant properties allowing for increase in insulin sensitivity, facilitating increased glucose uptake
				Oxidative stress	Increased antioxidant enzyme defense	None	Increased SOD and catalase enzymes and activation of NF-κB *via* normalizing levels of H_2O_2
Elvis et al.[3]; Bertolotti et al.[43]; Moore et al.[44]	Buruli ulcer (*Mycobacterium ulcerans*)	Insufflation of a sealed bag with an O_3-O_2 mixture with an O_3 concentration of 30 µg/mL	Case study (n = 1)	Wound closure	No visible necrosis (with granulations) after the first week; ulcer was eventually eradicated (without granulations)	None	Oxidizes phospholipids and lipoproteins on the bacteria's cell envelope, thus attenuating its integrity, changing the permeability of the membrane. Lysis and cell death ensues
				Histological and PCR analysis	Absence of *M. ulcerans*		
Shah et al.[45]	Non-healing or ischemic wounds	Insufflation of a sealed bag O_3-O_2 (70 µg) mixture in conjunction with O_3-AHT (50 mL of blood with an O_3 concentration of 70 µg)	Case study (n = 1)	Regression of necrotic tissue	On the 5th day of treatment, necrosis regressed enough for surgeons to perform surgery, implementing a biological cover over the location of the previous non-healing wound	None	Attenuates bacterial cell walls *via* oxidation; stimulates formation of LOP, which acts on endothelium to release prostacyclin, IL-8 and NO, to increase vasodilation; ROS causes the release of TGF-β, IL-8, and PDGF *via* platelet aggregation to stimulate wound healing; O_3-AHT increases O_2 delivery and increase antioxidant enzymes to help reperfusion and avoid excessive inflammation

Note: O_3: Ozone; O_2: oxygen; SOD: superoxide dismutase; LOP: lipid ozonation products; IL-8: interleukin-8; NO: nitric oxide; ROS: reactive oxidative species; TGF-β: transforming growth factor beta; PDGF: platelet-derived growth factor; NF-κB: nuclear factor-kappa B; H_2O_2: hydrogen peroxide; O_3-AHT: O_3 autohemotransfusion.

Doenças Arteriais Periféricas

Additional Table 3: Peripheral vascular disease indications for O_3 therapy

Study	Pathology	Concentration and route of O_3 administration	Type of study	Measured parameter(s)	Results	Side effect(s)	Mechanism of action
Tafil-Klawe et al.[46]; Romero Valdes et al.[47]	Obliterative atheromatosis (without diabetes)	Normal saline with dissolved O_3 intravenously (500 mL with an O_3 60 µg/mL) and aerosol O_3 baths of lower extremities (O_3 concentration 19 µg/L)	Pretest-posttest design ($n = 64$)	Lysosomal hydrolase activity	Lysosomal hydrolase activity returned to within normal limits	None reported	Improvement of blood supply to hypoxic areas to increase oxygen inflow *via* increases in 2,3-DPG. Immune cells have increased access to damaged tissue. Increased access allows for lysosomal enzymes to digest damaged cells. Increased antioxidant levels change the activity of lysosomal enzymes
				General condition	Patients general condition improved		
Verrazzo et al.[48]	Peripheral occlusive arterial disease	O_3-AHT (32 µg/mL) every other day compared to HBOT	Randomly controlled trial ($n = 30$)	Blood viscosity	Decrease in blood viscosity was present in O_3-AHT treatments compared to HBOT	None reported	Increase in plasma malonydialdehyde levels supports that O_3-derived free radicals increase. These are hypothesized to be selective for more rigid hematic cells, causing cell lysis. Selectively improving blood viscosity and filterability without decreasing Hct. Changes in fibrinogen and thrombin are seen to be transient effects of O_3-AHT
				Hct	Unchanged		
				Erythrocyte filterability	Increased in O_3-AHT treatments compared to HBOT		
Giunta et al.[49]	Peripheral occlusive arterial disease	O_3-AHT (100 mL exposed to O_3 for 10 minutes)	Pretest-posttest design ($n = 27$)	Blood viscosity	Blood viscosity decreased	None reported	Increases oxidative stress and lipid peroxidation, contributing to selective cellular lysis of rigid erythrocytes. Additionally, lipid peroxidation of erythrocyte membranes alters pH, increasing oxygen unloading
				Oxygen delivery	Increase in oxygen delivery		
				Erythrocyte filterability	Erythrocyte filterability increased		
				Hct	No significant change		
				Fibrinogen levels	Plasma fibrinogen levels decreased		
Di Paolo et al.[50,51]	Peripheral artery disease	Extracorporeal blood oxygenation and ozonation (O_3 concentrations 40–100 µg/mL)	Randomly controlled study ($n = 28$)	Skin lesions, pain, improvement in quality of life	Significant regression of skin lesions, decreased pain, and increases sense of well-being	None	Stimulates cytokine secretion of leukocytes to digest cellular debris build up and allows vasodilation *via* NO

Note: O_3: Ozone; O_2: oxygen; SOD: superoxide dismutase; LOP: lipid ozonation products; IL-8: interleukin-8; NO: nitric oxide; ROS: reactive oxidative species; TGF-β: transforming growth factor beta; PDGF: platelet-derived growth factor; NF-κB: nuclear factor-kappa B; H_2O_2: hydrogen peroxide; O_3-AHT: O_3 autohemotransfusion; HBOT: hyperbaric oxygen therapy; Hct: hematocrit.

Patologias Neurológicas

Additional Table 4: Neurological indications for O_3 therapy

Study	Pathology	Concentration and route of O_3 administration	Type of study	Measured parameter(s)	Results	Side effect(s)	Mechanism of action
Zanardi et al.[2]; Molinari et al.[52,53]; Lintas et al.[54]	Multiple sclerosis	240 g blood mixed with 180 mL O_2/O_3 (O_3 at 40 µg/mL) and re-injected; O_3-AHT	Pretest-posttest design (multiple case studies) ($n = 9$)	Cerebral oxygenation *via* near-infrared spectroscopy system and cyt c levels	Increased cyt c levels and oxygenation levels and increase in brain metabolism	None reported	O_3-AHT decreases oxidative stress *in vivo*, lowering mitochondrial damage and inflammation to reverse the impairments on cyt c seen in afflicted patients
Leon Fernandez et al.[30]; Clavo et al.[55]	Refractory headache	O_3-AHT (220–300 mL at a concentration between 30–60 µg/mL)	Case-control design ($n = 5$)	Number of headaches Pain intensity on the visual analog scale	Significantly decreased unchanged Significantly reduced	Ecchymosis at the site of injection	Induces regulation of cerebral blood flow and oxygen delivery to ischemic tissues, in part due to the increase 2,3-DPG in erythrocytes and release of NO by the endothelium, fostering a regulation of metabolism. Upregulation of cytokines from lymphocytes and increased antioxidant enzymes balance oxidation levels. O_3's enhancement of adenosine A_1 receptors provides evidence for its ability to act as a self-regulator of cortical electrical activity and neurotransmitters *via* reduction of glutamate release
Valacchi et al.[23]; Ajamieh et al.[32]; Clavo et al.[56,57]	Radiation-induced brain ischemia	O_3-AHT (300 mL at a concentration of 60 µg/mL of O_3/O_2)	Case-control design ($n = 7$) and case report ($n = 1$)	Cerebral blood flow	Improved after treatment	None reported	Induces ROS and LOP to stimulate NO, IL-8 release while inhibiting ET-1 and E-selectin, which could potentially improve cerebral blood flow. May also improve erythrocyte flexibility and blood rheology

Note: O_3: Ozone; O_2: oxygen; O_3-AHT: O_3 autohemotransfusion; cyt c: cytochrome-c; ROS: reactive oxidative species; LOP: lipid ozonation products; 2,3-DPG: 2,3-diphosphoglycerate; NO: nitric oxide; IL-8: interleukin-8; ET-1: endothelin 1.

Patologias de Cabeça e Pescoço

Additional Table 5: Head and neck indications for O_3 therapy

Study	Pathology	Concentration and route of O_3 administration	Type of study	Measured parameter(s)	Results	Side effect(s)	Mechanism of action
Bocci et al.[58]; Ragab et al.[59]	Sensorineural hearing loss	O_3-AHT (100 mL of blood with a 1:1 gaseous mixture O_2-O_3)	Randomized controlled trial (n = 45)	Multiple methods assessing hearing outcomes (mean hearing gain, PTA, SRT, and subjective recovery rates)	All improved significantly with O_3 compared to placebo	None	Multifaceted stimulation of cellular metabolism and increase of erythrocyte activity, which increases 2,3-DPG, may attenuate cellular stress. Shift in the oxyhemoglobin dissociation curve and an increase NO allows for increase oxygen supply to tissues of hypoxia in the inner ear
Clavo et al.[60]	Head and neck tumors	O_3-AHT (60 µg/mL) and rectal insufflation (60 µg/mL)	Controlled case study (n = 19)	Patient outcome	No significant difference in overall survival between O_3 and traditional treatment	Transient meteorism and constipation	Increased production of 2,3-DPG in RBCs *via* increase of malondialdehyde and lipid peroxidation, allowing for a shift in the oxyhemoglobin dissociation curve to increase unloading of O_2 to tissues. Changes in RBC cell membranes *via* addition/removal of charges allows for increased membrane flexibility and decreased blood viscosity. Thus, with an added tissue perfusion, increased oxygenation, and increased antioxidant levels, O_3 is suspected to be a pivotal adjunct therapy
Clavo et al.[60,61]		O_3-AHT (60 µg/mL)	Controlled case study (n = 14)	Levels of oxygenation (hypoxic values, tumor pO_2, and [Hb])	All improved with O_3 therapy	None	
Menéndez et al.[62]	Vestibulocochlear syndrome	Paravertebral O_3 injection at C2-3 vertebrae (8 mg/L, flow of 60 mL/min)	Pretest-posttest design (n = 50)	Tinnitus O_2 delivery Nystagmus Vertigo Hearing loss	Improved by 65% Increase in O_2 delivery Improved by 100% Improved by 90% Improved by 80%	None reported	Increases in SOD, GSH, GPx, and CAT levels, while observing low lipid peroxidation provides evidence that O_3 helps balance cellular redox. The cellular redox balance may improve symptoms of these syndromes
Borrelli et al.[63]	Dry form of AMD	O_3-AHT (200 mL of blood with a total O_3 does equivalent to 4.0 mg)	Two clinical studies (n = 217)	Progression of disease Visual acuity	Stops progression Significantly improved	None	Improves blood rheology, glycolytic metabolism in RBCs that can increase O_2 delivery *via* increased ATP and 2,3-DPG, increase NO and vasodilation, release growth factors, and have an increase of antioxidant enzymes that can minimize the death of photoreceptors seen in dry AMD

Note: O_3: Ozone; O_2: oxygen; O_3-AHT: O_3 autohemotransfusion; AMD: age-related macular degeneration; 2,3-DPG: 2,3-diphosphoglycerate; RBC: red blood cell; SOD: superoxide dismutase; GPx: glutathione peroxidase; GSH: glutathione; PTA: pure-tone average; SRT: speech reception threshold; CAT: catalase; NO: nitric oxide; pO_2: partial pressure of oxygen; Hb: hemoglobin.

Patologias Ortopédicas

Additional Table 6: Orthopedic indications for O_3 therapy

Study	Pathology	Concentration and route of O_3 administration	Type of study	Measured parameter(s)	Results	Side effect(s)	Mechanism of action
Steppan et al.[64]; Paoloni et al.[65]; Oder et al.[66]; Magalhaes et al.[67]	Herniated lumbar discs	Intradiscal and extradiscal injection (1–3 mL O_2/O_3)	Meta-analysis (n = 12)	Meta-analysis for pain levels (visual analog scale)	Significant mean improvement of 3.9	Significantly low complication rate (0.064%)	Redox capabilities allow proteoglycans in the nucleus pulposus to be oxidized, leading to a small decrease in volume of the nucleus pulposus. Decreased volume decreases pressure and attenuates pain. O_3's anti-inflammatory effects due to the redox properties are also speculated to have analgesic effects. O_3's disinfectant properties are beneficial when using intra- and extradiscal injections because it lessens the risk of infection
				Meta-analysis for functionality (ODI)	Significant mean improvement of 25.7		
				Meta-analysis for functionality (modified MacNab)	Likelihood of showing improvement was 79.7%		
Al-Jaziri et al.[68]	Spine and joint osteoarthritis	Intra-articular and paravertebral muscle injections (20 μg/mL)	Prospective study (n = 220)	Pain level after 4, 8, and 12 sessions	Significantly decrease (P = 0.005, P = 0.005, P = 0.0043, respectively)	None	Ability to activate enzymes catalyzing peroxide reactions allowing for protection against ROS and peroxides. O_3's anti-inflammatory, analgesic effects, and anti-oxidative effects, taken together with the significantly decreased pain levels long-term, allows for speculation on possible histological changes after using O_3 therapy
				Follow-up pain levels (mean follow-up time is ~10 months)	Significantly decrease (P = 0.0048)		
Bonetti et al.[69]	First degree spondylolisthesis and spondylolysis	CT-guided bilateral perignglionic infiltration of O_2-O_3 and O_2-O_3 injection into lysis point of neural arch ¾ mL O_2-O_3 gas mixture at 25 μg/mL)	Prospective study (n = 18)	Pain levels after treatments using modified MacNab	15 patients (83.3%) had complete remission of pain. 3 patients (16.7%) had poor levels of improvement	None	By injection, the gas mixture directly proximal to the lysis points allows for analgesic and anti-inflammatory actions on the meningeal branches of a spinal nerve. Also, prostaglandin and cytokine levels are balanced because of O_3's ability to increase SOD production and to reduce ROS. Local improvement in circulation after treatment allows for increased eutrophic delivery
				Pain levels at 1-month follow-up using modified MacNab	15 patients (83.3%) had complete remission of pain. 3 patients (16.7%) had poor levels of improvement		
				Pain levels at 3-month follow up using modified MacNab	13 patients (72.2%) had complete remission of pain. 2 patients (11.1%) had satisfactory levels of improvement of pain. 3 (16.7%) patients had poor levels of improvement		
				Pain levels at 3-month follow up using modified MacNab	13 patients (72.2%) had complete remission of pain. 2 patients (11.1%) had satisfactory levels of improvement of pain. 3 patients (16.7%) had poor levels of improvement		

Note: O_3: Ozone; O_2: oxygen; ODI: Oswestry Disability Index; CT: computed tomography; ROS: reactive oxidative species; SOD: superoxide dismutase.

Patologias Gastrointestinais

Additional Table 7: Gastrointestinal indications for O_3 therapy

Study	Pathology	Concentration and route of O_3 administration	Type of study	Measured parameter(s)	Results	Side effect(s)	Mechanism of action
Zanardi et al.[2]; Bocci et al.[5,27,70]; Zaky et al.[71]	Chronic hepatitis C	O_3-AHT (150 mL with a concentration of 25% O_2/O_3 raised by 5% every week for 5 weeks) and rectal O_3 insufflation (300 mL at 40% O_3/O_2	Case-control design (n = 52)	Presenting symptom progression (7 clinical symptoms assessed)	Significantly improved symptoms	None reported	Uses peroxidation to damage the viral capsid and disrupts the reproductive cycle of viruses by dismantling virus-to-cell contact. Formation of peroxides from O_3 stimulates the release of leukocytes and cytokines. Decreased viral load fosters liver enzymes replenishment and improved liver function
				ALT and AST	Normalized significantly more than conventional therapy		
				PCR analysis for HCV RNA	Disappearance of HCV RNA in 25% of O_3-AHT patients after 30 sessions and 44.4% after 60 sessions		
Zaky et al.[72]	Liver cirrhosis	Rectal O_3 insufflation (12 sessions, 300 mL at 40% O_3) as an adjunct to propranolol	Case-control design (n = 15)	Propranolol clearance	Increased elimination of propranolol	None reported	Propranolol metabolism is carried out by an oxidative enzyme in the CYP family, which is contingent on oxygenation. Increased portal vein oxygenation reported in the study would, therefore, optimize propranolol metabolism. This perfusion is forested by the release of mediators of NO
				Liver function tests	Significant reduction in prothrombin time		
				Portal vein oxygenation	Significantly increased after rectal insufflation of O_3		
Peretyagin et al.[74]	Gastrointestinal tract ulcers	O_3 therapy courses *via* intragastral, intravenous, biopuncture, cutaneous routes (200 mL at 3 mg/L of O_3)	Case-control design (n = 71)	Clinical symptoms (assessment of 6)	Significantly improved	In treatment group (n = 34), 1 participant had skin itch, 4 had sickness, 2 vomited and 5 had constipation. However, all of these were significantly lower than the control group	Decreases ischemia in developing ulcers and activates the immune response to increase recovery of persistent ulcers

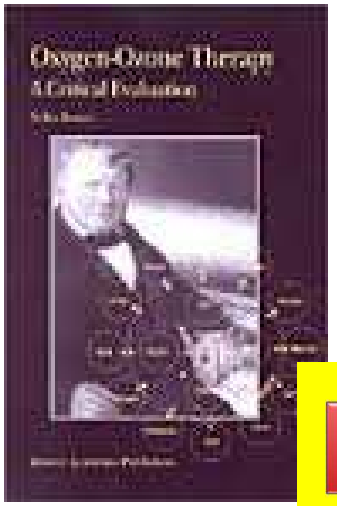
Note: O_3: Ozone; O_2: oxygen; O_3-AHT: O_3 autohemotransfusion; CTCAE: common terminology for adverse events; AST: aspartate aminotransferase; ALT: alanine aminotransferase; HCV: hepatitis C virus; CYP: cytochrome P450; NO: nitric oxide.

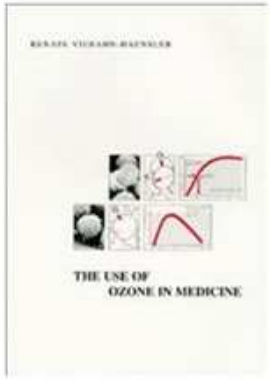
Patologias Genito-urinárias

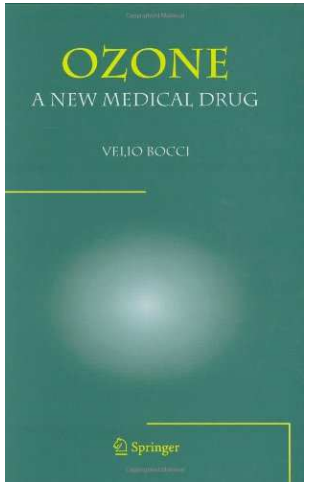
Additional Table 8: Genitourinary indications for O_3 therapy

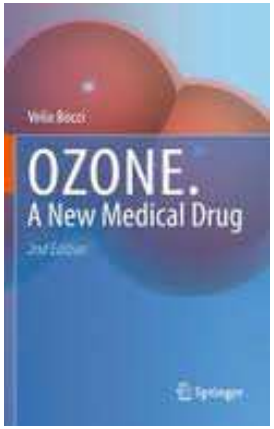
Study	Pathology	Concentration and route of O_3 administration	Type of study	Measured parameter(s)	Results	Side effect(s)	Mechanism of action
Neimark et al.[75]; Gu et al.[76]	Chronic cystitis	Ozonated saline (1,000 µg/L)	Controlled clinical trial ($n = 65$)	Laser Doppler flowmetry used to determine perfusion	Significantly increased, close to control levels	None reported	Microcirculation and structural reorganization of the bladder mucosa
				Cystoscopy with biopsy of the bladder mucosa	More positive shifts in hyperemia and edema then standard treatment alone		
				PRA	Significantly decreased		
				Ang II	Significantly decreased		
				ALD	Significantly decreased		
Gu et al.[76]; Clavo et al.[77]	Renal complications secondary to hepatitis	O_3-AHT (100 mL, 35 µg/mL)	Randomly controlled trial ($n = 85$)	Renal blood flow	Significantly increased with O_3 therapy compared to control	No obvious side effects were seen	Increased oxygen carrying and releasing capacity of Hb, can activate metabolism in RBCs, and improve microcirculation to the liver and kidney. O_3's activation of the immune and free radical removal systems can reduce the work load of the liver while improving immune response to viruses. By improving the oxygen and blood supply to the kidney, there is a decrease in PRA, Ang II, ALD caused by hepatitis, thus reducing renal damage
					Damage to renal function	Seen in lower proportion with O_3 therapy	
					Survival rate	Significantly higher proportion survived with O_3 treatment compared to control	
					Presence of hematuria	Post-1-week macroscopic hematuria disappeared. Post-8 weeks, microscopy showed about 10 RBCs/microscopic field. After 6 months, there was no evidence of macroscopic hematuria	
					Hb levels	After week 2, Hb concentration increased by 0.5 g/dL per week	
Clavo et al.[77]; Bonforte et al.[78]	Radiation-induced cystitis with hematuria	Intravesical instillation of ozonated water (35 µg/mL)	Case study ($n = 1$)	Cystoscopy	After week 3, significant improvement was seen	Soft bladder pruritus after initial sessions	Local and transient increase in oxidative stress causes an increase in synthesis of antioxidants, thus increase protection against free-radical tissue damage. O_3 can also increase local repair mechanisms, affecting hematological parameters and increasing tissue oxygenation
					Presence of bacteria causing UTI	Regression of bacteria and UTI symptoms	
Bonforte et al.[78]	UTI	Ozonated saline catheter injection into urinary bladder	Case series report ($n = 3$)	Presence of bacteria	Decreased presence of bacteria	None	Antiseptic ability *via* lipid peroxidation, DNA damage and cell death, in addition to its immune system stimulation may account for its ability to combat bacterial UTIs

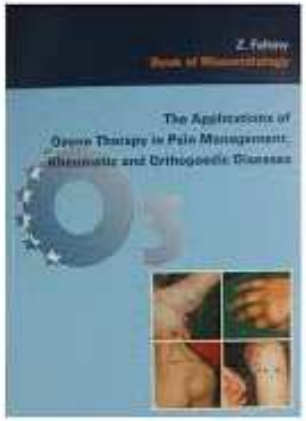
Note: O_3: Ozone; O_3-AHT: O_3 autohemotransfusion; UTI: urinary tract infection; PRA: plasma renin activity; Ang II: angiotensin II; ALD: aldosterone; Hb: hemoglobin; RBC: red blood cell.



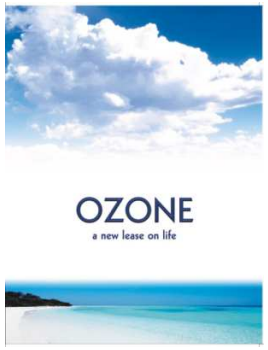


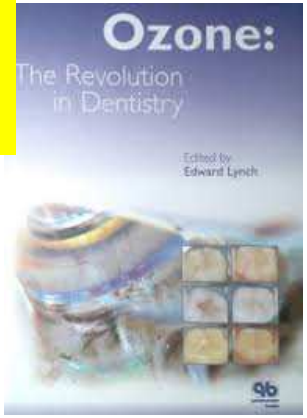






Literatura sobre Ozonioterapia





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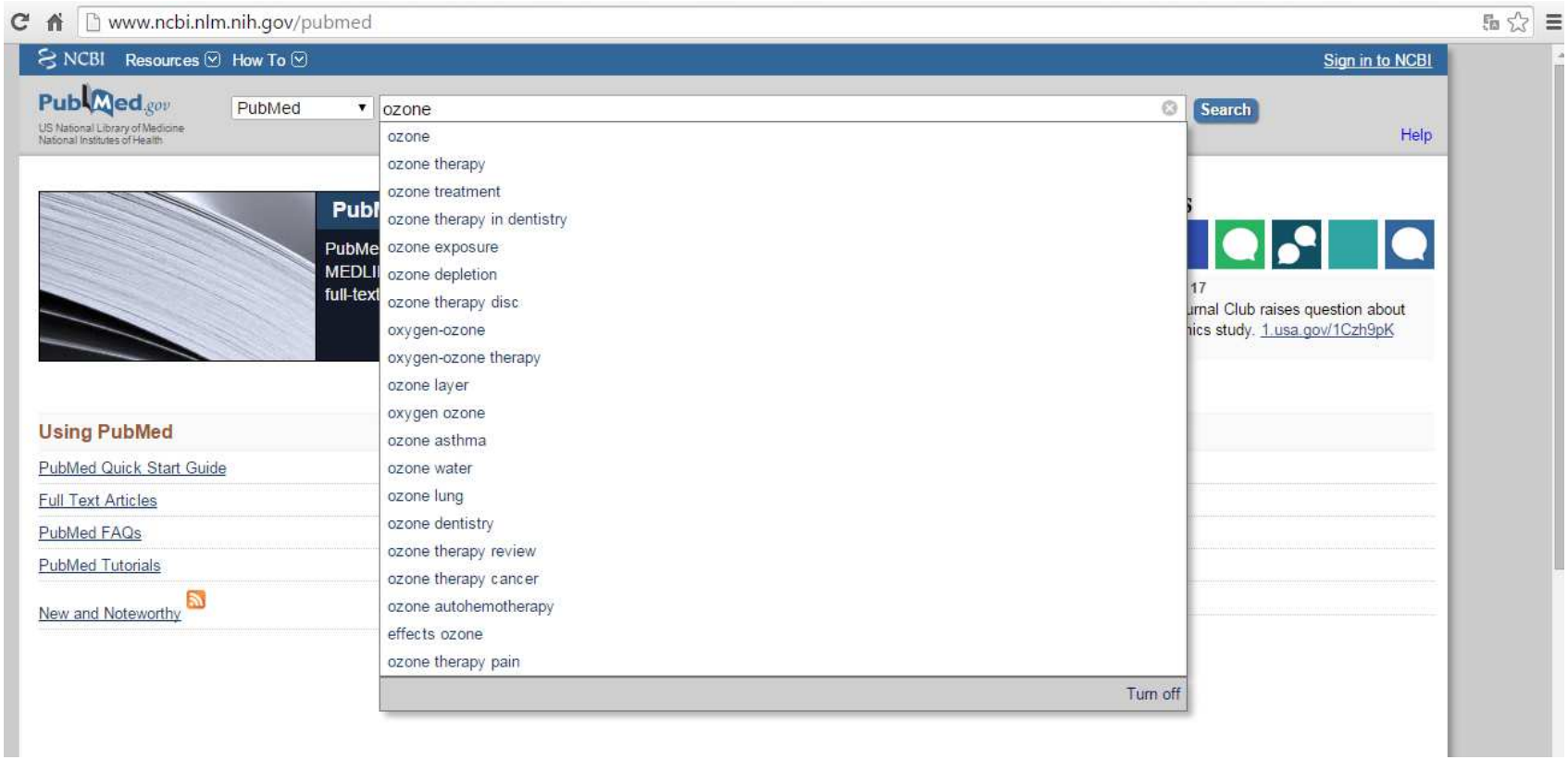
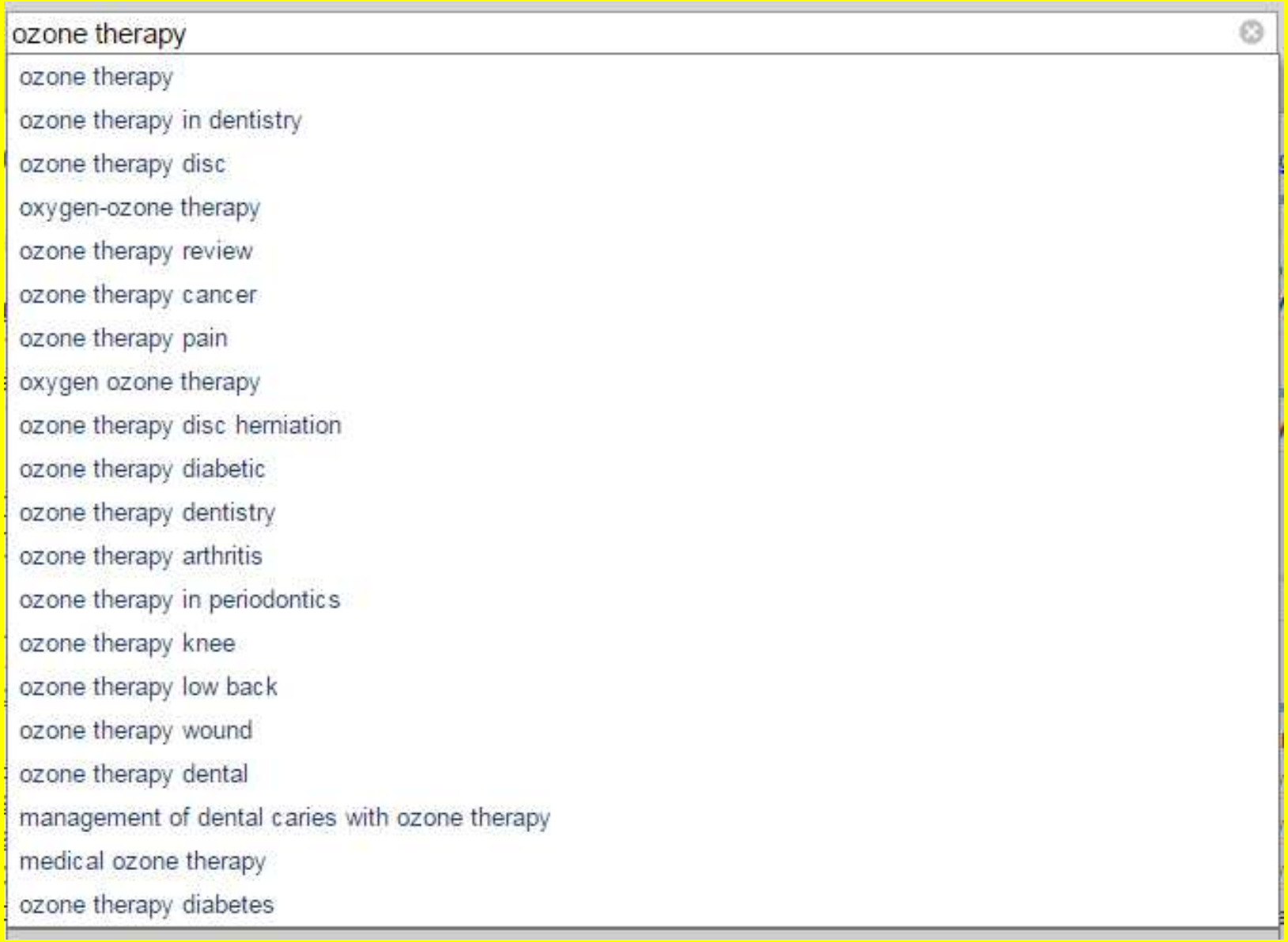
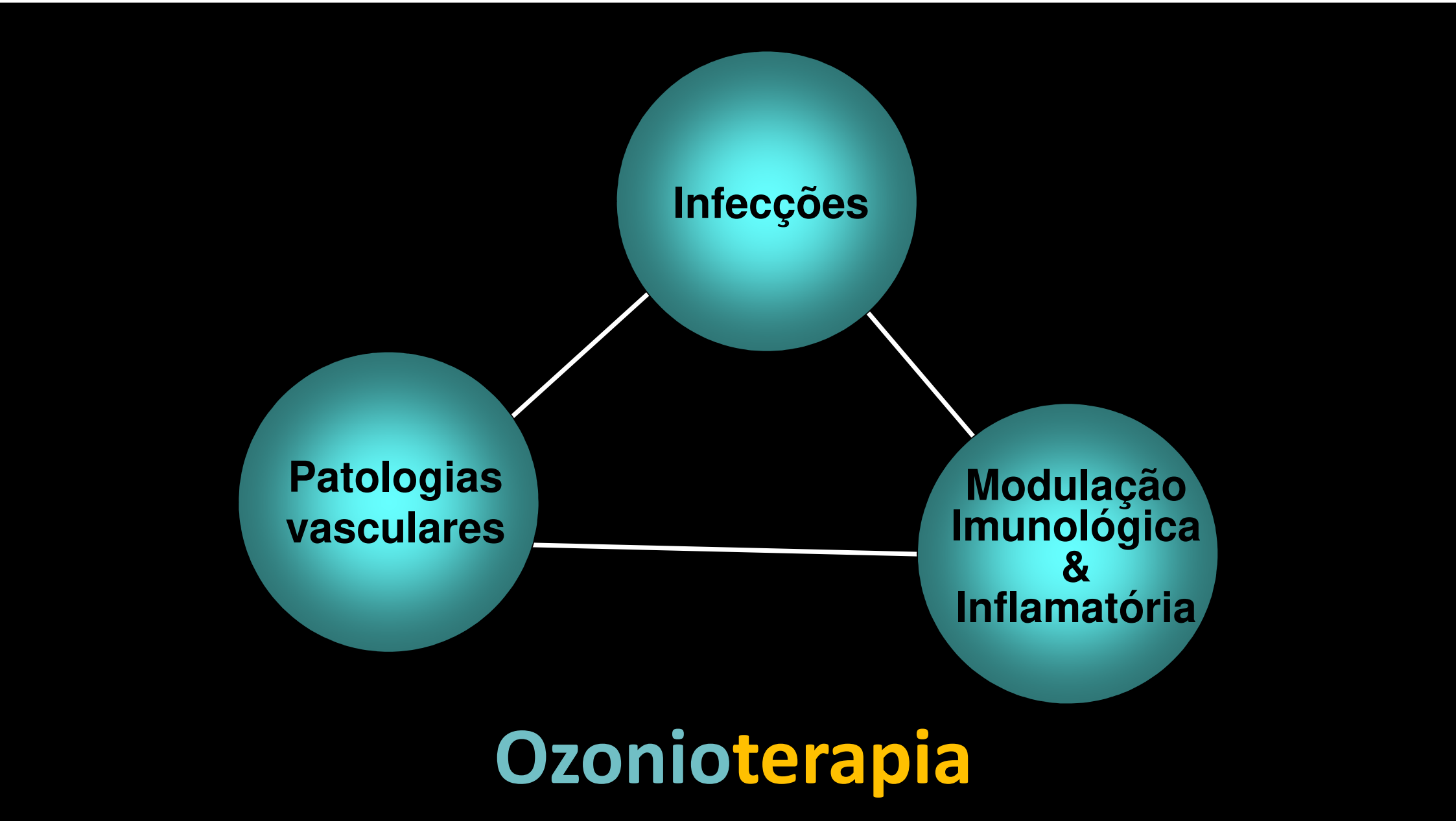
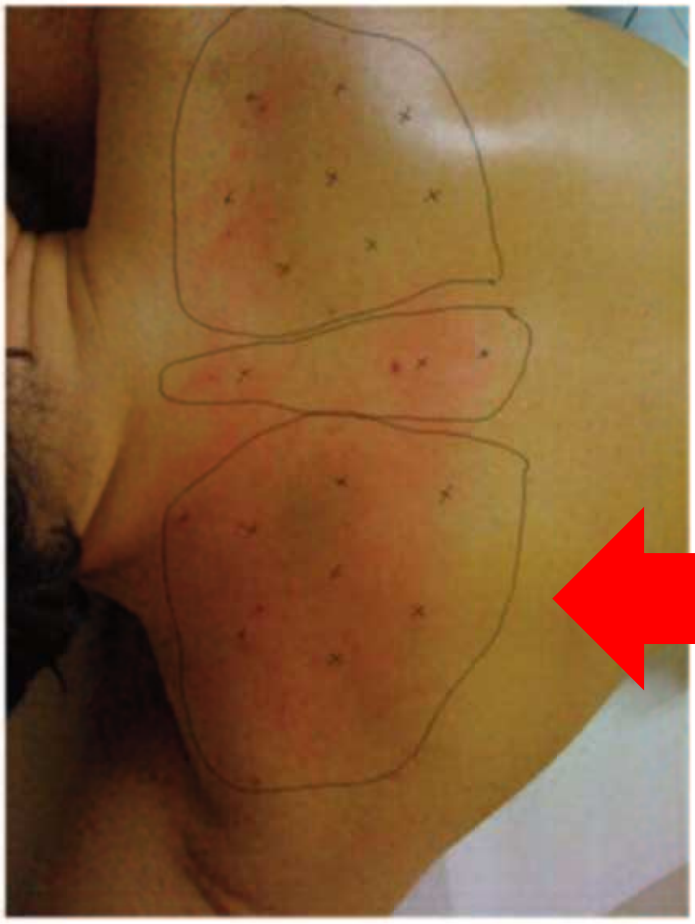
National Library of Medicine NLM

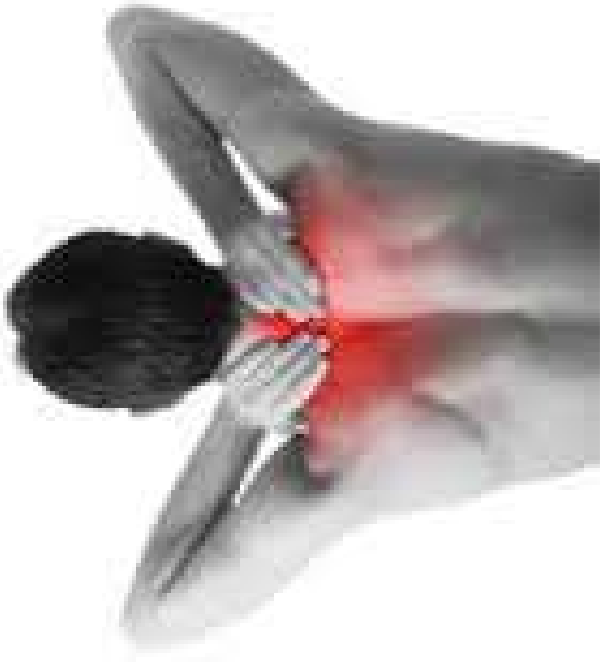



ozone therapy
ozone therapy
ozone therapy in dentistry
ozone therapy disc
oxygen-ozone therapy
ozone therapy review
ozone therapy cancer
ozone therapy pain
oxygen ozone therapy
ozone therapy disc herniation
ozone therapy diabetic
ozone therapy dentistry
ozone therapy arthritis
ozone therapy in periodontics
ozone therapy knee
ozone therapy low back
ozone therapy wound
ozone therapy dental
management of dental caries with ozone therapy
medical ozone therapy
ozone therapy diabetes


Infecções
Patologias vasculares
Modulação Imunológica & Inflamatória
Ozonioterapia

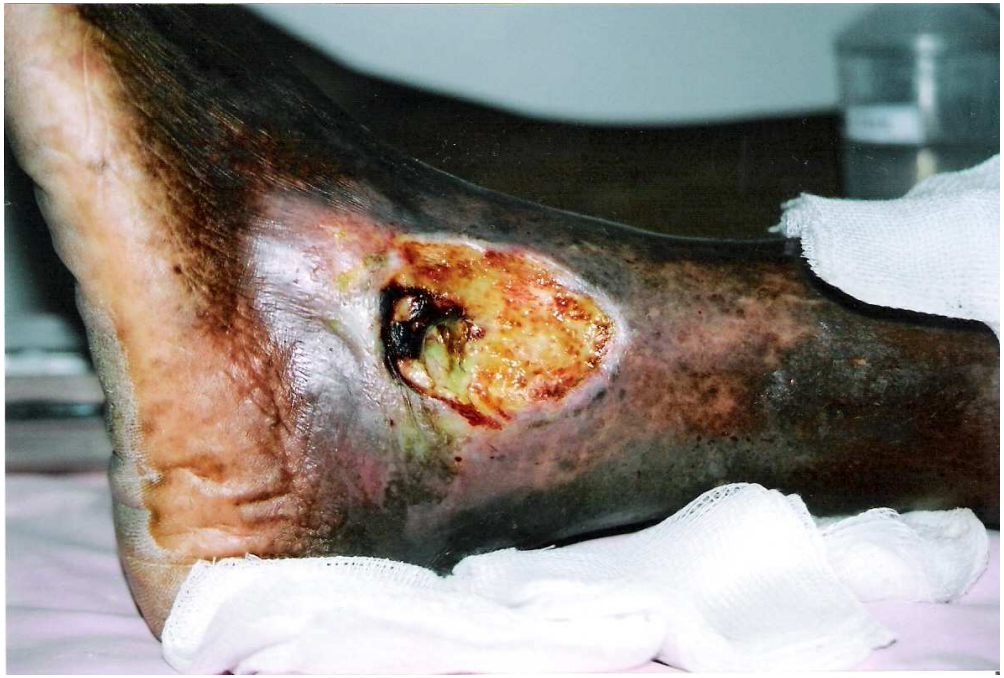
Tratamento de DOR com... Ozonioterapia !



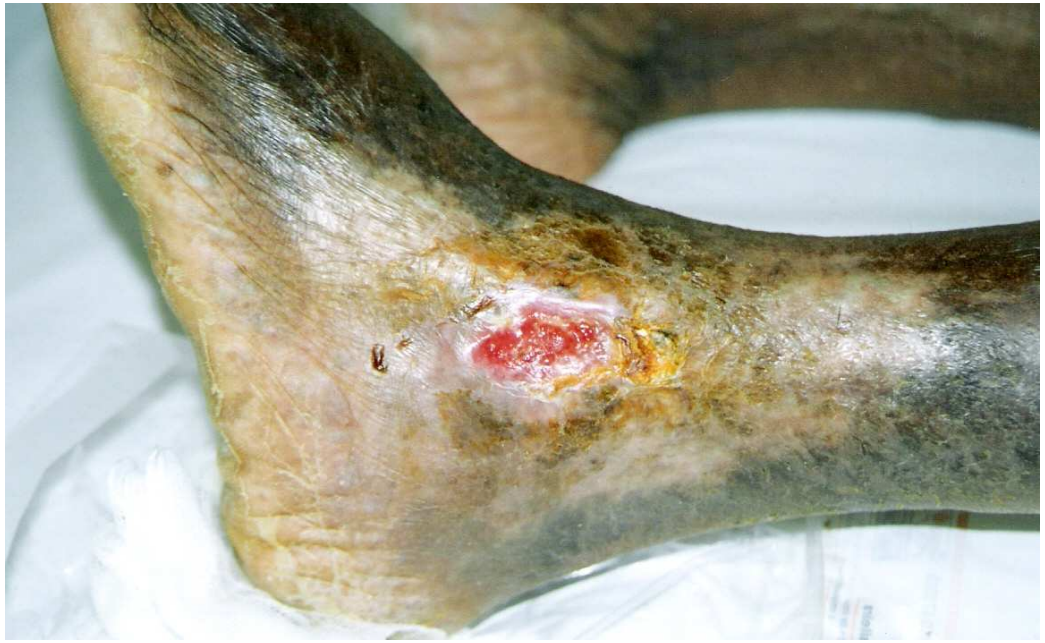


Tratamento de FERIDAS com... Ozonioterapia !

Hidrozonoterapia em Úlcera Venosa

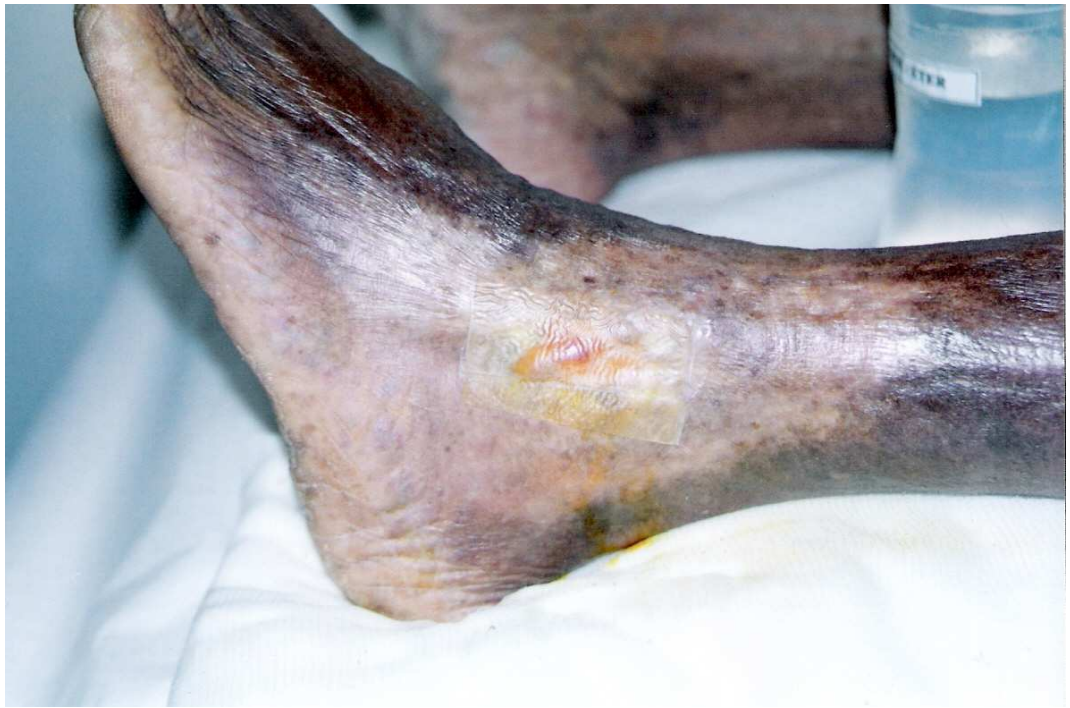


Hidrozonoterapia em Úlcera Venosa



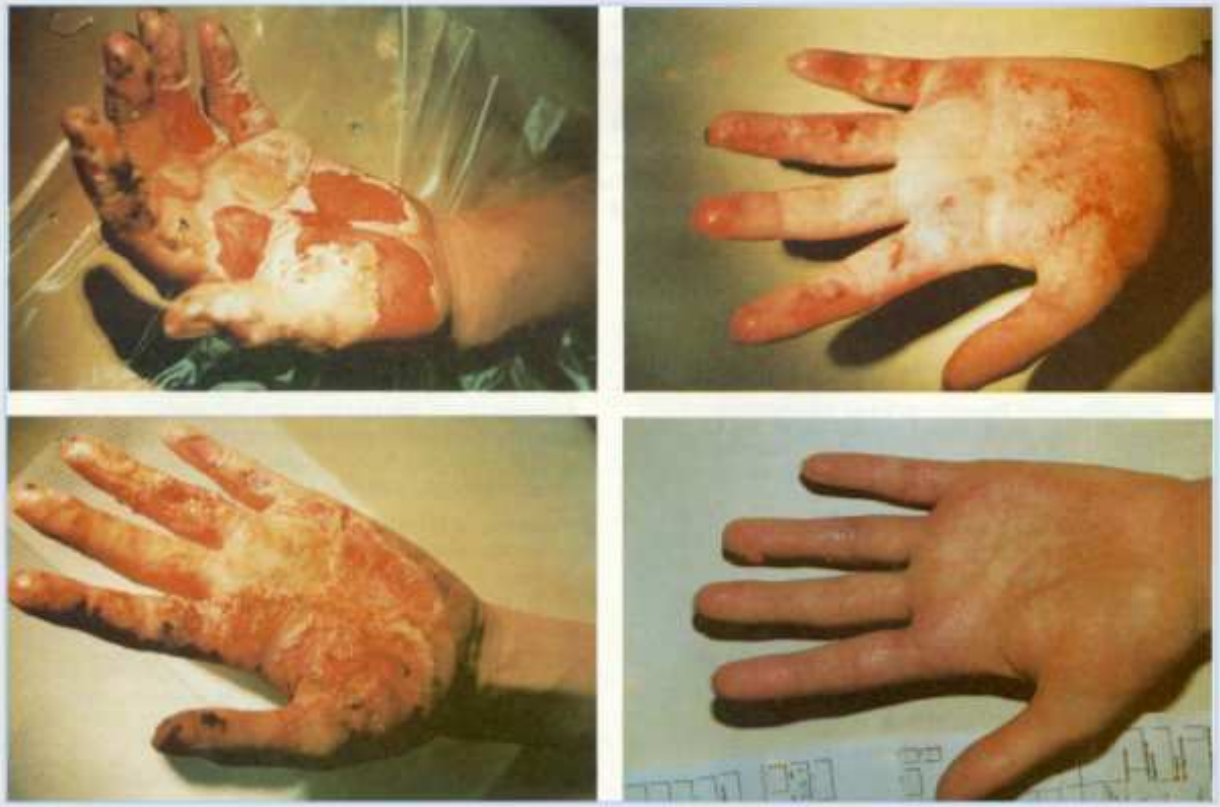
Após 25 dias de tratamento

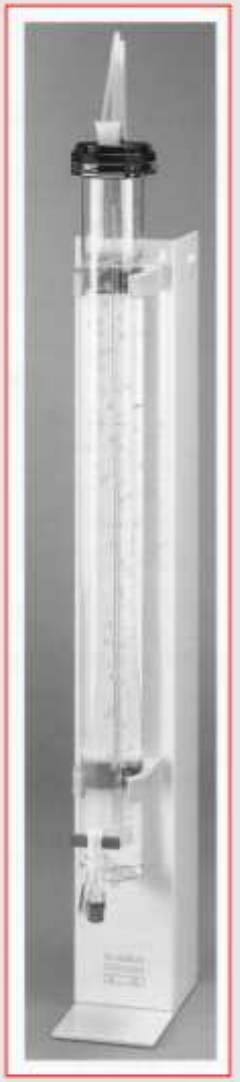
Hidrozonoterapia em Úlcera Venosa



Após 30 dias de tratamento

Água Ozonizada em Queimaduras





Felino, "Jaguatirica", criado em cativeiro no refugio biologico da Itaipu Binacional

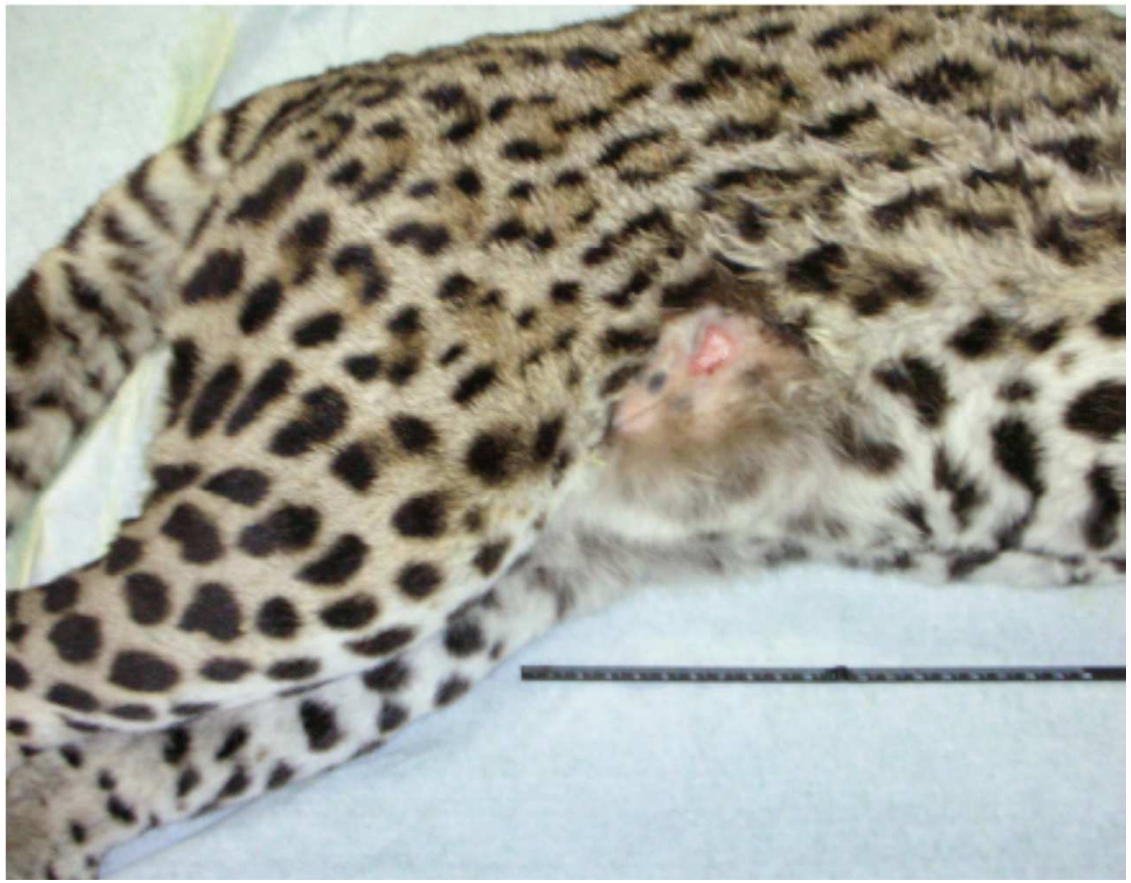
00_2007Jaguatirica 1.jpg

Felino, "Jaguatirica", criado em cativeiro no refugio biologico da Itaipu Binacional

Foto de 12 de julho de 2007.

Lesão que apresentava dificuldades de cicatrização pela ocorrência de fungos e bacterias, persistindo por mais de um ano, já tendo sido efetuadas tentativas com medicações tópicas tradicionais.

02_12 julho2007_002.jpg



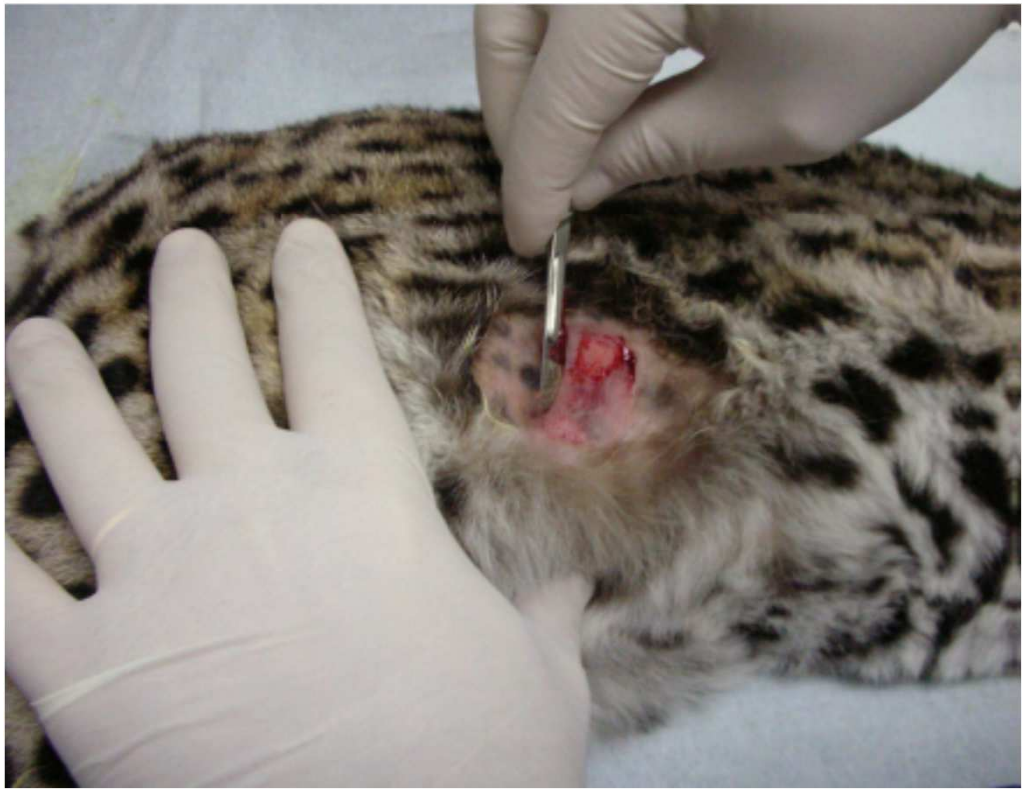
Felino, "Jaguatirica", criado em cativeiro no refugio biologico da Itaipu Binacional

Foto de 12 de julho de 2007.

Lesão que apresentava dificuldades de cicatrização pela ocorrência de fungos e bacterias, persistindo por mais de um ano, já tendo sido efetuadas tentativas com medicações tópicas tradicionais.

Execução de raspagem para melhor assepsia local e posterior aplicação do óleo ozonizado

02_12 julho2007_003.jpg



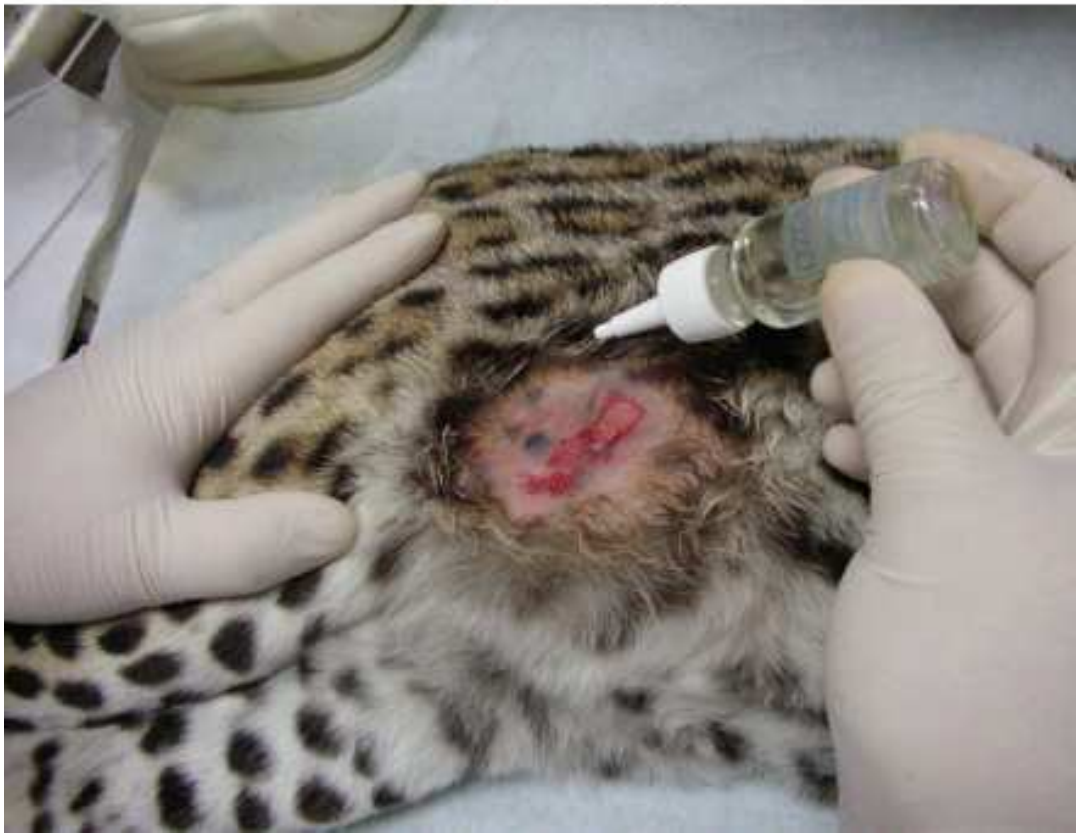
Felino, "Jaguatirica", criado em cativeiro no refugio biologico da Itaipu Binacional

Foto de 12 de julho de 2007.

Lesão que apresentava dificuldades de cicatrização pela ocorrência de fungos e bacterias, persistindo por mais de um ano, já tendo sido efetuadas tentativas com medicações tópicas tradicionais.

Aplicação tópica do óleo ozonizado após assepsia.

02_12 julho2007_004.jpg



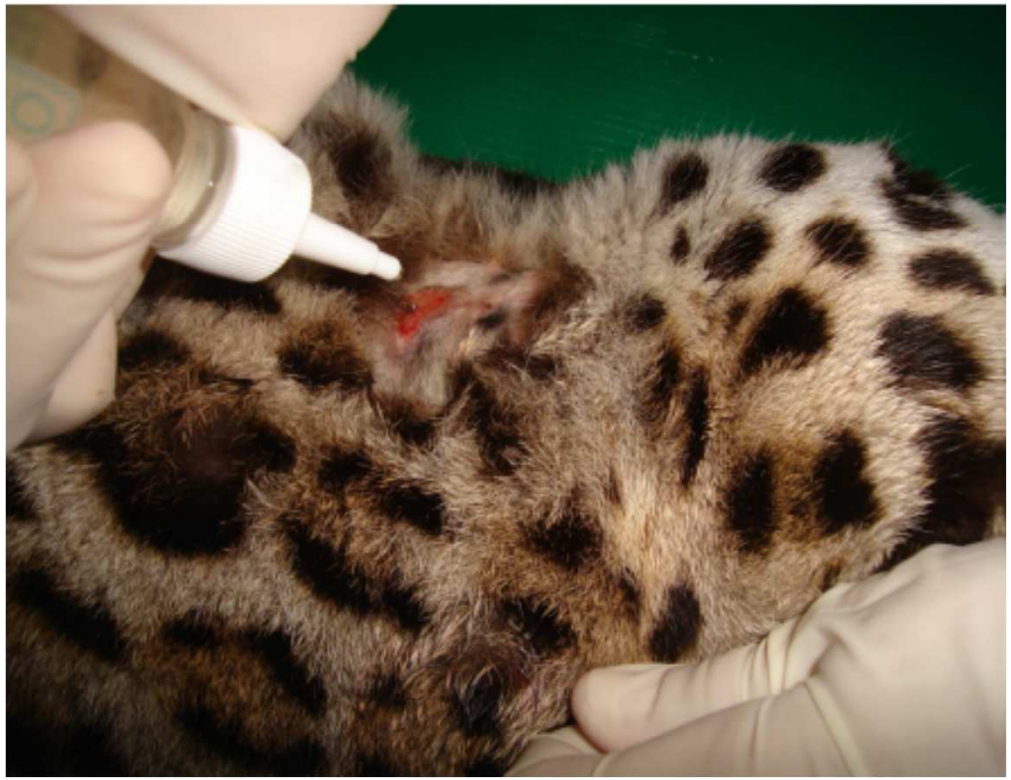
15 dias depois...

Felino, "Jaguatirica", criado em cativeiro no refugio biologico da Itaipu Binacional

Foto de 27 de julho de 2007.

Re-aplicação tópica do óleo ozonizado, 15 dias após primeira aplicação.
Observa-se redução da area lesionada e crescimemto de pelos e regiões anteriormente com ausência de pelagem.

03_27julho2007_03.jpg



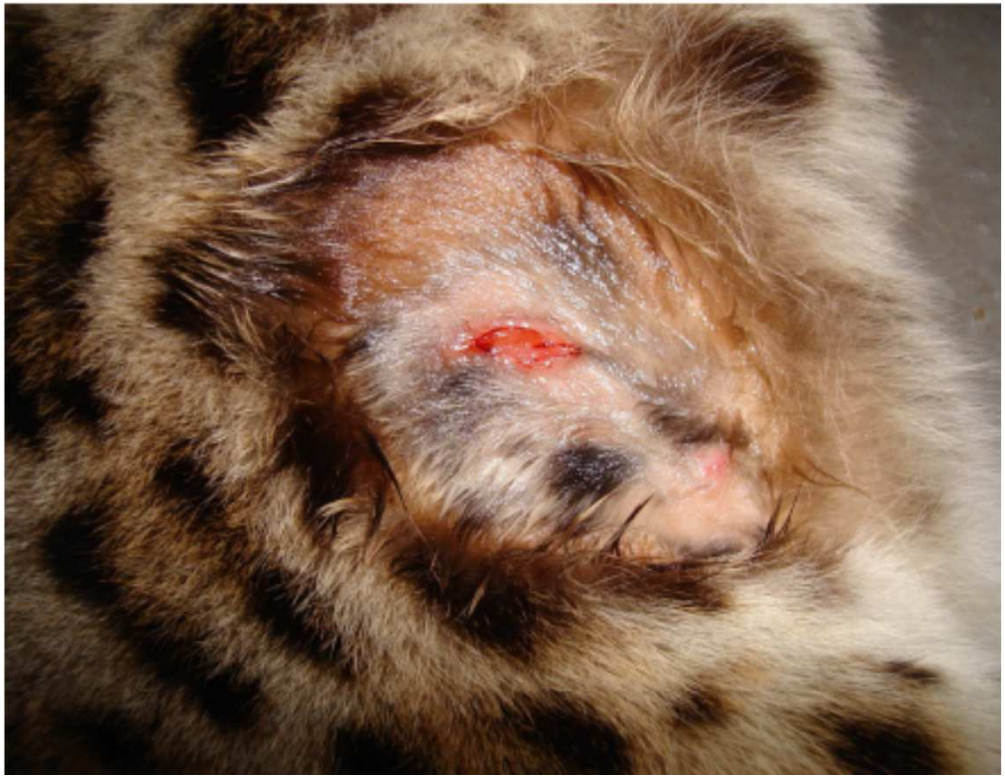
15 dias depois...

Felino, "Jaguatirica", criado em cativeiro no refugio biologico da Itaipu Binacional

Foto de 27 de julho de 2007.

Re-aplicação tópica do óleo ozonizado, 15 dias após primeira aplicação.
Observa-se redução da area lesionada e crescimemto de pelos e regiões anteriormente com ausência de pelagem.

03_27julho2007_04.jpg



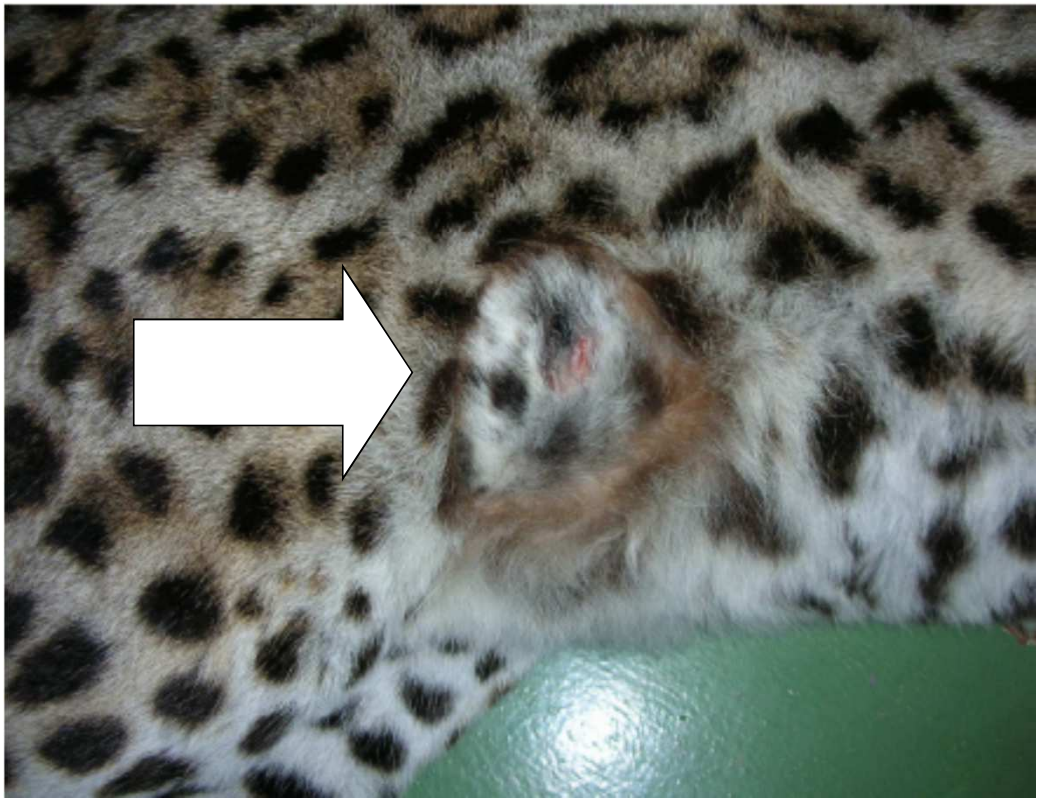
25 dias depois...

Felino, "Jaguatirica", criado em cativeiro no refugio biologico da Itaipu Binacional

Foto de 06 de agosto de 2007.

Re-aplicação tópica do óleo ozonizado, 25 dias após primeira aplicação.
Observa-se recuperação já quase total da lesão e da pelagem, com sinais claros de vitalidade da pele e da cicatrização ja em fase final.

04_2007agosto06_01.jpg



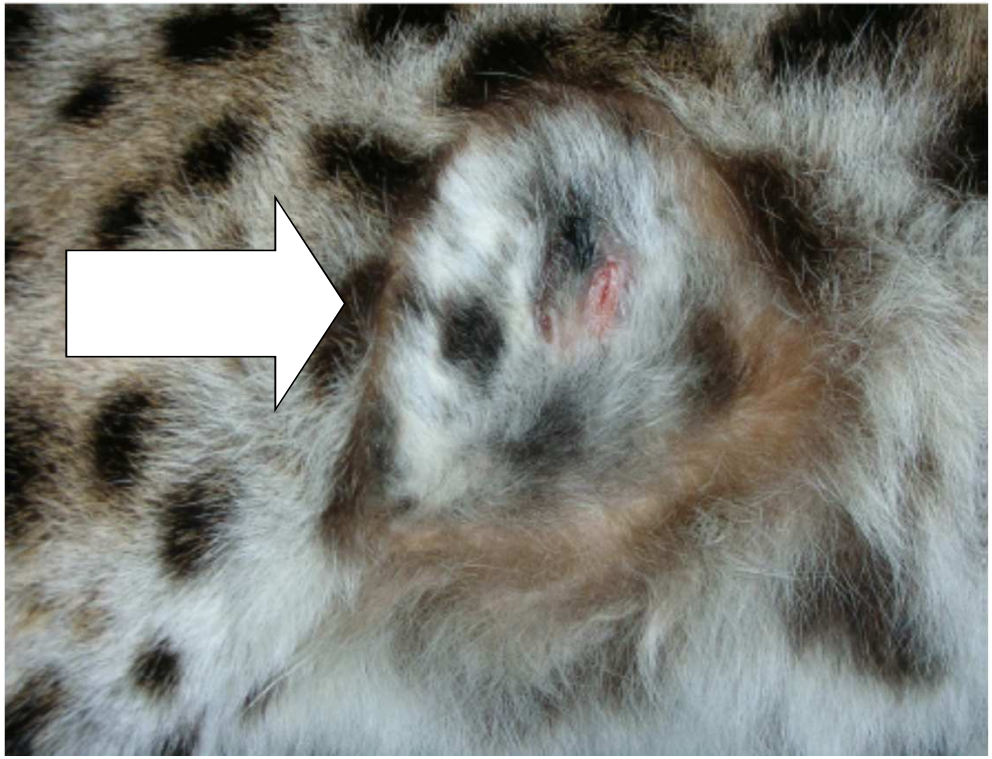
25 dias depois...

Felino, "Jaguatirica", criado em cativeiro no refugio biologico da Itaipu Binacional

Foto de 06 de agosto de 2007.

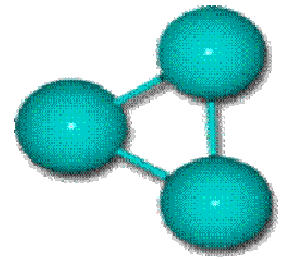
Re-aplicação tópica do óleo ozonizado, 25 dias após primeira aplicação.
Observa-se recuperação já quase total da lesão e da pelagem, com sinais claros de vitalidade da pele e da cicatrização ja em fase final.

04_2007agosto06_03.jpg

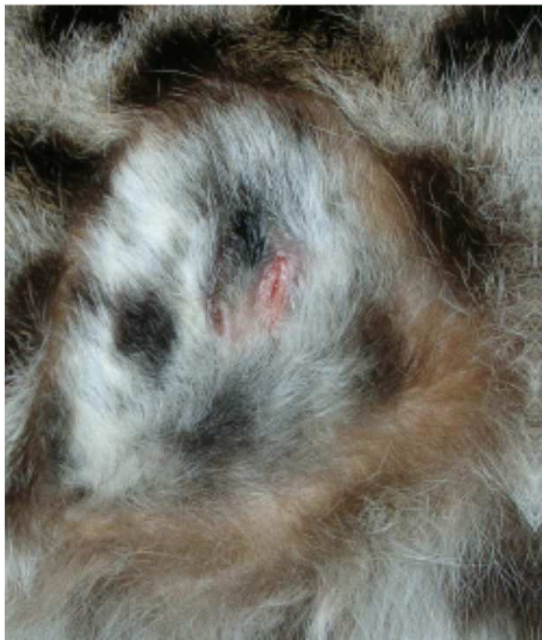


OZONIOTERAPIA

02_12 julho2007_002.jpg



04_2007agosto06_03.jpg

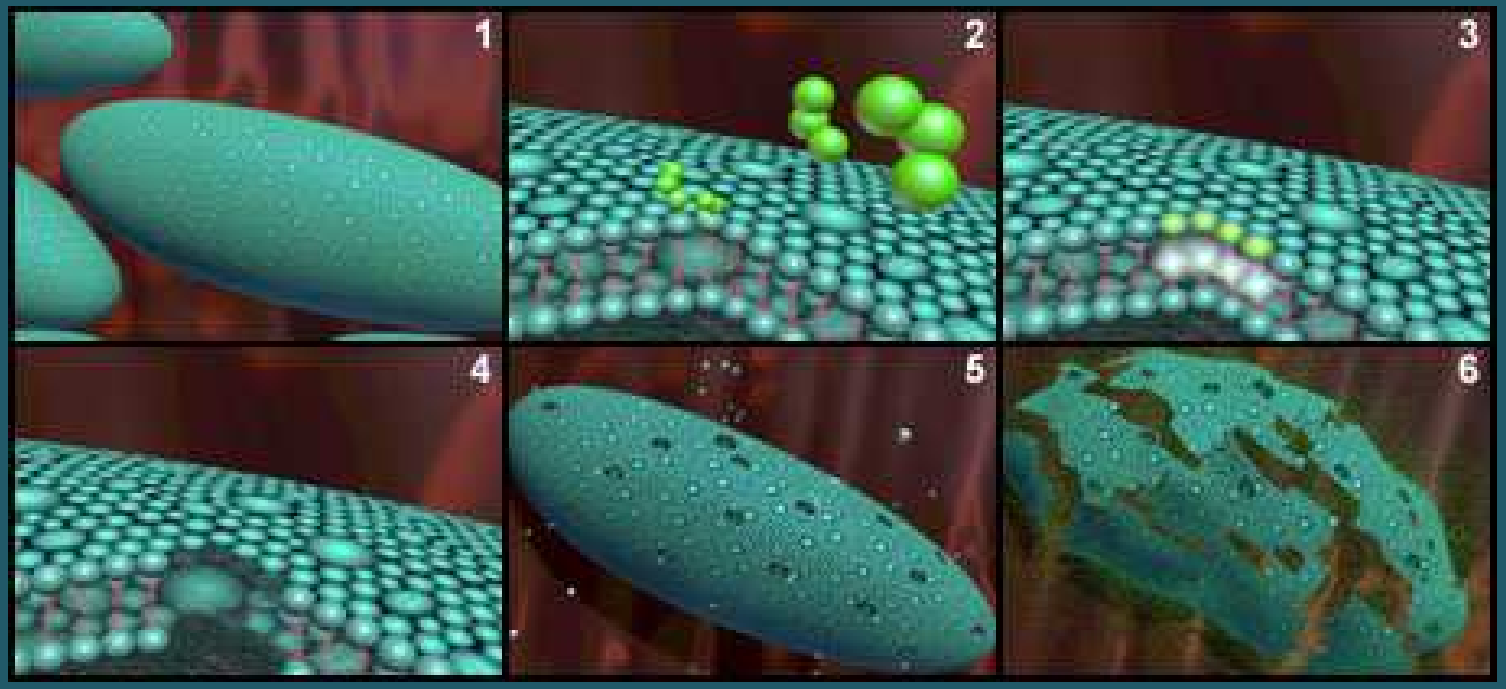


Tratamento de INFECÇÕES com... Ozonioterapia !

Ozônio e Ação Antimicrobiana

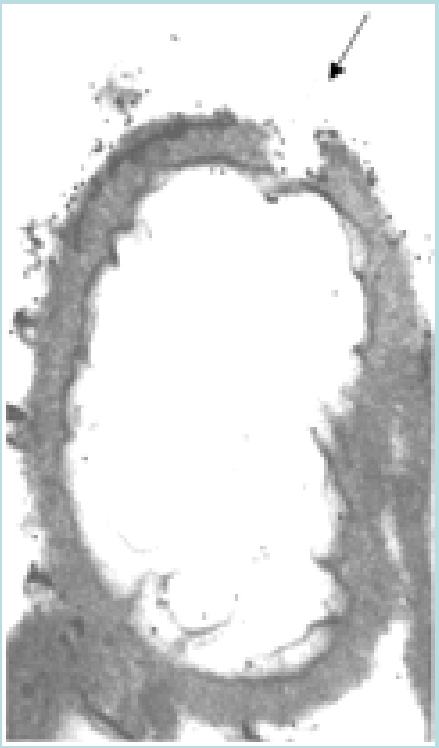
Potente ação microbicida do ozônio a nível local (tópico) em funcão da sua ação oxidante.

Bactericida, fungicida e inativação viral (viruscida/virustático).



1. Bactéria intacta
2. Ozônio tópico entra em contato com a membrana celular bacteriana
3. Ozônio (e seus peróxidos) penetram a membrana celular bacteriana
4. Ruptura da membrana celular bacteriana começa
5. Membrana celular bacteriana perde a integridade
6. Bactéria rompe devido ao ozônio aplicado topicamente

Eletronic Photomicrography of Bacterial Membrane Lesion by Ozone



By WENTWORTH *ET AL*
Science, November 2003.

EFEITO BACTERICIDA DO GÁS OZÔNIO

Fontes et al. BMC Infectious Diseases 2012, 12:358
http://www.biomedcentral.com/1471-2334/12/358

BMC Infectious Diseases

RESEARCH ARTICLE Open Access

Effect of low-dose gaseous ozone on pathogenic bacteria

Belchor Fontes[1], Ana Maria Cattani Heimbecker[2], Glacus de Souza Brito[3], Silvia F Costa[4], Inneke M van der Heijden[5], Anna S Levin[6*] and Samir Rasslan[7]

Abstract

Background: Treatment of chronically infected wounds is a challenge, and bacterial environmental contamination is a growing issue in infection control. Ozone may have a role in these situations. The objective of this study was to determine whether a low dose of gaseous ozone/oxygen mixture eliminates pathogenic bacteria cultivated in Petri dishes.

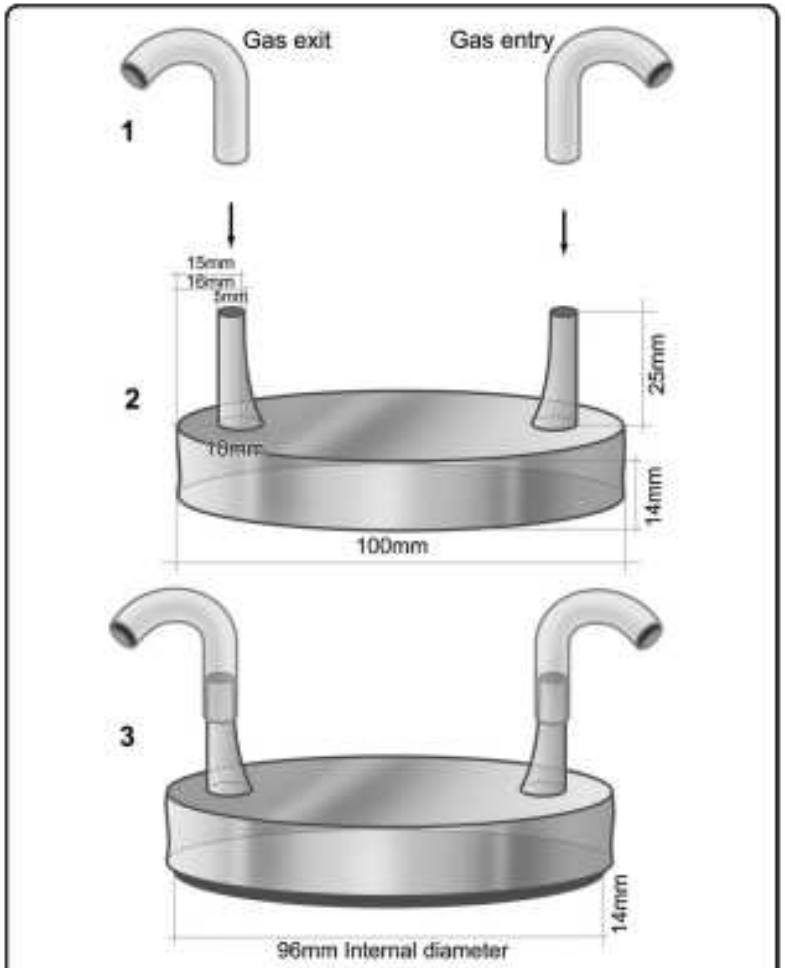
Methods: A pilot study with 6 bacterial strains was made using different concentrations of ozone in an ozone-oxygen mixture to determine a minimally effective dose that completely eliminated bacterial growth. The small and apparently bactericidal gaseous dose of 20 μg/mL ozone/oxygen (1:99) mixture, applied for 5 min under atmospheric pressure was selected. In the 2nd phase, eight bacterial strains with well characterized resistance patterns were evaluated *in vitro* using agar-blood in adapted Petri dishes (10^5 bacteria/dish). The cultures were divided into 3 groups: 1- ozone-oxygen gaseous mixture containing 20 μg of O_3/mL for 5 min; 2- 100% oxygen for 5 min; 3- baseline: no gas was used.

Results: The selected ozone dose was applied to the following eight strains: *Escherichia coli*, oxacillin-resistant *Staphylococcus aureus*, oxacillin-susceptible *Staphylococcus aureus*, vancomycin-resistant *Enterococcus faecalis*, extended-spectrum beta-lactamase-producing *Klebsiella pneumoniae*, carbapenem-resistant *Acinetobacter baumannii*, *Acinetobacter baumannii* susceptible only to carbapenems, and *Pseudomonas aeruginosa* susceptible to imipenem and meropenem. All isolates were completely inhibited by the ozone-oxygen mixture while growth occurred in the other 2 groups.

Conclusion: A single topical application by nebulization of a low ozone dose completely inhibited the growth of all potentially pathogenic bacterial strains with known resistance to antimicrobial agents.

Keywords: Ozone, Resistant bacteria, *in vitro* study

Glacus de Brito



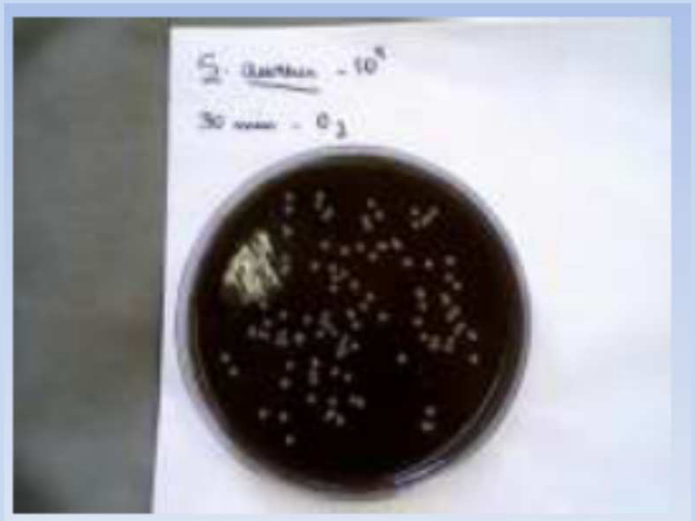
1 – Silicone tubes for gas entry and exit
2 – Petri dish cover adapted with tips for gas entry and exit
3 – Mounted petri dish: cover + base + tips

Figure 1 Schematic representation of adapted Petri dish with the addition of two special tips in order to allow continuous gas entry and exit.

BACTÉRIAS ESTUDADAS

- *1.Staphylococcus aureus resistente oxacilina*
- *2.Staphylococcus aureus sensível à oxacilina*
- *3.Pseudomonas aeruginosa resistente a Imipenem ou meropenem,*
- *4.Pseudomonas aeruginosa sensível a cefalosporinas*
- *5.Enterococcus faecalis resistente à vancomicina*
- *6.Klebsiella pneumoniae ESBL negativo sensível apenas à carbepenens*
- *7.Klebsiella pneumoniae ESBL positivo sensível apenas a carbepenens*
- *8.Acinetobacter resistente a carbepenens*
- *9.Acinetobacter sensível a carbepenens*
- *10.Enterobacter resistente a carbapenens*

CULTURA DE S. AUREUS



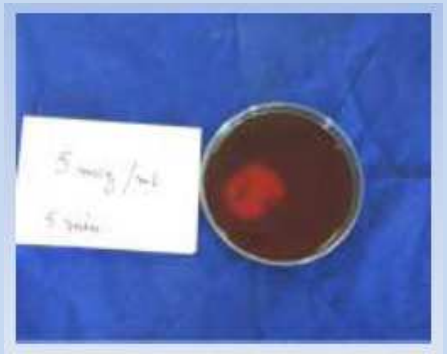
Oxigênio - 30 minutos
NÃO inibe o crescimento bacteriano

Glacus Brito

EFEITO BACTERICIDA DO GÁS OZÔNIO – USO TÓPICO

Ozônio (gás) – aplicação tópica - 30 minutos
INIBE COMPLETAMENTE o crescimento bacteriano
MESMO com concentrações
extremamente baixas

Glacus Brito



Ozônio a 5 mcg/ml

Ozônio a 2,5 mcg/ml

Ozônio a 1,2 mcg/ml

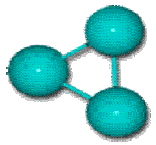
Ozônio Oxigênio

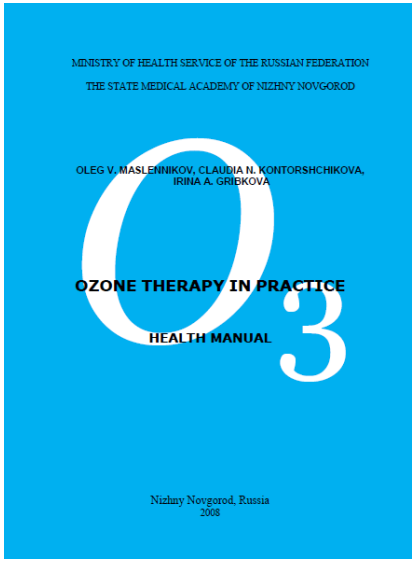
Table 2 Bacterial *in vitro* growth, at 24 hours and 48 hours, of isolates submitted to an O_3/O_2 gaseous mixture (O_3 group), to 100% O_2 (O_2 group) and not submitted to gas treatment (Baseline group)

Bacterial strains	Culture duration	CFU / dish											
		O_3 Group				O_2 Group				Baseline Group			
		Plates (P)				Plates (P)				Plates (P)			
		P1	P2	P3	P4	P1	P2	P3	P4	P1	P2	P3	P4
1= *Escherichia coli* – ATCC:25922	24 h	0	0	0	0	83	68	59	73	58	66	65	76
	48 h	0	0	0	0	78	69	58	61	57	68	62	80
2= *Staphylococcus aureus* resistant to oxacillin –ATCC:29213	24 h	0	0	0	0	94	81	80	55	98	83	104	95
	48 h	0	0	0	0	88	74	85	49	75	89	104	90
3= *Staphylococcus aureus* susceptible to oxacillin – ATCC:25923	24 h	0	0	0	0	72	45	82	68	65	44	91	76
	48 h	0	0	0	0	70	47	75	69	66	39	94	73
4= *Enterococcus faecalis* resistant to vancomycin – ATCC: 51299	24 h	0	0	0	0	69	64	201	75	73	100	105	71
	48 h	0	0	0	0	79	78	207	82	68	97	106	57
5= ESBL producing *Klebsiella pneumoniae* susceptible only to carbapenems –clinical isolate from a patient.	24 h	0	0	0	0	65	75	153	71	87	113	117	80
	48 h	0	0	0	0	68	81	135	69	96	88	108	80
6= *Acinetobacter baumannii* resistant to carbapenem – clinical isolate from a patient.	24 h	0	0	0	0	226	205	201	162	158	165	159	206
	48 h	0	0	0	0	214	196	171	137	135	162	130	185
7= *Acinetobacter baumannii* susceptible only to carbapenem – ATCC:19606	24 h	0	0	0	0	70	60	58	70	63	65	63	67
	48 h	0	0	0	0	69	61	52	63	65	69	62	64
8= *Pseudomonas aeruginosa* susceptible to imipenem and meropenem-ATCC:27853	24 h	0	0	0	0	155	68	138	94	82	85	88	65
	48 h	0	0	0	0	110	79	97	94	83	72	66	69

ESBL: Extended-spectrum beta-lactamase; CFU: Colony-forming units; each experiment was repeated 4 times (Plates: P1 to P4).

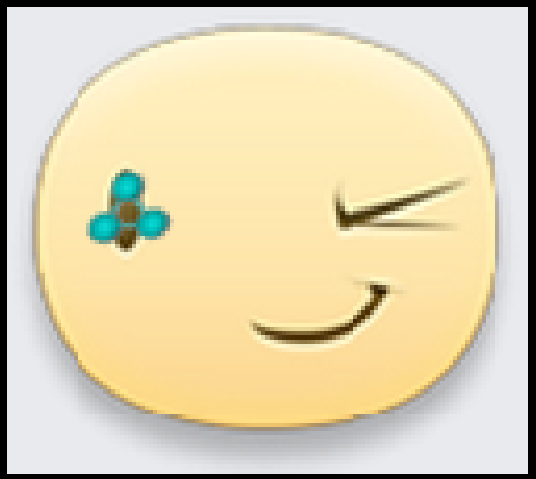
ÁGUA OZONIZADA E GASTRITE





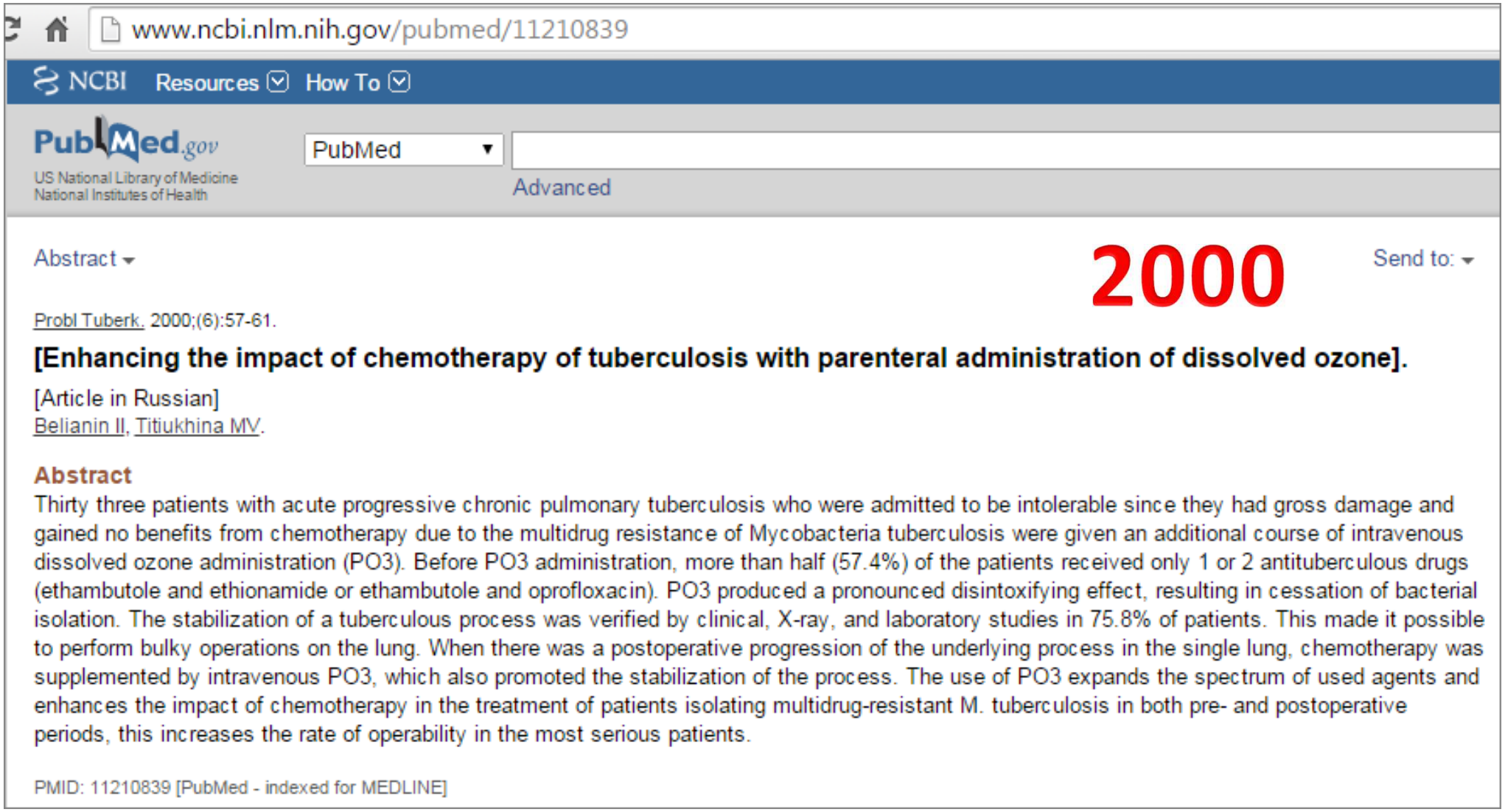
Meio copo 3x/dia por 2 semanas (Rússia):

- Aumenta a altura do epitélio gástrico
- Aumenta a atividade da mucosa gástrica
- Melhora da microcirculação do estômago
- Reduz a inflamação
- Regride a gastrite



Ozônio tem ação germicida contra 100% das bactérias e não induz resistência bacteriana, como pode ocorrer com os antibióticos.

Ozônio tem ação bactericida INCLUSIVE contra o bacilo da tuberculose, aumentando a eficiência do tratamento convencional.



Tuberculose – Ozonioterapia complementar

Tratamento de AUTISMO com... Ozonioterapia !


O3
Ozônio
e suas aplicações na promoção da saúde
de pacientes dentro do Espectro Autista
6 e 7 de junho de 2015
Belo Horizonte - MG
Sábado de 9h às 18h. Domingo de 8h às 12h
Ozônio e neurocognição. Apresentação de casos. Ação do ozônio no organismo de um paciente com autismo. Experiência em Cuba. Experiência na Itália. Ozonioterapia, o que é? Como fazer? Ganhos esperados. Ozonioterapia no Brasil
Inscrições: www.benu.com.br/loja/departamentos/EVENTOS
Público-alvo: médicos, profissionais da saúde, familiares (desconto para familiares)
Investimento: R$ 500,00. Informações: contato@benu.com.br .
Telefones: (31) 75930299 - (31) 84049489 - (31) 91132568 - (31) 37851090
ORGANIZAÇÃO: BENU
APOIO: unibh ABOZ

Associação Brasileira de Ozonioterapia

ASSOCIAÇÃO BRASILEIRA DE OZONIOTERAPIA

Projeto nOOOcaut – Versão Oficial

Tabela para Insuflação Retal em Autismo e TEA - Peso x Idade

Ciclo com 40 sessões (3 meses)

nOOOcaut	1ª semana 5x/semana	2ª semana 5x/semana	3ª semana 5x/semana	4ª semana 5x/semana	5 a 8ª semana 3x/semana	9 a 12ª semana 2x/semana
3 kg - 0,16 a 0,28 mg	20 mcg / 8 ml	25 mcg / 8 ml	30 mcg / 8 ml	35 mcg / 8 ml	35 mcg / 8 ml	35 mcg / 8 ml
4 kg - 0,20 a 0,35 mg	20 mcg / 10 ml	25 mcg / 10 ml	30 mcg / 10 ml	35 mcg / 10 ml	35 mcg / 10 ml	35 mcg / 10 ml
5 kg - 0,24 a 0,42 mg	20 mcg / 12 ml	25 mcg / 12 ml	30 mcg / 12 ml	35 mcg / 12 ml	35 mcg / 12 ml	35 mcg / 12 ml
6 kg - 0,30 a 0,52 mg	20 mcg / 15 ml	25 mcg /15 ml	30 mcg / 15 ml	35 mcg / 15 ml	35 mcg / 15 ml	35 mcg / 15 ml
7 kg - 0,34 a 0,59 mg	20 mcg / 17 ml	25 mcg / 17 ml	30 mcg / 17 ml	35 mcg / 17 ml	35 mcg / 17 ml	35 mcg / 17 ml
8 kg - 0,40 a 0,70 mg	20 mcg / 20 ml	25 mcg / 20 ml	30 mcg / 20 ml	35 mcg / 20 ml	35 mcg / 20 ml	35 mcg / 20 ml
9 kg - 0,44 a 0,77 mg	20 mcg / 22 ml	25 mcg / 22 ml	30 mcg / 22 ml	35 mcg / 22 ml	35 mcg / 22 ml	35 mcg / 22 ml
10 kg - 0,50 a 0,62 mg	20 mcg / 25 ml	25 mcg / 25 ml	30 mcg / 25 ml	35 mcg / 25 ml	35 mcg / 25 ml	35 mcg / 25 ml
nOOOcaut	1ª semana 5x/semana	2ª semana 5x/semana	3ª semana 5x/semana	4ª semana 5x/semana	5 a 8ª semana 3x/semana	9 a 12ª semana 2x/semana
11 kg - 0,54 a 0,94 mg	20 mcg / 27 ml	25 mcg / 27 ml	30 mcg / 27 ml	35 mcg / 27 ml	35 mcg / 27 ml	35 mcg / 27 ml
12 kg - 0,58 a 1,01 mg	20 mcg / 29 ml	25 mcg / 29 ml	30 mcg / 29 ml	35 mcg / 29 ml	35 mcg / 29 ml	35 mcg / 29 ml
13 kg - 0,64 a 1,12 mg	20 mcg / 32 ml	25 mcg / 32 ml	30 mcg / 32 ml	35 mcg / 32 ml	35 mcg / 32 ml	35 mcg / 32 ml
14 kg - 0,68 a 1,19 mg	20 mcg / 34 ml	25 mcg / 34 ml	30 mcg / 34 ml	35 mcg / 34 ml	35 mcg / 34 ml	35 mcg / 34 ml
15 kg - 0,72 a 1,26 mg	20 mcg / 36 ml	25 mcg / 36 ml	30 mcg / 36 ml	35 mcg / 36 ml	35 mcg / 36 ml	35 mcg / 36 ml
16 kg - 0,76 a 1,33 mg	20 mcg / 38 ml	25 mcg / 38 ml	30 mcg / 38 ml	35 mcg / 38 ml	35 mcg / 38 ml	35 mcg / 38 ml
17 kg - 0,82 a 1,43 mg	20 mcg / 41 ml	25 mcg / 41 ml	30 mcg / 41 ml	35 mcg / 41 ml	35 mcg / 41 ml	35 mcg / 41 ml
18 kg - 0,86 a 1,50 mg	20 mcg / 43 ml	25 mcg / 43 ml	30 mcg / 43 ml	35 mcg / 43 ml	35 mcg / 43 ml	35 mcg / 43 ml
19 kg - 0,92 a 1,61 mg	20 mcg / 46 ml	25 mcg / 46 ml	30 mcg / 46 ml	35 mcg / 46 ml	35 mcg / 46 ml	35 mcg / 46 ml
20 kg - 0,96 a 1,68 mg	20 mcg / 48 ml	25 mcg / 48 ml	30 mcg / 48 ml	35 mcg / 48 ml	35 mcg / 48 ml	35 mcg / 48 ml

Tratamento de CÂNCER com... Ozonioterapia !

Ozone: Science and Engineering, 30: 398–404

ISSN: 0191-9512 print / 1547-6545 online
DOI: 10.1080/01919510802473724

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Ozone Therapy in Cancer Treatment: State of the Art

Silvia Menéndez,[1] Janet Cepero,[2] and Luis Borrego[3]

[1]Ozone Research Center, Havana, Cuba
[2]National Oncology and Radiobiology Institute, Havana, Cuba
[3]"V. I. Lenin" Provincial Hospital, Holguín, Cuba

Erhlich Ascitic Tumor and Sarcoma 37 were implanted in mice and afterward the animals were treated with ozone (rectally). A significant decrease in the number of metastasis was obtained. In another study, ozone was applied intraperitoneally, before Lewis' lung carcinoma inoculation. A delayed effect in the tumor development kinetics and in the increase rate of tumor volume in the ozone groups was observed. With regard to the clinical trial, patients with prostatic cancer were treated with cobalt-60 therapy and ozone (rectally), decreasing the presence of side effects (due to radiation treatment) and the prostatic specific antigen figures. However, further investigations are necessary to be performed, in order to be considered the ozone therapy as complementary therapy for cancer.

Keywords Ozone, Prostatic Adenocarcinoma, Metastasis, Chemotherapy, Radiotherapy, Lewis' Lung Carcinoma, Sarcoma 37, Erhlich Ascitic Tumor

INTRODUCTION

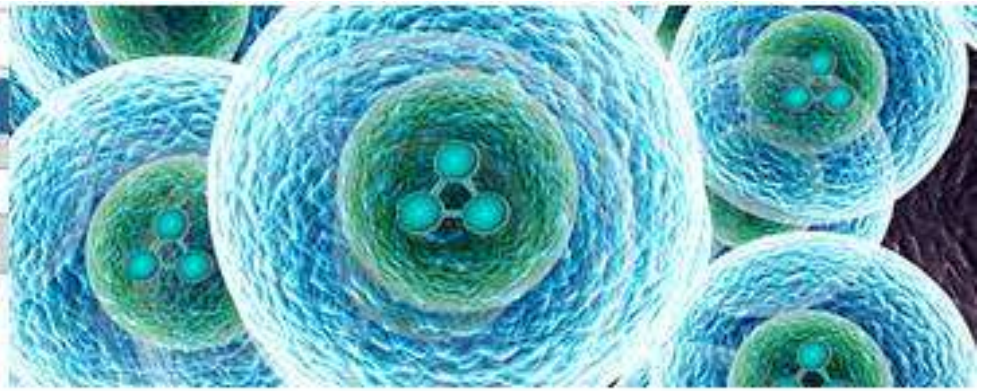
Cancer is the second leading cause of death behind heart disease. However, deaths from heart disease have declined by 45% in the United States since 1950 and continue to decline, while cancer deaths are increasing. In this century, cancer is projected to be the leading cause of death. A report by the WHO foresees that worldwide cancer rates may double by 2020, unless we take stringent measures for promoting a healthy diet, smoking cessation and improved access to viral immunization (Bailar and Gornih, 1997; Levi et al., 1999; Eaton, 2003).

The development of an effective cancer therapy is a major focus of biomedical research (Giovanni et al., 2000). There is a total consensus that, whenever possible, the primary tumor must be surgically removed (or irradiated) because large tumor load or extensive metastases induce cachexia and an anergic state (Tisdale, 2002; Argiles et al., 2003). However, a complete ablation and cure is rare because haematogenous dissemination of tumor cells in the bone marrow can occur at an early stage of the malignancy (Pantel et al., 1999). Thus, we can presume that, even after a successful operation, the patient, at worse, may have a big dissemination of neoplastic cells that, after overcoming the immunedepression of anesthesia and surgery, may remain dormant or eliminated through the surveillance of the immune system. For that reason, it is not surprising that desperate patients are always looking for other possibilities, particularly in the vast field of complementary medical practices such as diet, nutrition and lifestyle changes, among others (Cassileth and Chapman, 1996; Burstein et al., 1999).

Tumor hypoxia is a well-recognized mechanism for resistance of neoplastic cells to anticancer drugs and radiotherapy. It is also a relevant factor enhancing neoangiogenesis, dedifferentiation and metastasis. Both primary and metastatic tumors thrive in areas where the average pO_2 is lower than normal tissues and the host appears unable to mount a reaction for reestablishing physiological levels (Brahimi-Bruno et al., 2001; Harris, 2002; Subarsky and Hill, 2003).

Neoplasia is a multifactorial process that can be broadly categorized into five etiologies: genetic, viral, chemical, physical and inflammatory. Chemical, physical and inflammatory etiologies are closely linked to reactive oxygen species (ROS), which can readily induce genomic damage (Brauchle et al., 1996; Bauer et al., 1998). Oxygen is required for respiration and the energetic processes that enable aerobic life. Costs associated with oxygen use are ROS formations, which create oxidative stress that has a complex effect on cancer development (Knight, 1995). Under normal physiological conditions, cellular ROS

Received 7/12/2008; Accepted 9/12/2008
Address correspondence to Silvia Menéndez, Ozone Research Center, P. O. Box 6414, Havana, Cuba. E-mail: silviamenendez@infomed.sld.cu



Anticancer Res. 2017 Feb;37(2):425-435.

Possible Therapeutic Effects of Ozone Mixture on Hypoxia in Tumor Development.

Luongo M[1], Brigida AL[2], Mascolo L[2], Gaudino G[2].

Author information

[1]Department of Anesthesiological, Surgical and Emergency Sciences, University of Campania, Naples, Italy margluon@gmail.com.
[2]Department of Anesthesiological, Surgical and Emergency Sciences, University of Campania, Naples, Italy.

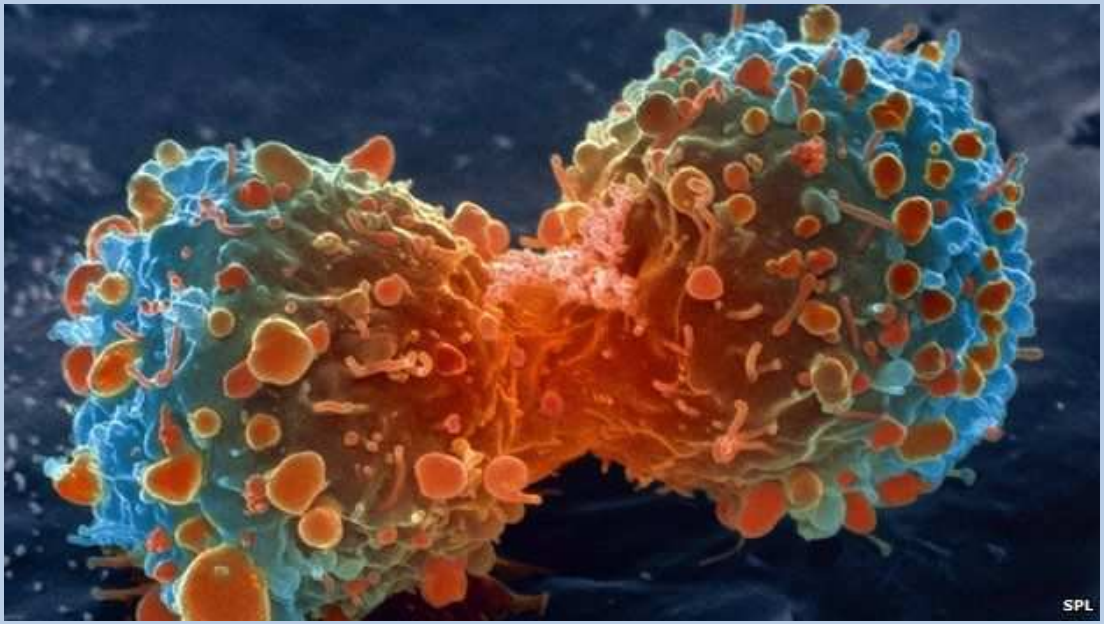
Abstract

Recent literature highlights that ozone therapy could be considered a viable adjuvant therapy in oncological patients receiving radio-chemotherapy. The use of ozone therapy in these patients enhances the action of chemotherapy and at the same time reduces side-effects, such as nausea, vomiting, opportunistic infections, buccal ulcers, hair loss and fatigue. Such positive therapeutic effects of ozone therapy can cause a larger physical and mental wellbeing resulting in improved quality of life. This work reviews the recent acquisition of scientific knowledge regarding the ozone therapy and highlights the molecular and cellular pathways involved.

KEYWORDS: HIF; Ozone; hypoxia; review; tumor

PMID: 28179287 DOI: 10.21873/anticanres.11334

[PubMed - indexed for MEDLINE]



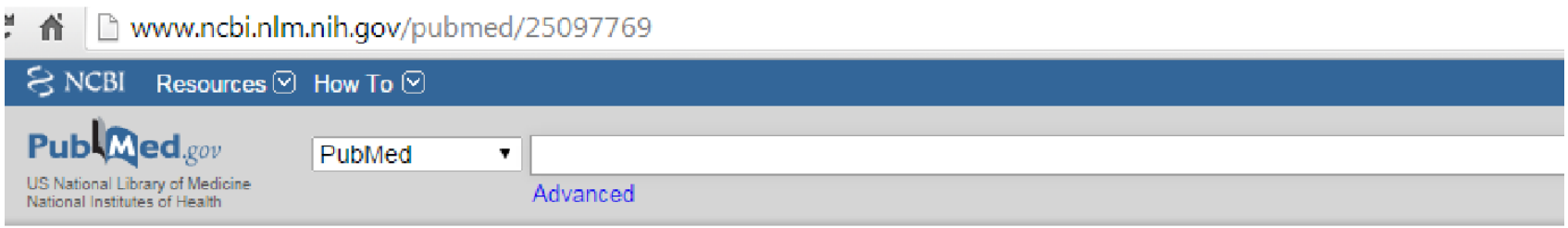
Int. J. Cancer: **122,** 2360–2367 (2008)

Treatment with ozone/oxygen-pneumoperitoneum results in complete remission of rabbit squamous cell carcinomas

Siegfried Schulz[1], Ulrich Häussler[2], Robert Mandic[2], Johannes T. Heverhagen[3], Andreas Neubauer[4], Anja A. Dünne[2], Jochen A. Werner[2], Eberhard Weihe[5] and Michael Bette[5]*

[1]*Veterinary Services and Laboratory Animal Medicine, Philipps University Marburg, Germany*
[2]*Department of Otolaryngology, Head and Neck Surgery, University Hospital Giessen and Marburg, Campus Marburg, Marburg, Germany*
[3]*Department of Diagnostic Radiology, University Hospital Giessen and Marburg, Campus Marburg, Marburg, Germany*
[4]*Department of Haematology, Oncology and Immunology, University Hospital Giessen and Marburg, Campus Marburg, Marburg, Germany*
[5]*Department of Molecular Neuroscience, Institute of Anatomy and Cell Biology, Philipps University Marburg, Germany*


Ozonioterapia reduz
os efeitos colaterais da
Radioterapia e Quimioterapia
e melhora a qualidade de vida.



www.ncbi.nlm.nih.gov/pubmed/25097769

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Complicações de Quimioterapia

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Sultan Qaboos Univ Med J. 2014 Aug;14(3):e342-8. Epub 2014 Jul 24.

Ozone-Oxidative Preconditioning Prevents Doxorubicin-induced Cardiotoxicity in Sprague-Dawley Rats.

Delgado-Roche L[1], Hernández-Matos Y[1], Medina EA[1], Morejón DÁ[1], González MR[2], Martínez-Sánchez G[3].

Author information

Abstract

OBJECTIVES: Induced dilated cardiomyopathy is the main limitation of the anti-cancer drug doxorubicin, which causes oxidative stress and cardiomyocyte death. As ozone therapy can activate the antioxidant systems, this study aimed to investigate the therapeutic efficacy of ozone-oxidative preconditioning against doxorubicin-induced cardiotoxicity.

METHODS: The study was carried out from September 2013 to January 2014. Sprague-Dawley rats were randomly distributed in the following treatment groups: Group 1 were treated with 2 mg/kg intraperitoneal (i.p.) of doxorubicin twice a week for 50 days; Group 2 were treated with 0.3 mg of ozone/oxygen mixture at 50 µg/mL of ozone per 6 mL of oxygen by rectal insufflation and then treated with doxorubicin; Group 3 were treated as Group 2 but only with the oxygen, and Group 4 were treated with oxygen first, and then with sodium chloride i.p. as the control group.

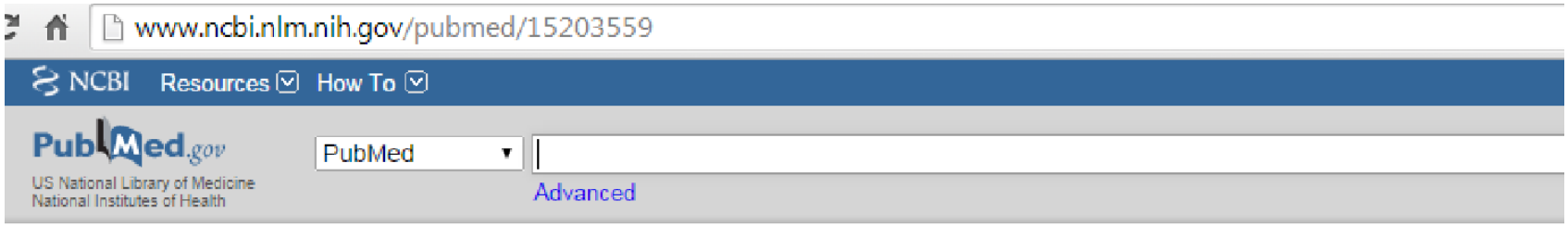
RESULTS: The results showed that ozone therapy preserved left ventricle morphology which was accompanied by a reduction of serum pro-brain natriuretic peptide levels. The cardioprotective effects of ozone-oxidative preconditioning were associated with a significant increase ($P < 0.05$) of antioxidant enzymes activities and a reduction of lipid and protein oxidation ($P < 0.05$).

CONCLUSION: Ozone-oxidative preconditioning prevents doxorubicin-induced dilated cardiomyopathy through an increase of antioxidant enzymes and a reduction of oxidised macromolecules. This establishes the background for future studies to determine if ozone therapy can be used as a complementary treatment for attenuating doxorubicin-induced cardiotoxicity in cancer patients.

KEYWORDS: Cardiotoxins; Dilated Cardiomyopathy; Doxorubicin; Oxidative Stress; Ozone

PMID: 25097769 [PubMed] PMC4117659 Free PMC Article

Cardiotoxicidade



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Complicações de Quimioterapia

Mediators Inflamm. 2004 Feb;13(1):13-9.

Protection by ozone preconditioning is mediated by the antioxidant system in cisplatin-induced nephrotoxicity in rats.

Borrego A[1], Zamora ZB, González R, Romay C, Menéndez S, Hernández F, Montero T, Rojas E.

Author information

Abstract

BACKGROUND: Acute renal failure is a dose-limiting factor of cisplatin chemotherapy. Here, we show the protective effect of ozone oxidative preconditioning against cisplatin-induced renal dysfunction in rats. Ozone oxidative preconditioning is a prophylactic approach, which favors the antioxidant-pro-oxidant balance for preservation of the cell redox state by increasing antioxidant endogenous systems in various in vivo and in vitro experimental models.

AIMS: To analyze the protective role of ozone oxidative preconditioning against cisplatin-induced nephrotoxicity.

METHODS: Male Sprague-Dawley rats were pretreated with 15 intrarectal applications of ozone/oxygen mixture at 0.36, 0.72, 1.1, 1.8 and 2.5 mg/kg before cisplatin intraperitoneal injection (6 mg/kg). Serum and kidneys were extracted and analyzed 5 days after cisplatin treatment for determinations of the renal content of glutathione, thiobarbituric acid-reactive substances, renal concentration and enzymatic activities of catalase, superoxide dismutase and glutathione peroxidase.

RESULTS: Ozone pretreatment prevented the increase in serum creatinine levels, the glutathione depletion and the inhibition of superoxide dismutase, catalase and glutathione peroxidase activities induced by cisplatin in the rat kidney. Also, the renal content of thiobarbituric acid-reactive substances was decreased by ozone therapy. These protective effects of ozone were dose dependent.

CONCLUSIONS: Intrarectal ozone therapy prevented effectively the renal antioxidant unbalance induced by cisplatin treatment.

PMID: 15203559 [PubMed - index...fo...MEDLINE] PMCID: PMC178...37 Free PMC Article

Nefrotoxicidade

Cistite por Quimioterapia

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Clin Invest Med. 2013 Feb 1;36(1):E9-17.

Effects of ozone therapy on cyclophosphamide-induced urinary bladder toxicity in rats.

Tasdemir S, Tasdemir C, Vardi N, Ates B, Taslidere E, Karaaslan MG, Sapmaz HI, Sagir M, Kurt A, Baser CA.

Department of Pharmacology, Medical Faculty, Inonu University, Malatya, Turkey. sedamd23@gmail.com

Abstract

PURPOSE: This study investigated the efficacy of ozone therapy (OT) in a rat model of cyclophosphamide-induced hemorrhagic cystitis (HC).

METHODS: Forty Wistar Albino male rats were divided into five groups: sham, OT, cyclophosphamide (CP), OT+CP and CP+OT. Hemorrhagic cystitis (HC) was induced by intraperitoneal (i.p) administration a single dose of 100 mg/kg CP. OT was performed once daily for three days. The CP+OT group received OT (0.2 mg/kg) i.p 24 h after CP administration. CP was injected to the OT+CP group the day after the third course of OT. All animals were killed four days after CP administration. Bladder injury and oxidative stress parameters were determined from tissue samples.

RESULTS: We found small, but non-statistically significant biochemical and histological changes in the animals treated with OT alone. CP administration induced cystitis, as manifested by a marked loss of urothelial cells, as well as hemorrhaging and edema in the bladder as determined by histopathological examination. It also caused a significant decrease in the endogenous antioxidant compound glutathione (GSH) and elevation of lipid peroxidation, and nitric oxide (NO) and myeloperoxidase (MPO) levels in the rats' urinary bladder tissue. OT was able to ameliorate these changes; however these effects were prominent in the CP+OT group when compared with the OT+CP group.: For example, the NO level in the CP+OT group was 68% of the OT+CP group ($p < 0.05$).

CONCLUSION: OT prevented CP-induced urothelial damage by diminishing bladder oxidative stress, inflammation and NO levels. OT may help to ameliorate bladder damage induced by CP in the clinical setting.

PMID: 23374601 [PubMed - in process]

Ileíte por Quimioterapia

[Cancer Biology & Therapy 8:17, 1623-1628; 1 September 2009]; ©2009 Landes Bioscience

Research Paper

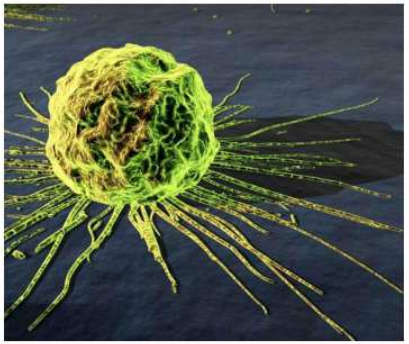
Ozone ameliorates methotrexate-induced intestinal injury in rats

Vural Kesik,* Bulent Uysal, Bulent Kurt, Erol Kismet and Vedat Koseoglu

Department of Pediatric Oncology; Gulhane Military Medical Faculty; School of Medicine; Etlik, Ankara Turkey

Key words: methotrexate, ozone therapy, intestinal injury, lipid peroxidation, liver and kidney injury, oxidant stress, mucositis

Methotrexate (Mtx) is an effective chemotherapeutic agent used in various cancer treatments. Gastrointestinal toxicity is the drug's major limiting factor, arising mainly from oxidative damage. It has been proposed that ozone (O_3) is an activator of antioxidant enzymes. Thus, this study was designed to investigate the efficacy of ozone therapy in the prevention of Mtx-induced intestinal injury in rats. Twenty rats were allocated into three groups: sham, Mtx alone (untreated) and Mtx + O_3 (treated with ozone). Ozone was administered at a dose of 0.72 mg/kg daily via an intraperitoneal route for 15 d. On d 16, Mtx was applied via an intraperitoneal injection at a dose of 6 mg/kg for 5 d. All rats were sacrificed at d 21. Efficacy of the treatment was assessed by measuring the histopathologic injury score (HIS), and biochemically by determining tissue superoxide dismutase (SOD), glutathione peroxidase (GSH-Px), and malondialdehyde (MDA) in ileum, liver and kidney homogenates. Although two rats (25%) died in the untreated group, all rats in the sham and treatment groups survived the study. The HIS, antioxidant enzyme and MDA levels of the ileal tissue were significantly lower in the ozone treated group than the untreated group ($p < 0.05$). Although the antioxidant enzyme and MDA levels of liver and kidney were significantly lower in the ozone treated group ($p < 0.05$), there was no significant change in histopathology ($p > 0.05$). Thus, ozone preconditioning shows a preventative effect in the ileum by decreasing tissue damage and increasing antioxidant enzyme activity in an experimental model of Mtx-induced intestinal injury.



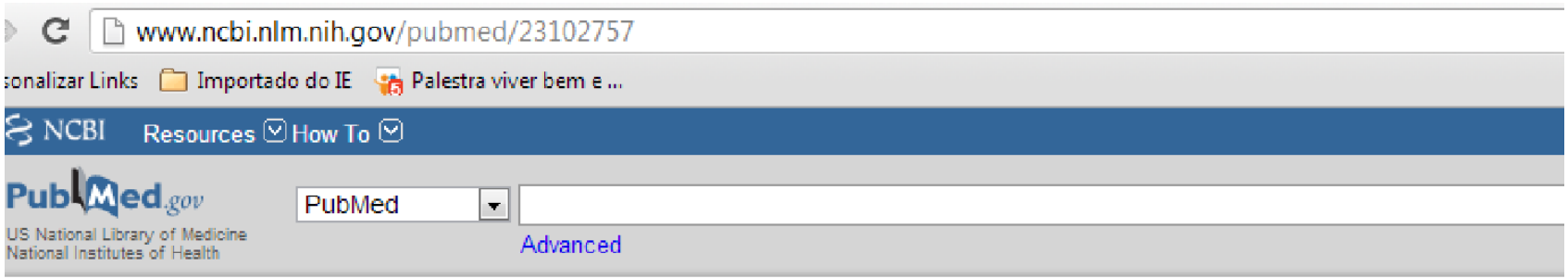
Complicações de Radioterapia

THE JOURNAL OF ALTERNATIVE AND COMPLEMENTARY MEDICINE
Volume 11, Number 3, 2005, pp. 539–541

Intravesical Ozone Therapy for Progressive Radiation-Induced Hematuria

BERNARDINO CLAVO, M.D.,[1–4] DOMINGA GUTIÉRREZ, R.N.,[1] DIONISIO MARTÍN, M.D.,[5] GERARDO SUÁREZ, R.N.,[1,3] MARÍA A. HERNÁNDEZ, M.D.,[1,3] and FRANCISCO ROBAINA, Ph.D.[2,3]

Hematúria Actínica



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J Pain Symptom Manage. 2012 Oct 26. pii: S0885-3924(12)00402-2. doi: 10.1016/j.jpainsymman.2012.06.017. [Epub ahead of print]

Long-Term Control of Refractory Hemorrhagic Radiation Proctitis With Ozone Therapy.

Clavo B, Ceballos D, Gutierrez D, Rovira G, Suarez G, Lopez L, Pinar B, Cabezon A, Morales V, Oliva E, Fiuza D, Santana-Rodriguez N.

Radiation Oncology Department, Dr. Negrin University Hospital, Las Palmas, Spain; Chronic Pain Unit, Dr. Negrin University Hospital, Las Palmas, Spain; Experimental Surgery-Research Unit, Dr. Negrin University Hospital, Las Palmas, Spain; Canary Islands Institute for Cancer Research (ICIC), Las Palmas, Spain; Grupo de Investigación Clínica en Oncología Radioterápica (GICOR), Madrid, Spain. Electronic address: bernardinoclavo@gmail.com.

Abstract

CONTEXT: Persistent or severe hemorrhagic radiation proctitis (HRP) has limited therapeutic options.

OBJECTIVES: To describe our experience with ozone therapy (O(3)T) in the management of refractory HRP.

METHODS: Patients (n=17; median age 69 years [range 42-80 years]) previously irradiated for prostate or uterine cancer and suffering persistent or severe HRP without response to conventional treatment were enrolled to receive an O(3)/O(2) gas mixture via rectal insufflations and topical application of ozonized oil. Most of the patients (83%) had Grade 3 or Grade 4 toxicity. Median follow-up post-O(3)T was 40 months (range 3-56 months).

RESULTS: Endoscopic treatments required were 43 (median 1; range 0-10) pre-O(3)T, 17 (median 0; range 0-8; P=0.063) during O(3)T, and five (median 0; range 0-2; P=0.008) during follow-up. Hemoglobin levels were 10.35g/dL (7-14g/dL) pre-O(3)T and 13g/dL (9-15g/dL) (P=0.001) post-O(3)T. Median toxicity grades were 3 (range 2-4) pre-O(3)T, 1 (range 0-2; P<0.001) at the end of O(3)T, and 0 (range 0-1; P<0.001) at the last follow-up.

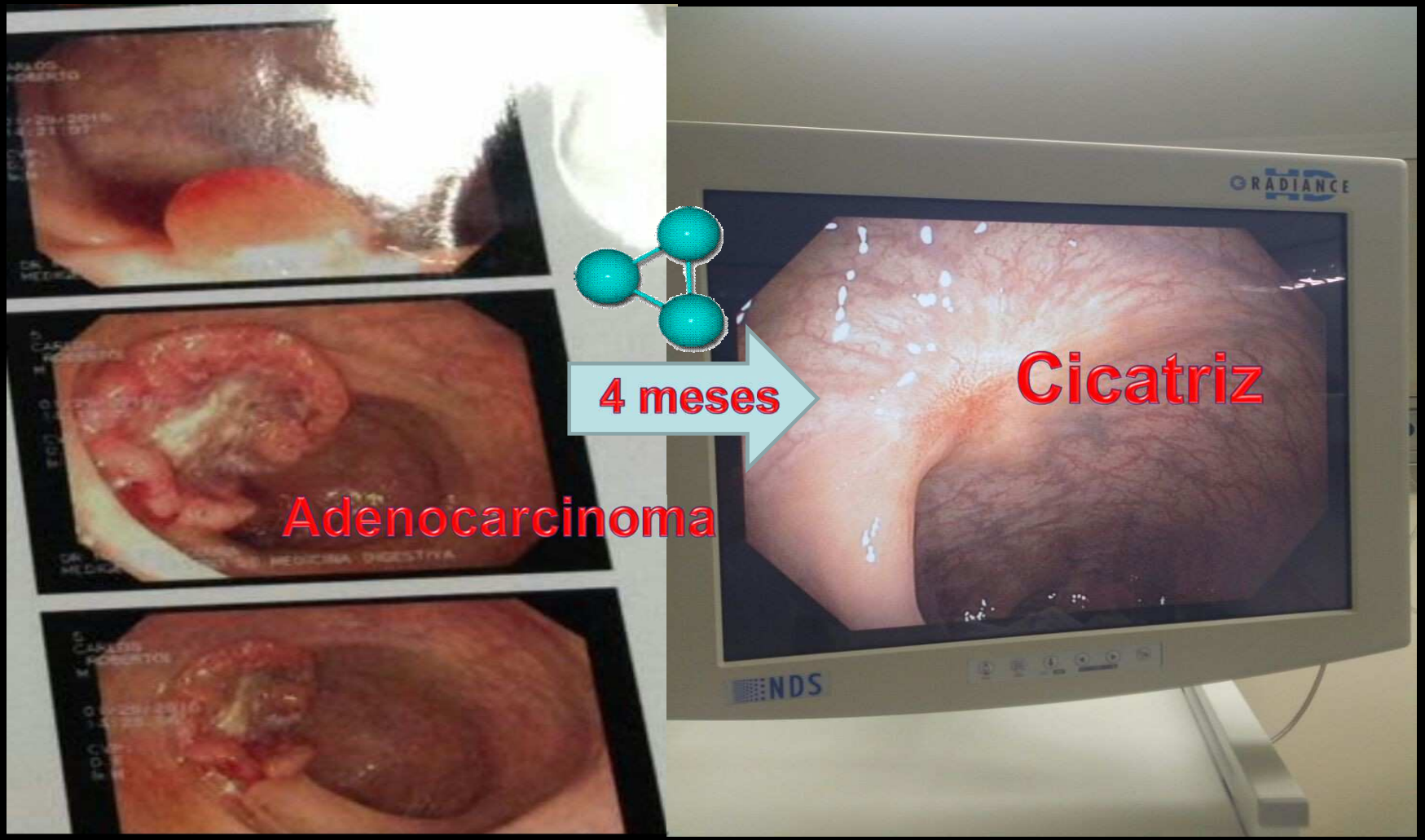
CONCLUSION: Persistent advanced HRP was significantly improved with O(3)T. The addition of O(3)T can be useful as a complementary treatment in the long-term management of HRP and, as such, merits further evaluation.

PMID: 23102757 [PubMed - as supplied by publisher]

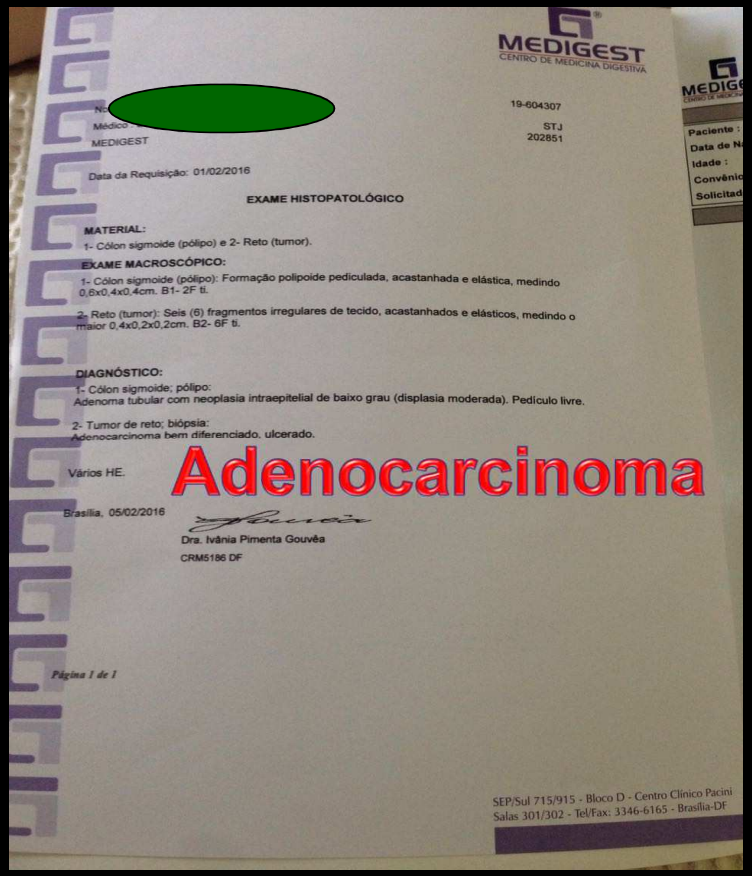
Proctite Actínica

LinkOut - more resources

Câncer de Cólon – Radioterapia + Ozonioterapia



Câncer de Cólon



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Médico
MEDIGEST

Data da Requisição: 01/02/2016

EXAME HISTOPATOLÓGICO

MATERIAL:
1- Cólon sigmoide (pólipo) e 2- Reto (tumor).

EXAME MACROSCÓPICO:
1- Cólon sigmoide (pólipo): Formação polipoide pediculada, acastanhada e elástica, medindo 0,6x0,4x0,4cm. B1- 2F ti.

2- Reto (tumor): Seis (6) fragmentos irregulares de tecido, acastanhados e elásticos, medindo o maior 0,4x0,2x0,2cm. B2- 6F ti.

DIAGNÓSTICO:
1- Cólon sigmoide; pólipo:
Adenoma tubular com neoplasia intraepitelial de baixo grau (displasia moderada). Pedículo livre.

2- Tumor de reto; biópsia:
Adenocarcinoma bem diferenciado, ulcerado.

Vários HE.

Brasília, 05/02/2016

Dra. Ivânia Pimenta Gouvêa
CRM5186 DF

Página 1 de 1

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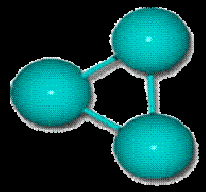
Adenocarcinoma



4 meses

diagnóstika

DIAGNÓSTICOS MOLECULARES | IMUNOISTOQUÍMICA | PATOLOGIA CIRÚRGICA
SAÚDE DA MULHER | MAIOR EQUIPE DE ESPECIALISTAS | TELEPATOLOGIA
CITOLOGIA EM MEIO LÍQUIDO | SEGUNDA OPINIÃO | PATOLOGIA BUCAL

Nome: [redacted]
Médico(s): FERNANDA BRAGA BENATTI
RANIERI CALACA QUEIROZ SANTOS
Nº Requisição: 0126042066009
Convênio: PARTICULAR
Procedência: SOCIEDADE ASSISTENCIAL BANDEIRANTES
ENDOSCOPIA
Nº Externo:

Data nasc.: 07/06/1959
Data entrada: 27/05/2016
Data saída: 31/05/2016
Nº Registro: 2846785

RELATÓRIO DE PATOLOGIA CIRÚRGICA

Informações clínicas disponibilizadas
pólipos de ascendente e sigmoide
lesão deprimida em reto distal

Microscopia e parecer diagnóstico

1) Cólon ascendente
ADENOMA TUBULAR
Atipia citoarquitetural leve
Forma macro/microscópica: Is
Margens livres

2) Cólon sigmóide
ADENOMA TUBULAR
Atipia citoarquitetural leve
Forma macro/microscópica: Is
Margens livres

3) Reto distal
CICATRIZ DE MUCOSA CÓLICA SEM ATIPIAS
Não há indícios morfológicos de malignidade neste material

Cicatriz
SEM ATIPIAS

Macroscopia

1) Cólon ascendente
Número de fragmentos: 1
Medidas: 0,2 cm
Cassete 1 - 2016218817 Todo material é submetido a exame histológico

2) Cólon sigmóide
Número de fragmentos: 3
Medidas: 0,3 a 0,5 cm
Cassete 1 - 2016218597 Todo material é submetido a exame histológico

3) Reto distal
Múltiplos fragmentos irregulares
Medidas em conjunto: 0,9 x 0,6 x 0,2 cm
Cassete 1 - 2016218552 Todo material é submetido a exame histológico

B. 3 **L.** 3 **C.** HE

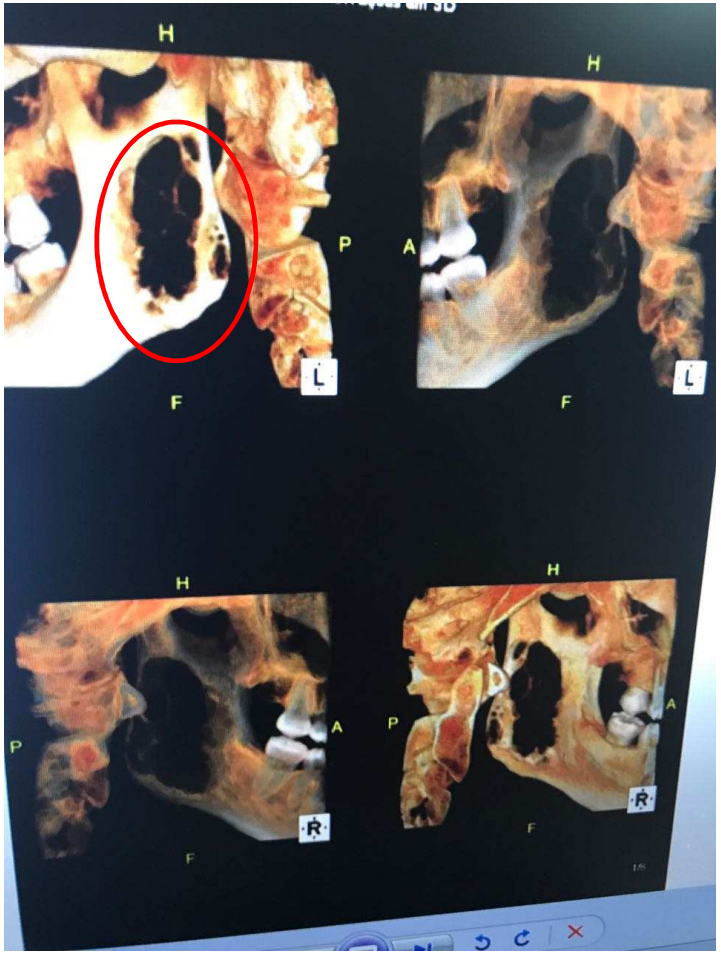
Dr. Humberto Setsuo Kishi
97.414
Assinatura Eletrônica

As informações contidas neste relatório expressam resultado a partir do material apresentado para análise e dos dados extraídos do pedido médico emitido pelo médico-assistente, que se encontram em nossos arquivos. A sua correta interpretação é um ato médico e depende da análise conjunta dos dados clínicos e demais exames do paciente.

RT: Dr. Eliadélia Vieira - CRM-SP 36.522

Fone: RBID

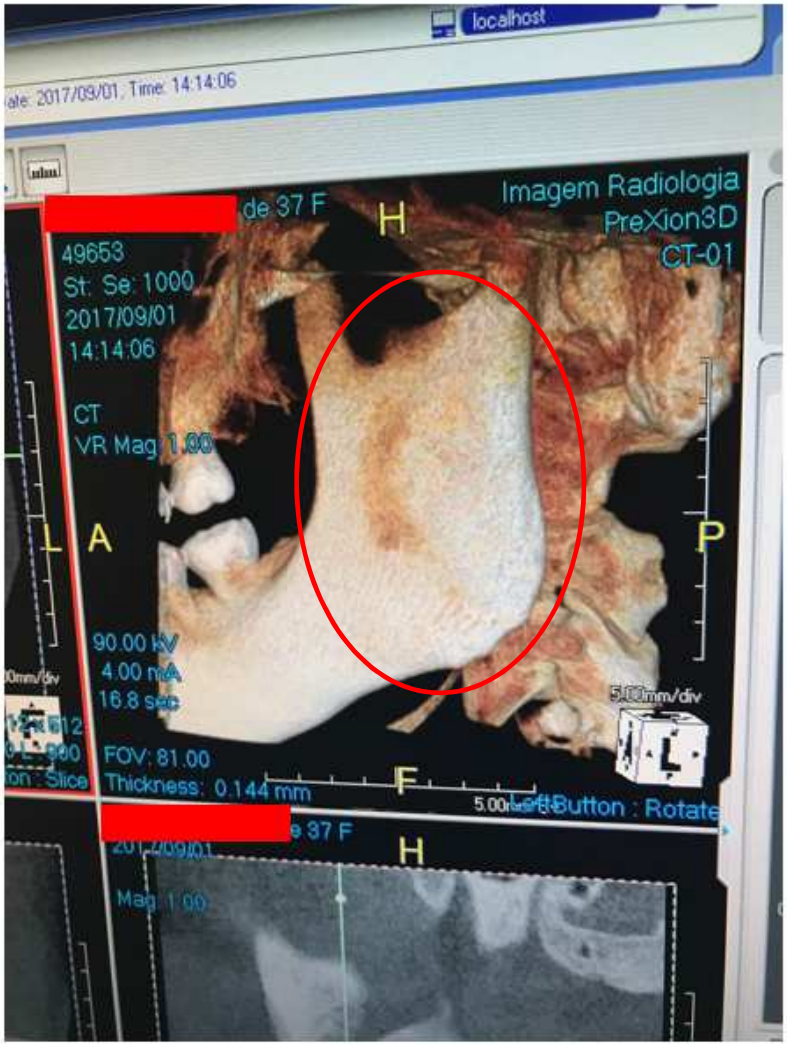
Página 1 / 1

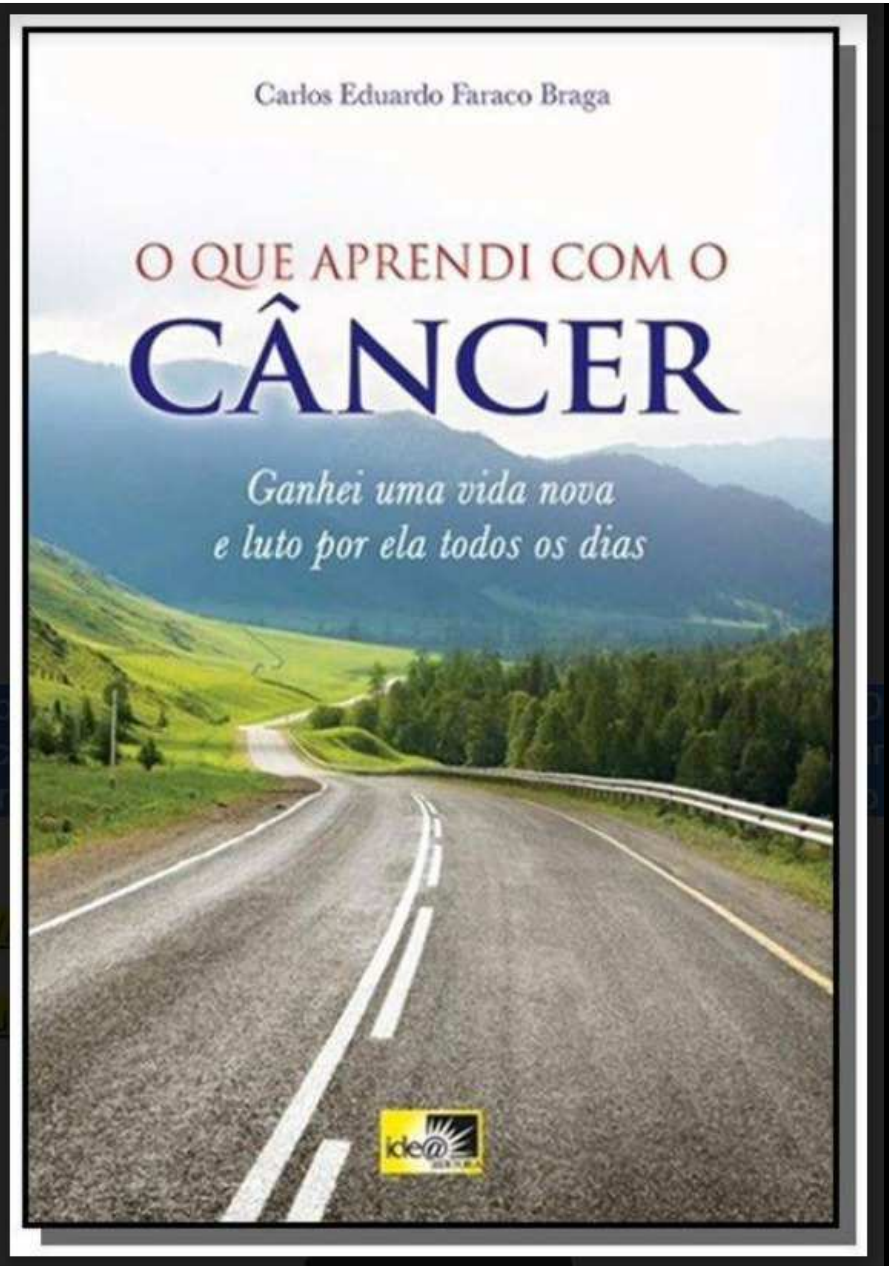


Mieloma Múltiplo,
Dezembro de 2016

Mieloma Múltiplo,
Setembro de 2017
Após Quimioterapia
+ Transplante
de Medula Óssea
+
Ozonioterapia
(sistêmica +
Injeções locais)

9 meses




Carlos Eduardo Faraco Braga
O QUE APRENDI COM O
CÂNCER
Ganhei uma vida nova
e luto por ela todos os dias

Ozonioterapia gera qualidade de vida.

REVIEW ARTICLE

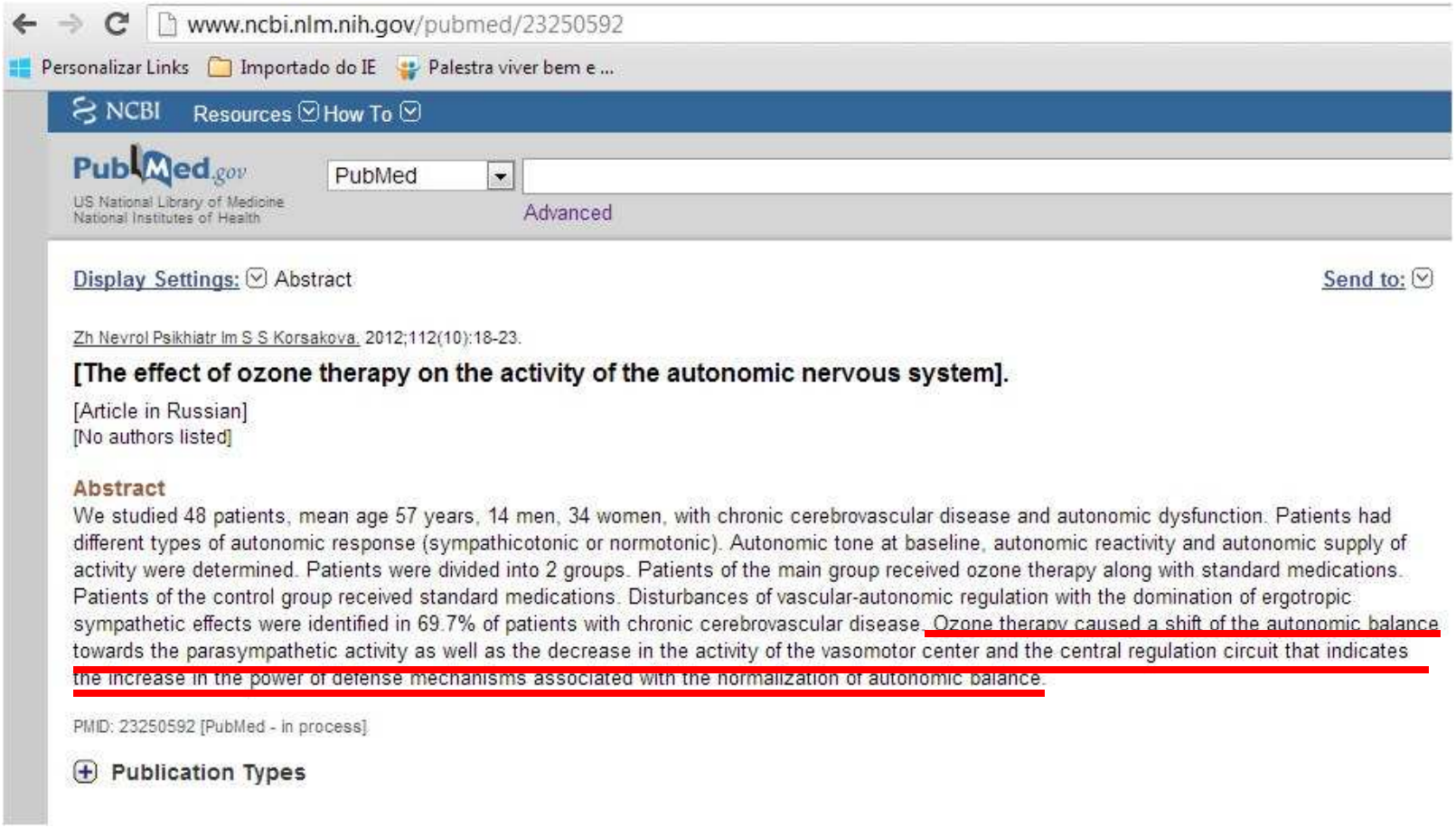
The case for oxygen-ozonetherapy

Ozone is an extremely versatile drug and the therapeutic range has been defined precisely to exclude acute and chronic toxicity. The majority of patients report a feeling of wellbeing during prolonged ozone therapy.

Provavelmente pela estimulação do sistema neuro-endócrino

Bocci, V. The case for oxygen-ozonetherapy. British Journal of Biomedical Science, 2007

Ozonioterapia e Sistema Nervoso Autônomo



www.ncbi.nlm.nih.gov/pubmed/23250592

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Display Settings: Abstract | Send to:

Zh Nevrol Psikhiatr Im S S Korsakova. 2012;112(10):18-23.

[The effect of ozone therapy on the activity of the autonomic nervous system].

[Article in Russian]
[No authors listed]

Abstract

We studied 48 patients, mean age 57 years, 14 men, 34 women, with chronic cerebrovascular disease and autonomic dysfunction. Patients had different types of autonomic response (sympathicotonic or normotonic). Autonomic tone at baseline, autonomic reactivity and autonomic supply of activity were determined. Patients were divided into 2 groups. Patients of the main group received ozone therapy along with standard medications. Patients of the control group received standard medications. Disturbances of vascular-autonomic regulation with the domination of ergotropic sympathetic effects were identified in 69.7% of patients with chronic cerebrovascular disease. Ozone therapy caused a shift of the autonomic balance towards the parasympathetic activity as well as the decrease in the activity of the vasomotor center and the central regulation circuit that indicates the increase in the power of defense mechanisms associated with the normalization of autonomic balance.

PMID: 23250592 [PubMed - in process]

Publication Types

Sport Life
settembre 2006
pagina 23

OSSIGENARSI IL SANGUE: LO FA ANCHE ZIDANE

Stando a quanto racconta il cantante Johnny Halliday, mito della canzone beat d'Oltrealpe, **in una intervista** televisiva di tre anni fa, e riproposta da Canal Plus poco prima dei Mondiali, **Zinedine Zidane dovrebbe la sua invidiabile prestanza atletica al fatto di ossigenarsi il sangue.** Alla richiesta di svelare il segreto della sua eterna vitalità, il cantante ha ammesso: «**Semplice: ogni tanto vado ad ossigenarmi il sangue in una clinica svizzera. Me l'ha consigliata Zinedine Zidane. Lui ci va due volte l'anno**, e adesso capisco il perché».
Chissà se lo capisce anche il buon Materazzi, che tanta vitalità ce l'ha proprio... a cuore.

http://www.ossigenoozono.it/Personaggi_famosi/personaggi_famosi.htm

Los secretos mejor guardados por Messi y Cristiano Ronaldo para el 'Clásico'

EcoDiario.es | 22/03/2015 - 13:38

comentarios

Puntúa la noticia : 1 10 Nota de los usuarios: 2.0 (2 votos)

Más noticias sobre: Cristiano ronaldo

http://ecodiario.eleconomista.es/interstitial/volver/240878542/futbol/noticias/6573758/03/15/Los-secretos-mejor-guardados-por-Messi-y-Cristiano-Ronaldo-para-el-Clasico.html#.Kku8XSZIUUi7jj2

Deportivo usa infiltrações de ozono para superar lesão de Postiga

SERÁ SUBMETIDO A TRATAMENTO CONSERVADOR

Sexta-Feira, 9 janeiro de 2015 | 19:17

O avançado português Hélder Postiga será submetido a um tratamento à base de infiltrações de ozono, numa tentativa conservadora de superar a lombalgia que afeta o dianteiro do Deportivo Corunha desde há algum tempo.

A informação é avançada pelo clube galego, que adianta a decisão de avançar para este procedimento, que será levado a cabo em princípio na quarta-feira.

http://www.record.xl.pt/futebol/internacional/espanha/detalhe/deportivo-usa-infiltracoes-de-ozono-para-superar-lesao-de-postiga-924269.html

www.larazon.es/lifestyle/belleza/ozonoterapia-larga-vida-a-banderas-JO10697853

LA RAZÓN.es

En Directo

Secciones

Ediciones

OZONOTERAPIA: LARGA VIDA A BANDERAS

Por Marta Boira.

Compartir 1294

Twittear

Tags: Antonio Banderas Belleza

Enviar

Imprimir

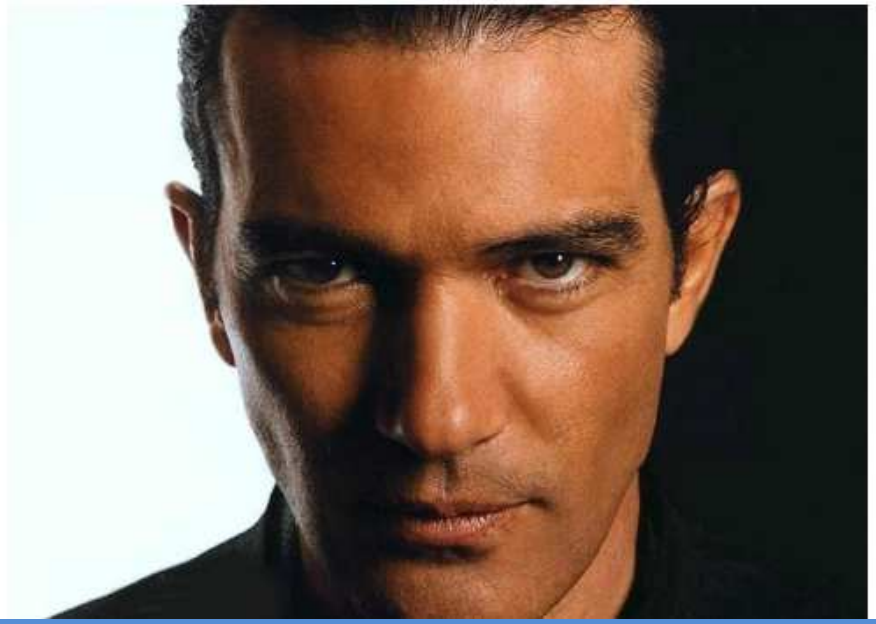
NOTICIAS RELACIONADAS

01/06/2016 HAZ LA OPERACIÓN BIKINI EN CASA

31/05/2016 MITOS Y VERDADES DE LOS TEMORES A LA CIRUGÍA PLÁSTICA

28/05/2016 TAMARA FALCÓ, CONSEJOS DE MAMÁ

26/05/2016 BLANCA SUÁREZ POSA SIN



Ozonioterapia em Medicina no Brasil

No Brasil a Ozonioterapia é considerada "procedimento experimental" pelo Conselho Federal de Medicina por meio de 2 "pareceres", apesar de introduzida em 1975.

ORIGINAL CONTRIBUTION

Scientific Evidence Underlying the ACC/AHA Clinical Practice Guidelines

Context The joint cardiovascular practice guidelines of the American College of Cardiology (ACC) and the American Heart Association (AHA) have become important documents for guiding cardiology practice and establishing benchmarks for quality of care.

Objective To describe the evolution of recommendations in ACC/AHA cardiovascular guidelines and the distribution of recommendations across classes of recommendations and levels of evidence.

Data Sources and Study Selection Data from all ACC/AHA practice guidelines issued from 1984 to September 2008 were abstracted by personnel in the ACC Science and Quality Division. Fifty-three guidelines on 22 topics, including a total of 7196 recommendations, were abstracted.

Data Extraction The number of recommendations and the distribution of classes of recommendation (I, II, and III) and levels of evidence (A, B, and C) were determined. The subset of guidelines that were current as of September 2008 was evaluated to describe changes in recommendations between the first and current versions as well as patterns in levels of evidence used in the current versions.

Results Among guidelines with at least 1 revision or update by September 2008, the number of recommendations increased from 1330 to 1973 (+48%) from the first to the current version, with the largest increase observed in use of class II recommendations. Considering the 16 current guidelines reporting levels of evidence, only 314 recommendations of 2711 total are classified as level of evidence A (median, 11%), whereas 1246 (median, 48%) are level of evidence C. Level of evidence significantly varies across categories of guidelines (disease, intervention, or diagnostic) and across individual guidelines. Recommendations with level of evidence A are mostly concentrated in class I, but only 245 of 1305 class I recommendations have level of evidence A (median, 19%).

Conclusions Recommendations issued in current ACC/AHA clinical practice guidelines are largely developed from lower levels of evidence or expert opinion. The proportion of recommendations for which there is no conclusive evidence is also growing. These findings highlight the need to improve the process of writing guidelines and to expand the evidence base from which clinical practice guidelines are derived.

JAMA. 2009;301(8):831-841 www.jama.com

A

• Level of evidence A: recommendation based on evidence from multiple randomized trials or meta-analyses

11 %

Cardiologia

C

• Level of evidence C: recommendation based on expert opinion, case studies, or standards of care.

48 %

www.aboz.org.br/noticias/aboz-apresentou-a-ozonioterapia-em-plenaria-do-cfm/14/

2013

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Associação Brasileira de Ozonioterapia

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04/12/2013

ABOZ apresentou a Ozonioterapia em plenária do CFM

Na semana passada, na última quinta-feira, dia 28 de novembro de 2013, a vice-presidente da ABOZ, Dra. Maria Emilia Gadelha Serra apresentou a Ozonioterapia oficialmente para a Plenária dos Conselheiros do Conselho Federal de Medicina.

Dra. Emilia esteve em Brasília acompanhada dos diretores da ABOZ, Dr. Arnoldo De Souza, Dr. Renato Tadeu dos Santos e Leticia Philippi. Foram apresentados 180 slides, em pontualmente 25 minutos, transmitindo tudo que a Ozonioterapia é de forma simples e objetiva.

Os conselheiros receberam muito bem o assunto e reconheceram a necessidade urgente de manifestação do CFM em relação ao assunto. Durante a sessão, o presidente da plenária informou que a ABOZ será convidada a participar como "conhecedora do assunto" no estudo para a confecção de uma futura Resolução sobre o tema.

www.aboz.org.br/noticias/aboz-entregou-documento-para-regulamentacao-da-ozonioterapia-ao-cfm/20/

2014

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ABOZ
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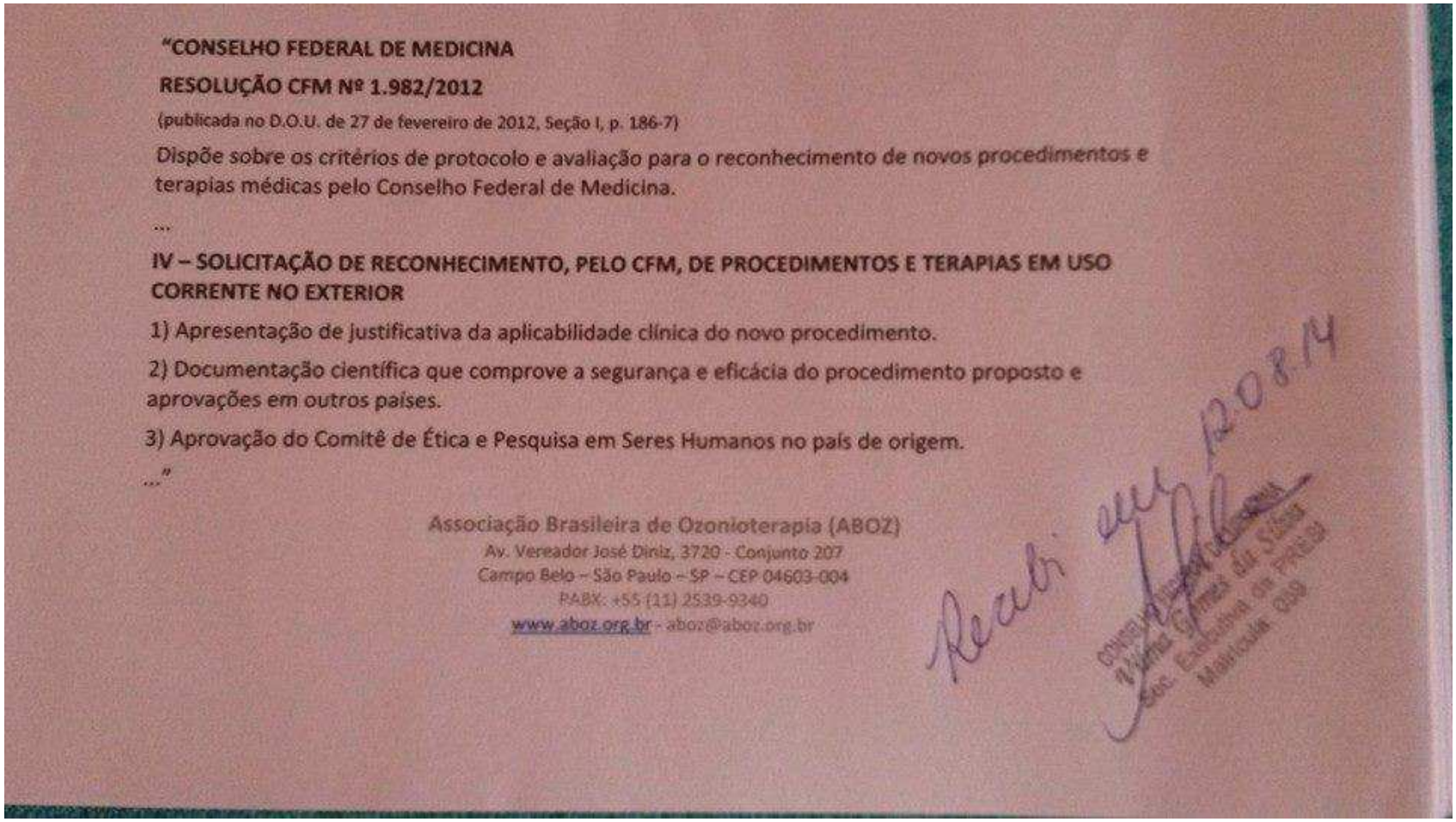
19/08/2014

ABOZ entregou documento para regulamentação da Ozonioterapia ao CFM

Há 8 anos a Associação Brasileira de Ozonioterapia vem pavimentando os caminhos visando a regulamentação da Ozonioterapia como um procedimento médico oficial em território brasileiro. Em novembro de 2013 a diretoria apresentou o assunto na plenária do Conselho Federal de Medicina e na última semana, depois de muito trabalho para reunir a documentação dos países onde a Ozonioterapia ja é regulamentada e redigir um relatório atual e completo das evidências científicas da Ozonioterapia, a ABOZ, entregou a solicitação de Abertura de Câmara Técnica e proposta de resolução normativa para regulamentação da Ozonioterapia no Brasil.

A documentação foi entregue pela Presidente da ABOZ, Dra. Maria Emilia Gadelha Serra e pelo Dr. Marcos Masini, neurocirurgião membro do Conselho da ABOZ, diretamento ao Presidente do Conselho Federal de Medicina, Dr. Roberto D'Avila, na data de 13/08/2014

Resolução 1982/2012 2014



"CONSELHO FEDERAL DE MEDICINA

RESOLUÇÃO CFM Nº 1.982/2012

(publicada no D.O.U. de 27 de fevereiro de 2012, Seção I, p. 186-7)

Dispõe sobre os critérios de protocolo e avaliação para o reconhecimento de novos procedimentos e terapias médicas pelo Conselho Federal de Medicina.

...

IV – SOLICITAÇÃO DE RECONHECIMENTO, PELO CFM, DE PROCEDIMENTOS E TERAPIAS EM USO CORRENTE NO EXTERIOR

1) Apresentação de justificativa da aplicabilidade clínica do novo procedimento.

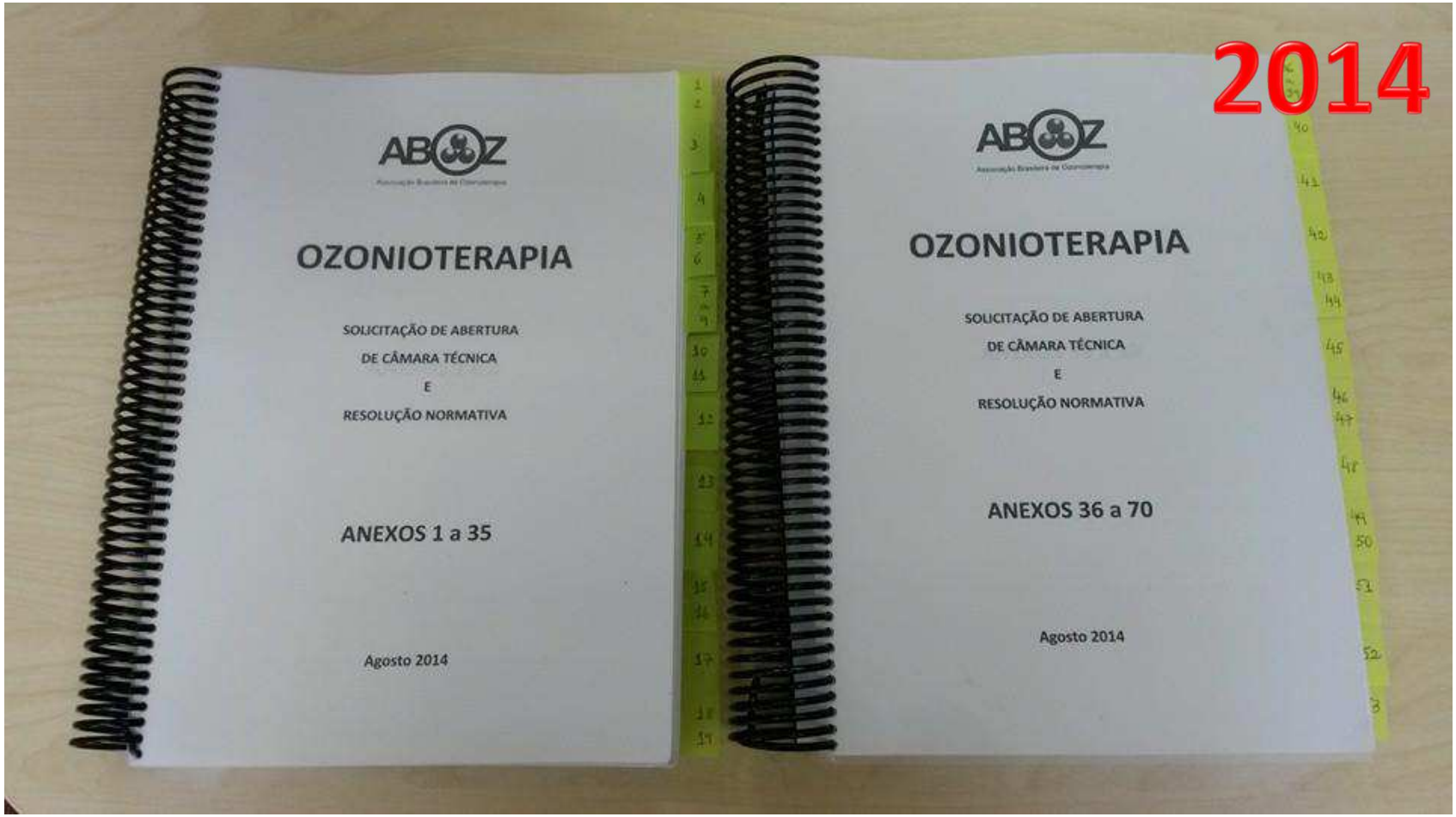
2) Documentação científica que comprove a segurança e eficácia do procedimento proposto e aprovações em outros países.

3) Aprovação do Comitê de Ética e Pesquisa em Seres Humanos no país de origem.

..."

Associação Brasileira de Ozonioterapia (ABOZ)
Av. Vereador José Diniz, 3720 - Conjunto 207
Campo Belo – São Paulo – SP – CEP 04603-004
PABX: +55 (11) 2539-9340
www.aboz.org.br - aboz@aboz.org.br

Recebi em 12.08.14



Documentos de 14 países

70 anexos

A ABOZ foi PROIBIDA de participar da Câmara Técnica Temática de Ozonioterapia por ser "parte interessada nas deliberações".

No entanto...

Dr. Flávio Nadruz Novaes

Participa da Câmara Técnica de Ozonioterapia do CFM,
COMO MEMBRO !

FLAVIO NADRUZ NOVAES	CONVIDADOS			
Processo: 0034/2015				
Companhia Aérea	Localizador	DataHora Ida/Volta	Origem/Destino	Vr. Tarifa
AZUL LINHAS AEREAS	PF22SK	06/01/2015 17:47 / 07/01/2015 15:49	VCP/BSB/VCP	R$ 1.200,86
Eventos				

07/01/2015 0:00:00 a 07/01/2015 0:00:00 - Reunião da Câmara Técnica provisória de Ozonioterapia

Fonte: http://transparencia.cfm.org.br
acessada em 02/05/17

SOBRE DR. FLÁVIO NADRUZ NOVAES

Associação Brasileira de Ozonioterapia

PASSAGEM AÉREA

Passagens aéreas

Impresso em 02/05/2017 00:58

Período de 01/01/2015 a 31/01/2015

Processo: 0253/2015				
Companhia Aérea	**Localizador**	**DataHora Ida/Volta**	**Origem/Destino**	**Vr. Tarifa**
TAM LINHAS AEREAS S.A.	YV3UB3	05/02/2015 18:30	BSB/CNF	R$ 554,93
TAM LINHAS AEREAS S.A.	YVWA7H	04/02/2015 20:34	CNF/BSB	R$ 554,27
Eventos				
05/02/2015 9:00:00 a 05/02/2015 16:00:00 - Reunião Comissão DEFIS				

FLAVIO NADRUZ NOVAES	CONVIDADOS			
Processo: 0034/2015				
Companhia Aérea	**Localizador**	**DataHora Ida/Volta**	**Origem/Destino**	**Vr. Tarifa**
AZUL LINHAS AÉREAS	PF22SK	06/01/2015 17:47 / 07/01/2015 15:49	VCP/BSB/VCP	R$ 1.200,86
Eventos				
07/01/2015 0:00:00 a 07/01/2015 0:00:00 - Reunião da Câmara Técnica provisória de Ozonioterapia				

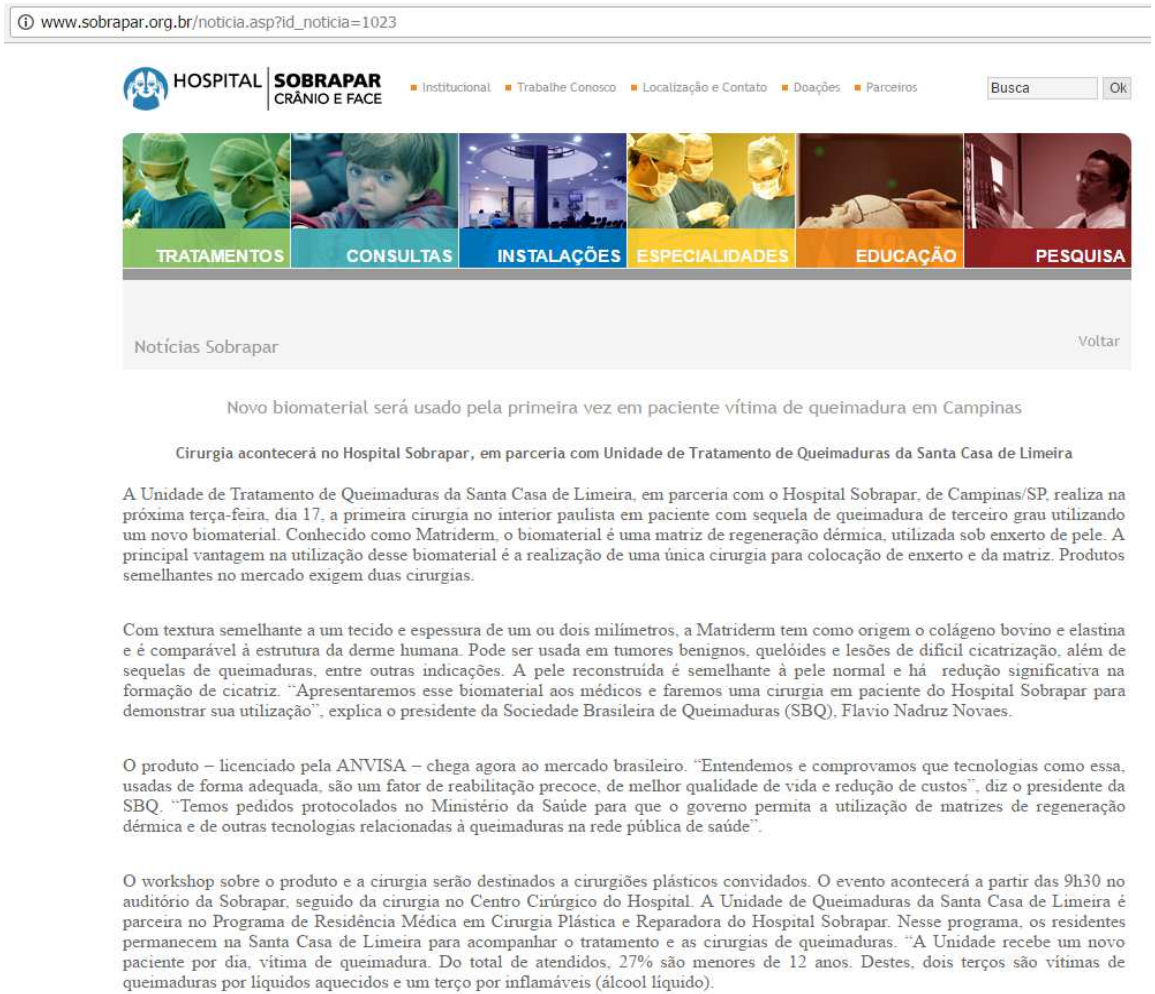
FLAVIO NADRUZ NOVAES	CONVIDADOS			
Processo: 0034/2015				
Companhia Aérea	**Localizador**	**DataHora Ida/Volta**	**Origem/Destino**	**Vr. Tarifa**
AZUL LINHAS AÉREAS	PF22SK	06/01/2015 17:47 / 07/01/2015 15:49	VCP/BSB/VCP	R$ 1.200,86
Eventos				
07/01/2015 0:00:00 a 07/01/2015 0:00:00 - Reunião da Câmara Técnica provisória de Ozonioterapia				

Fonte: http://transparencia.cfm.org.br
acessada em 02/05/17

SOBRE DR. FLÁVIO NADRUZ NOVAES

Associação Brasileira de Ozonioterapia

PERFIL DE MEMBRO DA CÂMARA TÉCNICA DE OZONIOTERAPIA DO CFM



www.sobrapar.org.br/noticia.asp?id_noticia=1023

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Notícias Sobrapar

Voltar

Novo biomaterial será usado pela primeira vez em paciente vítima de queimadura em Campinas

Cirurgia acontecerá no Hospital Sobrapar, em parceria com Unidade de Tratamento de Queimaduras da Santa Casa de Limeira

A Unidade de Tratamento de Queimaduras da Santa Casa de Limeira, em parceria com o Hospital Sobrapar, de Campinas/SP, realiza na próxima terça-feira, dia 17, a primeira cirurgia no interior paulista em paciente com sequela de queimadura de terceiro grau utilizando um novo biomaterial. Conhecido como Matriderm, o biomaterial é uma matriz de regeneração dérmica, utilizada sob enxerto de pele. A principal vantagem na utilização desse biomaterial é a realização de uma única cirurgia para colocação de enxerto e da matriz. Produtos semelhantes no mercado exigem duas cirurgias.

Com textura semelhante a um tecido e espessura de um ou dois milímetros, a Matriderm tem como origem o colágeno bovino e elastina e é comparável à estrutura da derme humana. Pode ser usada em tumores benignos, queloides e lesões de difícil cicatrização, além de sequelas de queimaduras, entre outras indicações. A pele reconstruída é semelhante à pele normal e há redução significativa na formação de cicatriz. "Apresentaremos esse biomaterial aos médicos e faremos uma cirurgia em paciente do Hospital Sobrapar para demonstrar sua utilização", explica o presidente da Sociedade Brasileira de Queimaduras (SBQ), Flavio Nadruz Novaes.

O produto – licenciado pela ANVISA – chega agora ao mercado brasileiro. "Entendemos e comprovamos que tecnologias como essa, usadas de forma adequada, são um fator de reabilitação precoce, de melhor qualidade de vida e redução de custos", diz o presidente da SBQ. "Temos pedidos protocolados no Ministério da Saúde para que o governo permita a utilização de matrizes de regeneração dérmica e de outras tecnologias relacionadas à queimaduras na rede pública de saúde".

O workshop sobre o produto e a cirurgia serão destinados a cirurgiões plásticos convidados. O evento acontecerá a partir das 9h30 no auditório da Sobrapar, seguido da cirurgia no Centro Cirúrgico do Hospital. A Unidade de Queimaduras da Santa Casa de Limeira é parceira no Programa de Residência Médica em Cirurgia Plástica e Reparadora do Hospital Sobrapar. Nesse programa, os residentes permanecem na Santa Casa de Limeira para acompanhar o tratamento e as cirurgias de queimaduras. "A Unidade recebe um novo paciente por dia, vítima de queimadura. Do total de atendidos, 27% são menores de 12 anos. Destes, dois terços são vítimas de queimaduras por líquidos aquecidos e um terço por inflamáveis (álcool líquido).

Associação Brasileira de Ozonioterapia

Curativo Matriderm, da empresa Canadá Participações, introduzido no Brasil pelo Dr. Flávio Nadruz Novaes

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A Unidade de Tratamento de Queimaduras da Santa Casa de Limeira, em parceria com o Hospital Sobrapar, de Campinas/SP, realiza na próxima terça-feira, dia 17, a primeira cirurgia no interior paulista em paciente com sequela de queimadura de terceiro grau utilizando um novo biomaterial. Conhecido como Matriderm, o biomaterial é uma matriz de regeneração dérmica, utilizada sob enxerto de pele. A principal vantagem na utilização desse biomaterial é a realização de uma única cirurgia para colocação de enxerto e da matriz. Produtos semelhantes no mercado exigem duas cirurgias.

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Fonte: http://www.sobrapar.org.br/noticia.asp?id_noticia=1023
acessada em 02/05/17

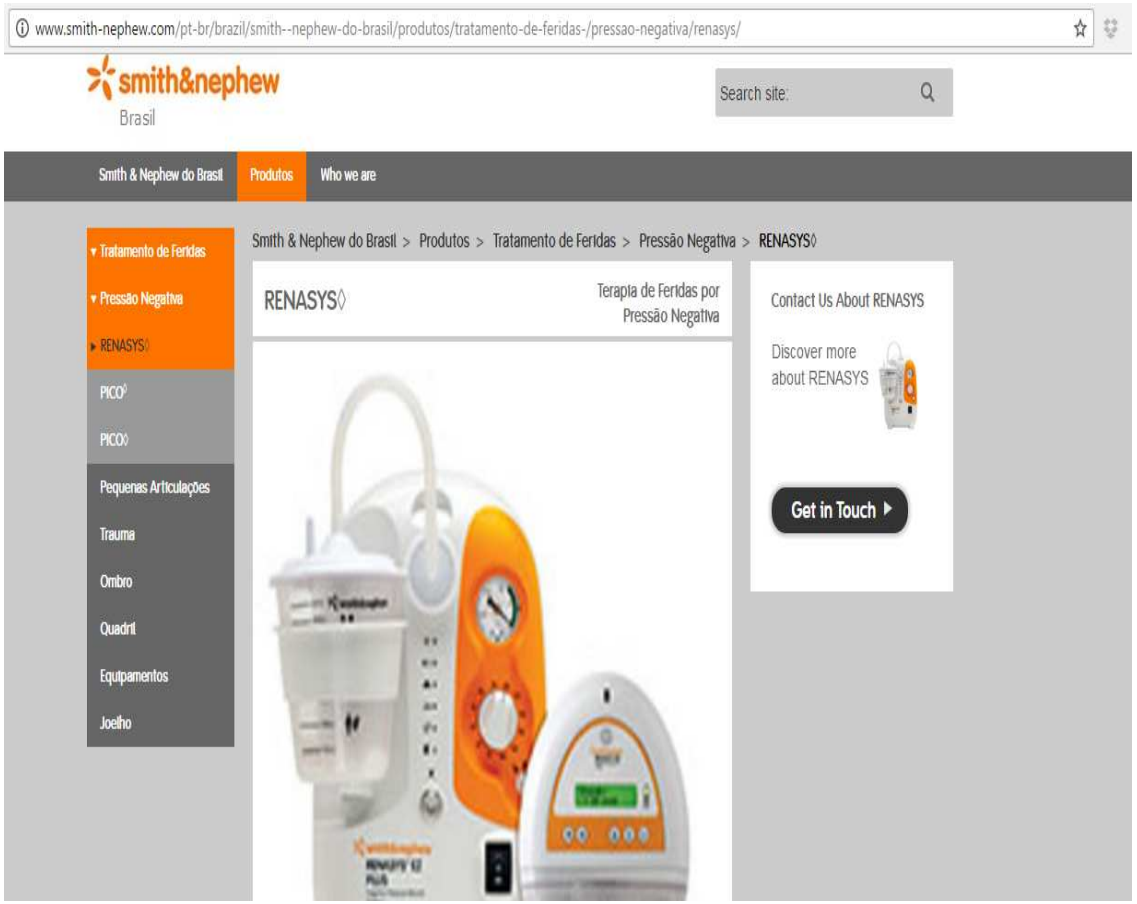
Fonte: http://inheridas.cl/contenidos.php?linkx=programa_congreso&area=instituto&clase=61&ti=Programa acessada em 02/05/17

Participação em congresso internacional sobre feridas, realizado no México – Simpósio Satélite PATROCINADO pela empresa Smith & Nephew sobre os benefícios do curativo a vácuo RENASYS

Dr. Flávio Nadruz Novaes é um dos palestrantes, representando o Brasil

PERFIL DE MEMBRO DA CÂMARA TÉCNICA DE OZONIOTERAPIA DO CFM

Curativo a vácuo RENASYS para tratamento de feridas da empresa Smith & Nephew



Fonte: http://www.smith-nephew.com/pt-br/brazil/smith--nephew-do-brasil/produtos/tratamento-de-feridas-/pressao-negativa/renasys/ acessada em 02/05/17

Associação Brasileira de Ozonioterapia

Lançamento do curativo a vácuo RENASYS no Brasil, da empresa Smith & Nephew – maio de 2014

Dr. Flávio Nadruz Novaes foi um dos apresentadores

PERFIL DE MEMBRO DA CÂMARA TÉCNICA DE OZONIOTERAPIA DO CFM

Fonte: https://www.facebook.com/permalink.php?story_fbid=636141313142148&id=100002388553926 acessada em 02/05/17

Associação Brasileira de Ozonioterapia

SOBRE A EMPRESA SMITH & NEPHEW

SOBRE A EMPRESA SMITH & NEPHEW

Associação Brasileira de Ozonioterapia

Fonte: https://setorsaude.com.br/empresa-britanica-quer-entrar-no-mercado-brasileiro/

SOBRE A EMPRESA SMITH & NEPHEW

Associação Brasileira de Ozonioterapia

SOBRE A EMPRESA SMITH & NEPHEW

Associação Brasileira de Ozonioterapia

quer entrar com FORÇA...

A empresa britânica Smith & Nephew quer entrar com força no mercado brasileiro. A gigante no ramo de tecnologia médica pretende adquirir a Pró Cirurgia Especializada (PCE), que há 30 anos fornece materiais de medicina esportiva, produtos traumatológicos e ortopédicos.

Em comunicado oficial a britânica afirma que "construir um negócio substancial e sustentável no Brasil é fundamental para a nossa estratégia de liderança em mercados emergentes". Atualmente a Pró Cirurgia Especializada é distribuidora oficial dos produtos Smith & Nephew no país. A compra deve estar finalizada no segundo semestre deste ano.

Smith & Nephew

A Smith & Nephew atua em Ortopedia de Reconstrução – sistemas de substituição da articulação de joelhos, quadris e ombros;produtos usados para tratar e curar feridas;Medicina Esportiva – cirurgia minimamente invasiva da articulação; trauma – produtos que ajudam na reparação de os ossos quebrados.

A empresa possui 10.500 funcionários em mais de 90 países. As vendas no ano de 2012 chegaram a mais de US $ 4,1 bilhões.

Fonte: https://setorsaude.com.br/tag/smith-nephew/
acessada em 02/05/17

Associação Brasileira de Ozonioterapia

SOBRE A EMPRESA SMITH & NEPHEW

fusoesaquisicoes.blogspot.com.br/2013/04/smith-nephew-adquire-distribuidor.html

Fusões & Aquisições

Banco de dados com cerca de 15.000 informações sobre a indústria de Fusões & Aquisições

04 abr

Smith & Nephew adquire distribuidor brasileiro

Smith & Nephew a empresa global de tecnologia médica, anunciou hoje um acordo para adquirir ativos relacionados ao negócio de distribuição de sua linha de produtos para medicina esportiva, reconstrução ortopédica e de traumas, no Brasil, atualmente realizada através de Pró Cirurgia Especializada (PCE).

A aquisição está em linha com a prioridade estratégica da Smith & Nephew para completar o seu crescimento orgânico por meio de aquisições e construir negócios sustentáveis nos Mercados Emergentes.

PCE foi criada em 1957 e trabalhou para a Smith & Nephew há mais de 30 anos. PCE tem cerca de 165 funcionários hoje.

A aquisição está sendo feita através subsidiária brasileira da Smith & Nephew, e está previsto sua conclusão no segundo semestre de 2013, sujeita ao cumprimento de determinadas condições usuais. Os termos não foram divulgados.

Sobre a PCE
A PCE – Pró Cirurgia Especializada é uma empresa especializada no fornecimento de produtos e serviços de vídeo cirurgia para hospitais, clínicas e convênios médicos. Com sede em São Paulo, atua diretamente junto a clientes da Grande São Paulo e mantém uma rede de 11 distribuidores em 10 estados.
Fonte: Smith & Nephew 02/04/2013

COMENTÁRIOS:
A Smith & Nephew divulga no seu site a " Investor Presentation - March 2013". Abaixo alguns slides extraídos da referida apresentação.

Fonte: http://fusoesaquisicoes.blogspot.com.br/2013/04/smith-nephew-adquire-distribuidor.html acessada em 02/05/17

SOBRE A EMPRESA SMITH & NEPHEW

Fonte: http://extra.globo.com/noticias/economia/smith-nephew-compra-negocio-de-distribuicao-no-brasil-10885110.html acessada em 02/05/17

2015

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pesquisar...

CFM ressalta limites ao sensacionalismo e à autopromoção na publicidade médica

O CFM publica nesta semana ajustes nas regras para uso divulgação de assuntos médicos por meio de entrevistas, anúncios publicitários e redes sociais, entre outros pontos. Temas como a distribuição de selfies, anúncio de técnicas não consideradas válidas cientificamente e forma adequada de interação dos profissionais em canais de mídias sociais também foram abordados.

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Sessão Plenária de Setembro/2015

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Composição TSEM
Pauta Julgamento Outubro 2015
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pesquisar...

CFM ressalta limites ao sensacionalismo e à autopromoção na Medicina

Seg, 28 de Setembro de 2015 08:52

A Resolução 2.126/2015 define o comportamento adequado dos médicos nas redes sociais e proíbe a divulgação de técnicas não consideradas válidas pelo CFM

O Conselho Federal de Medicina (CFM) publica nesta semana, no Diário de Oficial da União, ajustes nas regras para uso divulgação de assuntos médicos por meio de entrevistas, anúncios publicitários e redes sociais, entre outros pontos. Temas como a distribuição de selfies (autorretratos), o anúncio de técnicas não consideradas válidas cientificamente e a forma adequada de interação dos profissionais em canais de mídias sociais foram abordados no âmbito da Resolução CFM nº 2.126/2015, que tem como objetivo principal fixar parâmetros para evitar o apelo ao sensacionalismo ou à autopromoção.

Entre as regras que entram em vigor na data da publicação do texto no Diário Oficial da União, está a proibição aos médicos, inclusive lideranças de entidades da categoria, de participarem de anúncios de empresas comerciais ou de seus produtos, qualquer que seja sua natureza. Antes esta limitação contemplava produtos como medicamentos, equipamentos e serviços de saúde. Com o ajuste, se estende a outros, como generos alimentícios e artigos de higiene e limpeza, entre outros.

A norma também veda aos profissionais de fazerem propaganda de métodos ou técnicas não reconhecidas como válidos pelo Conselho Federal de Medicina, conforme prevê a Lei nº 12.842/13, em seu artigo 7º, que atribui à autarquia o papel de definir o que é experimental e o que é aceito para a prática médica. É o caso de práticas, como a carboxiterapia ou a ozonioterapia, que ainda não possuem reconhecimento científico.

A Resolução CFM nº 2.126/2015 também traz detalhamento com respeito aos autorretratos (selfies) em situa de trabalho e de atendimento. Com a mudança, os médicos estão proibidos de divulgar este tipo de fotografia, bem como ima e/ou áudios que

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Ozonioterapia

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pesquisar...
Pesquisa
Pesquisar palavra-chave: ozonioterapia
Pesquisa
Todos os termos
Qualquer termo
Frase Exata
Ordenação: Recentes primeiro
Somente Pesquisa: Artigos Weblinks Contatos Categorias Seções Fonte de Notícias
Pesquisar palavra-chave ozonioterapia
Total: 3 resultados encontrados.
1. CFM ressalta limites ao sensacionalismo e à autopromoção na Medicina
(Noticias/Portal)
... seu artigo 7º, que atribui à autarquia o papel de definir o que é experimental e o que é aceito para a prática médica. É o caso de práticas, como a carboxiterapia ou a ozonioterapia, que ainda não possuem ...
2. Sessão Plenária de Novembro/2013
(Pauta de julgamentos/Sessões plenárias)
... 12h às 14h Intervalo para almoço 14h às 15h 15h às 16h30 16h30 às 18h - Apresentação sobre a técnica da Ozonioterapia (Dra. Maria Emília Gadelha - Vice-Presidente ...
3. CFM emite parecer sobre a ozonioterapia
(Noticias/Portal)
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05:43
02/10/2015


3

No Brasil a Ozonioterapia
não está regulamentada na Medicina.
Ainda.

Não existe uma LEI sobre Ozonioterapia,
nem proibindo nem permitindo.
Não existia...

Ozonioterapia

Uso secular

Técnica segura

Aplicação ambulatorial – simples !

Baixo custo de equipamentos e insumos

Consagrada em vários países em todo o mundo

Otimiza os resultados de outras técnicas de tratamento

Útil como tratamento complementar ou isolado em várias enfermidades

Pode gerar ECONOMIA de recursos no SUS

Aumenta qualidade de vida das pessoas tratadas

A Ozonioterapia é uma técnica que SEGURAMENTE interessa à população brasileira !

Fracassei em tudo o que tentei na vida.
Tentei alfabetizar as crianças brasileiras, não consegui.
Tentei salvar os índios, não consegui.
Tentei fazer uma universidade séria e fracassei.
Tentei fazer o Brasil desenvolver-se autonomamente e fracassei.
Mas os fracassos são minhas vitórias.
Eu detestaria estar no lugar de quem me venceu.

Darcy Ribeiro


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