

Safety, pitfalls, and misunderstandings about the use of ozone therapy as a regenerative medicine tool. A narrative review.

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Despite various opinions and healthy controversy on Ozone Therapy (OT), the practices of this therapy have increased worldwide. Main areas of study with consistent scientific outcomes are the topical treatment of both disk herniation and periodontal disease. On the other hand, there is a net dissociation of the scientific resonance concerning systemic oxygen/ozone treatments. It is our intention to discuss in logical terms the numerous papers that commendably reported adverse reactions attributable to OT, focusing our attention mainly to the techniques of administration and not to the simple contact of ozone with biological material. The case reports on OT treatments safety concerns discussed on international journals, make it possible to state that most safety issues are secondary to infections or traumatic reactions due to malpractice. Commonly, the molecule of ozone itself is not responsible of severe reactions at the therapeutic modalities. The millions of patients treated so far from the thousands of physicians correctly practicing OT world widely in the last 40 years demonstrate the safety of this simple and cost-effective regenerative medicine tool. The promising therapeutic implications also for the current COVID-19 emergency are a further stimulus to the standardization of this therapeutic resource with multiple application specificities.

Clinical and imaging selection for CT-guided fluoroscopy O2O3 disk treatment

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Low Back Pain (LBP) is the most common spine disease and it is the most common cause of absence from work in developed countries. At lumbar level, the natural history of herniated disc is characterized by a disappearance of clinical symptoms in up to 60% with conservative treatment through simple rest for about 6 weeks and reduction of the disk herniation revealed by CT or MR scans within eight to nine months after the onset of back pain. Surgery is considered the treatment of choice for extruded, migrated and free fragment herniated disk associated to clinical symptomatology of cono-cauda syndrome, progressive foot droop and hyperalgetic radiculopathy. patients with a small or contained herniated disk, without any benefit from conservative medical treatment, can be candidates for one of minimally invasive percutaneous techniques, whose outcome, though, depends on the characteristics of hernia itself and on the chosen technique. The aim of this paper is to discuss about O2-O3 treatment for symptomatic not extruded herniated disk at lumbar level, highlighting about indication inclusion exclusion criteria and our results.

Non-discogenic low back pain treated with oxygen-ozone: outcome in selected applications

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Low back pain and sciatica are highly debilitating conditions affecting all socioeconomic groups at an increasingly early age. They are caused by different often concomitant spinal disorders: disc or facet joint disease, spondylolysis (with or without listhesis), vertebral body and interapophyseal arthrosis, spinal stenosis, radicular and synovial cysts and, more rarely, infections and primary or metastatic cancer. Treatment of low back pain and/or sciatica requires an accurate diagnosis based on thorough history-taking and physical examination followed by appropriate imaging tests, namely computed tomography, and/or magnetic resonance scans in addition to standard and morphodynamics X-rays of the spine. In recent years, several reports have demonstrated the utility of oxygen-ozone therapy in reducing the size of herniated discs. The present study reports on the outcome of oxygen-ozone treatment in 576 patients with non-discogenic low back pain caused by degenerative disease of the posterior vertebral compartment (facet synovitis, Baastrup syndrome, spondylolysis and spondylolisthesis, facet degeneration).

Psycho-social characteristics in patient with disease treated with CT-guided oxygen ozone therapy: quality of life, coping strategy and mood state

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The pathologies of the musculoskeletal apparatus are the most common cause of chronic diseases, with a huge impact on people and society. Scientific literature has discovered how experiencing chronic pain directly affects peoples' well-being, lifestyle, social relationships and can also cause psychological distress. The present study aims to investigate pain experience in patients with hernias or protrusions of the cervical and lumbosacral tract on a sample of 120 patients, recruited from patients of Poliambulatorio Oberdan, medical centre in Brescia (Italy) specialized in physical rehabilitation and CT-guided oxygen ozone therapy. In a bio-psychosocial perspective, the research aimed to investigate how the perception of pain, the mood state associated with it, the coping strategies adopted and the quality of life differ according to each patient's gender and to the more or less prolonged use of pain medication. The data were collected by means of medical and psychological anamnestic interviews and self-report tests (WHOQOL-BREF, COPE-NVI, POMS). The quantitative analysis, carried out through SPSS 25 (2017) software, showed how functional impairment of one's autonomy (walking, driving) affects mood states. In particular, the female sample expressed a more deflected mood, despite the greater use of relational and/or transcendent support (coping strategies) compared to men. The study suggests that the greater impairment of the moods of women can be attributed both to the caregiving role they play, which often results in a greater fatigue and difficulties in redefining this role following the algic condition, and more general differences in the expression of suffering, which, on a cultural level, sees men emotionally coerced. The analysis also shows how taking pain medication for a long period of time has a negative impact on the quality of life. The results suggest that the patients treated with analgesic therapy tend to adopt avoidant coping styles, which usually escalate into postponement of the time when dealing with a stressful situation and, if used in the long run, may lead to worsening health condition.

The use of oxygen ozone therapy in the treatment of cervicobrachial pain: case series study

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This retrospective, observational, uncontrolled case series study was carried out to evaluate the clinical efficacy and safety of intramuscular paravertebral injections of an oxygen-ozone (O₂-O₃) mixture in patients with cervicobrachial pain. One hundred and sixty-eight subjects affected by cervicobrachial pain, referred to Ozone Therapy Unit at San Pietro Fatebenefratelli Hospital in Rome (Italy), were enrolled in the study. All the subjects (n=168, 106 females and 62 males) completed the treatment and the follow-up visits. Subjects received 12 cervical intramuscular injections of an O₂-O₃ mixture (5 mL) with an O₃ concentration of 16 µg/mL once a week. The overall reduction of pain was measured by the change in mean of Visual Analogue Scale (VAS) score from baseline to the end of treatment and from baseline to one, two, three, four and five years of follow-up. Patient satisfaction was assessed at the end of treatment, by modified MacNab Questionnaire. Possible adverse events related to the treatment were recorded. The mean (± standard deviation) VAS pain score at baseline, at the end of treatment, and during the follow-up at one, two, three, four and five years were 7.82 (±1), 1.6 (±1.5), 1.5 (±1.4), 1.4 (±1.3), 1.6 (±1.2), 1.5 (±1.3) and 1.60 (±1.2), respectively, showing a significant reduction in pain over time (p<0.001). Of 156 patients who responded to treatment, 128 (82.05%) were pain free at one year, 110 (70.51%) at second year, 103 (66.02%) at third year, 94 (60.25%) at fourth year and 86 (55.12%) at fifth year follow-up visit. According to pain distribution all subjects showed a significant reduction in pain over time in each group (p<0.05). No significant differences were observed between groups. No serious adverse events were observed during the entire study. We suggest the use of intramuscular paravertebral injections of an oxygen-ozone (O₂-O₃) mixture in patients with cervicobrachial pain as an effective and safe treatment option to consider before surgical intervention.

Electromyographic analysis of the results given by lumbar discal herniation treatment with intradiscal oxygen-ozone gas mixture injection

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Among patients treated by intradiscal oxygen-ozone administration, in the period from January to June 18, because of disco radicular conflict, we randomly selected a group of 200 cases for this study. The classical instrument for studying nerve functioning alteration is EMGraphy. Repeated EMGraphic control during the treatment gives a valid parameter to quantify nerve root dysfunction: this is objective, repeatable and is precise data. The evolution of EMGraphic picture does not always correspond to the clinical situation. In several cases the normalization of the last radicular conflict will coexist with residual signs of EMGraphic dysfunction.