OZONE THERAPY FOR POST-HERPETIC NEURALGIA

A retrospective study of 55 cases

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Abstract

This study evaluates the outcome of ozone therapy given to 55 patients suffering from post-herpetic neuralgia, for whom "conventional" therapies brought no relief. The author makes several considerations regarding the assessment of pain, the details of ozone therapy, the coadjuvant medication, and the criteria for the evaluation of the results, i.e. the reduction or elimination of pain. From the statistical data the author concludes that ozone therapy is an effective therapeutic approach for post-herpetic neuralgia, especially when all other so-called "conventional" methods have failed.

Introduction

Post-herpetic neuralgia (PHN) is one of the most challenging types of pain one can be confronted with. The results of "conventional" therapy are normally rather poor. About 20% of Herpes zoster patients can be expected to develop PHN. This percentage will be higher for patients who are older, and/or diabetic, and/or immune-deficient. Patients normally have great difficulty to understand the fact that such pain can exist even after the skin lesions have long disappeared. Also, as successive therapeutic approaches result in no alleviation of their pain, patients become more and more restive, more and more incredulous about any new approach, hopeless, and often resigned.

As to the pathogenesis of Herpes zoster, the presently prevailing theory is the reactivation of Varicella-Zoster viral units, which had remained incubated and inert in sensitive spinal ganglion(s) or Trigeminal ganglion(s) ever since the patient's Varicella disease during childhood.

Presently, there seems to be at least one consensus : the earlier the intensive treatment of Herpes zoster is started, with whatever therapeutical method, the greater the chance of avoiding or at least minimizing the PHN. Also, it seems that the following facts lead to expect a more severe PHN : stronger pain during the prodromic phase of Herpes zoster, stronger pain during the acute phase of H. zoster, more severe cutaneous lesions during H. zoster, and sensitive deficit within the affected dermatome already during the acute phase of H. zoster.

The most frequently affected areas are : one hemi-thorax, superior branch of one Trigeminal nerve, middle branch of one Trigeminal nerve.

The anatomical structures which are normally affected by Herpes zoster are : skin, peripheral nerve trajectories, sensitive ganglions, nerve roots, and less frequently medulla and brainstem. Histologically, one will find inflammatory reaction within / around nervous tissue, reduction of the number of sensitive fibers, demielinization of sensitive nerve fibers, and less frequently

haemorrhage within nerve ganglion(s), necrosis of or within ganglion(s) and degeneration of or within the medulla. Even *contralateral* nervous tissue lesions have been reported.
So to say, the best treatment for Post-Herpetic Neuralgia is still the prevention. Ideally, treatment should always be started as early as possible.

The exact measurement and quantifying of pain in humans is known to be impossible. Many are the "pain questionnaires" that can be applied, and there are several different "pain scales" which may be used. For the present study, I used rather simple criteria to assess the pre- and post-treatment pain, assigning numbers, from 0 to 100, to different pain intensities :

Table I : Criteria for pain assessment

Pain score	0	*No pain* at all
Pain score	25	*Some pain*, patient needs only minor analgesics, if at all
Pain score	50	*Important pain*, limiting the patient's normal activity
Pain score	75	*Strong pain*, patient needs strong analgesics and other therapies
Pain score	100	*Very strong pain*, disability, sleep disorder, intensive treatment

In order to quantify the results, regarding reduction or total elimination of pain, I compared the pre-treatment pain score to the post-treatment pain score and expressed the difference in %. Example : pre-treatment pain score 100, post-treatment pain score 25, pain relief 75 %.

ALL patients in this study had previously received several other treatments, with drugs, injections of local anesthetics, acupuncture, and some kind of physical medicine and electromedicine.

While receiving ozone therapy, the only other medication they were given were injections of a local anesthetic into nerve exit or nerve trajectory areas, IM Magnesium injections, and, if necessary, 2 mg Lorazepan tablets at night.

Material and Methods

The fifty-five patients in this study were 27 women and 28 men, with ages varying from 50 to 87 years, with an average of 70,6 years.

Table II : Pre-Treatment pain assessment

Pain score 100	very strong pain	47 patients	85,45 %
Pain score 75	strong pain	6 patients	10,90 %
Pain score 50	important pain	2 patients	3,65 %
Pain score 25	some pain	none	0
Pain score 0	no pain	none	0

Treatment consisted of :

a) 9 mg of ozone, given rigorously within the technique of the major auto-hemotherapy, two or three times per week ;
b) injections of 5 ml of a local anesthetic into nerve exit points or nerve trajectory areas related to the affected skin area, two or three times per week ;
c) IM injection of Magnesium, two or three times per week (Mg Levulinate 40 mg, Mg Sulphate 640 mg)
d) prescription of 2 mg Lorazepan tablets, to be taken at night, only when sleep was impossible.

The *total number of sessions*, as described above, varied between a minimum of 2 (two) and a maximum of 80 (eighty), with an average of 14 (fourteen).

The *total duration of treatment*, as described above, varied between a minimum of 3 days and a maximum of 29 months, with an average of 2,55 months.

Table III : Post-Treatment pain assessment

Pain score	100	very strong pain	6 patients	10,90 %
Pain score	75	strong pain	4 patients	7,30 %
Pain score	50	important pain	6 patients	10,90 %
Pain score	25	some pain	17 patients	30,90 %
Pain score	0	no pain	22 patients	40,00 %

Table IV : Pain reduction (difference between pre- and post-treatment pain)

Pain reduction of	100 %	22 patients	40,00 %
Pain reduction of	75 %	16 patients	29,10 %
Pain reduction of	50 %	7 patients	12,70 %
Pain reduction of	25 %	3 patients	5,50 %
Pain reduction of	0 %	7 patients	12,70 %

Discussion

All patients had previously received other kinds of treatment, *absolutely without any clinical success*. The introduction of ozone therapy did make a significant difference to most of them. Adding up the percentage of patients who became totally free of pain (pain reduction of 100 %) plus the percentage of patients whose pain was very much reduced (pain reduction of 75 %), we come to an astounding 69,10 % of the cases.

As to the mechanisms through which ozone therapy could produce such results, I can only speculate, and it is obvious that much basic research is still necessary. As I employ ozone

therapy only in my private medical office, I can only make *clinical* observations. The basic research will be left for researchers worldwide to do. Some substances or mechanisms I would actually imagine to be involved in producing the clinical results described in this paper :

a) The production / liberation of *endorphines* might be stimulated by ozone therapy. A patient receiving ozone therapy as here described normally has a better general disposition, is in a better mood, feels "more energy to do things". These findings cannot be exactly measured or quantified, being essentially subjective, but they are extremely common. Higher endorphine levels would very well explain this.
b) The *pain memory* might be modified by ozone therapy. There might be some correlation between pain memory and available endorphines.
c) The *metabolism of GABA, NO, the arachidonic acid cascade* and other substances related to generation, transmission and maintenance of chronic pain might be influenced by ozone therapy.
d) The activation / inactivation of Sodium, Calcium and Magnesium channels on neuronal and other cell membranes might be modified by ozone therapy.
e) The *metabolism of the central nervous system* in general might be improved under ozone therapy, especially as a consequence of better oxygenation and better arterial blood supply, allowing better cerebral performance regarding the cognitive and behavioural aspects of chronic pain.
f) The interaction of the substances / mechanisms mentioned above.

I am very well aware of the fact that this study was not double-blind and randomized, that there was no control group, that the phenomenon "pain" is always subject to a large number of variables, that the phenomenon "pain" is not exactly measurable, that along with the ozone therapy, my patients received at least two other medicines (a local anesthetic and Magnesium) and that because of the above, scientists and researchers throughout the world will deride this study as non-conclusive, as not consistent with scientific methodology, and whatever else.

Conclusion

I conclude that ozone therapy, when given as described above, does indeed make a significant difference regarding the reduction of the Post-Herpetic Neuralgia. In this sense, *this study is meant to call the attention* of physicians in general, letting them know that ozone therapy is a most valuable tool for the medical treatment of Post-Herpetic Neuralgia, and of researchers in general, suggesting that here is an almost untouched field for research.

About the author :

Dr. Heinz Konrad is a physician who graduated in 1972 in São Paulo, Brazil. He made his first residency in General Surgery and his second residency in Gynecology and Obstetrics. He has worked with pain since 1974, and presently he is an Assistant at the Pain Clinic of the (1800 beds) Santa Casa Charity Hospital in São Paulo. He became involved with ozone therapy in 1975 and was a personal friend of its founders, Dr. Joachim Hänsler and Dr. Hans Wolff, in Germany. In 1981 he published the first paper worldwide about ozone therapy for the different kinds of Herpes. Many other papers about ozone therapy have followed, having been presented at various international ozone congresses.