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OZONE In Dental Medicine

It is a duty and a pleasure for me to report at this Congress on my experience in using ozone/oxygen mixtures in dental medicine.

I am able to look back on 20 years of application and therapy, both in dental prosthetics and in conservative dentistry as well as - and especially - in jaw surgery.

Whereas I employ the ozone/oxygen mixture dissolved in water for prosthetics and conservative treatment, I also make use of the ozone/oxygen gas mixture in surgery.

The positive effect of ozonized water is based on its disinfectant properties. It exerts - as bacteriological studies have proved - an effect 5,000 times greater than that of chlorine gas. Simultaneously, it is a fungicide, bactericide and virucide.

The following aspects must be taken into account in the preparation of ozonized water with apparatus manufactured by Messrs. Hansler:

1) Only bidistilled water may be used as it is only possible in this way to guarantee a relatively long

half life of the mixture;

2) the bidistilled water must be subjected to an infusion with the highest concentration of the ozone/oxygen mixture for a period of at least 20 minutes, i.e. to obtain 47 to 61 mg per ml.

The water treated in this way can then be used for 3 – 4 hours in therapy.

In conservative dental medicine, I use this with the greatest success in the treatment of traumatically exposed pulpae and caries profunda, as well as for the disinfection of normal cavities prior to applying pulp protective substrates.

In prosthetics, this method has proven itself to be of the greatest value for the disinfection of prepared stumps before fitting crowns and bridge abutments.

When performing this, I always pay attention to the fact that it is important for the patient to receive local anaesthetics as the ozonized water must not be preheated, which may be painful to the patient if the teeth under treatment are to be subjected to irrigation with it.

This also means that the sulcus area of the prepared tooth stumps is optimally disinfected by the application of ozonized water.

For me, ozonized water and the ozone/oxygen gas mixture have an importance which is simply immense, particularly in major and minor jaw surgery.

Prior to this technique, it had always been difficult to treat gingival inflammations in a biological manner.

This is the experience which every dental physician makes in the treatment of periodontosis and difficult dentition, but also in apical and gingival pocket abscesses as well as Schmutz (persistent paradental) pyorrhoea.

Ozonized water is capable of making the acute inflammatory components of these complaints disappear rapidly and effectively.

This has the additional advantage for the patient that side-effects - such as used in the case of allopathic antibiotics and disinfectants - are avoided. I use no antibiotics any more, even in the treatment of the most severe apical abscesses and difficult dentition. After wide cleavage, I employ repeated rinsing over a more extended period of time and, if necessary, ozone/oxygen gas application. A light drainage tampon keeps the lesion open between the rinsings or gas application periods. A treatment of this type takes 2 to 3 days at the most.

The application of ozone/oxygen has shown itself to be a very special help where surgical interventions in the maxillary regions are concerned.

The operative rectification or surgical rehabilitation of patients suffering from chronic complaints has become my special field. These are patients with a weakened resistance, especially as regards their immunological capacity. Consequently;

1. they are particularly prone to infections, and
2. their regulatory mechanisms become deranged.

I test for these factors by means of regulation tests, for example with decoder measurements, a leucocyte test (after Pischinger) and infrared test procedures. It would exceed the limits of this paper to describe these test methods in detail: naturally, I am willing to give information at any other time.

A rigidity or paralysis of the body's regulatory mechanisms leads to symptoms of disease e.g. such as those belonging to the rheumatic complex, or eczemas, vegetative dystonias, cephalgias, trigeminal neuralgia, cardiac and circulatory disturbances, renal insufficiencies etc.

All patients manifesting these symptoms have one thing in common: the organism concerned is suffering from demonstrable chronic inflammatory processes. Here, the majority of forms occur in the head region, although chronic appendicitis, cholecystitis, the tonsils and large, disturbing scar formations, particularly those including foreign bodies, are also involved.

Chronic inflammations of this type must be eliminated if one wishes to treat such patients with any chance of healing them.

My experience has shown me that a surgical intervention undertaken before the general regulatory function of the patient has at least been partially restored is much more harmful than it is useful, and such methods have, as a result, brought discredit on the entire doctrinal system on foci in medicine.

This is why a test must first of all be carried out to clarify the situation as regards the patient's regulatory system. If serious disturbances or even an eminent rigidity (paralysis) is discovered as a result, a specific and directed preliminary treatment must be undertaken. Apart from dietary measures in the form of reducing the patient's intake of animal proteins, and physical readaptation therapy with homoeopathic/biological preparations, I always apply ozone in the form of autohemotherapy or hemodialysis. This treatment generally lasts approximately 3 months.

This therapy has proved itself to be most effective every time I have applied it.

Of course, care must here always be taken that the ozone/oxygen concentration should neither be too high nor applied more than 1 - 2 times per week. I use 500 - 1, 000 mg %.

As stated by Viebahn, this therapy is to reactivate the disturbed oxygen metabolism, "whether this is by enhancement of the arterial partial oxygen pressure PO_2 , an increase in the arteriovenous PO_2 difference, or by raising the amount of deoxygenating substances - which release a larger quantity of O_2 into the tissue - or by increasing the rate of oxygen processing".

It is then possible to undertake restorative surgery on patients whose regulatory mechanism has been reestablished in the way described.

I am also unable to dispense with the use of ozone and oxygen when I apply surgical intervention.

This already starts with the disinfection of the buccal cavity prior to the first cut.

As an intraoperative method, the application of ozonized water has a number of useful effects. Thanks to its oxidizing effect - similar to that of a hydrogen peroxide mixture - the area under surgery remains free of bleeding to a considerable extent. This makes it possible for me to see fine bony structures much better and puts me in a position of being able to differentiate between healthy bone tissue and inflammatory processes in the jaw.

Uninterrupted spraying and irrigation with ozonized water has a pronounced cleaning and disinfecting effect. This is necessary as proteolytic ferments, thioether and mercaptans as well as bacteriotoxins of the most different kinds have penetrated from the devitalized teeth into the surrounding bony tissue of the jaw, and have there produced the chronic inflammatory processes. It is known that these chronic inflammatory processes become autonomous and continue to expand even after extraction of the teeth which caused them: a several thousand histological preparations which I had made following surgical rehabilitation have proven this to me over and over again.

A simple tooth extraction, such as is performed in accordance with the handbooks, is here not sufficient to eliminate the disturbances. Removal of the surrounding bone tissue reactively involved is best carried out with ozonized water sprayed under slight pressure. In this way, it is possible to preserve completely the healthy portion of bone.

Irrigation or rinsing with ozonized water also shortens the operative shock to the tissue and stimulates local metabolism, particularly leucocytolysis and thus the leucotactic effects.

In addition to this, I have been able to prove, in a series of tests via infrared measurements taken by means of an oral probe, that the temperature of the tissue in the area under surgery, which usually experiences an initial drop of 1 - 1.5 degrees centigrade, had risen by 1 degree once more within 3 - 5 minutes under the influence of ozonized water and ozone gas insufflation. This must be assessed as a normalization of the local metabolism.

After the extraction of teeth manifesting acute inflammatory paradental or apical processes, the application of ozonized water and the ozone/oxygen mixture has such a bactericidal effect that the use of antibiotics is superfluous in spite of an immediate salivaproof suture being placed.

In dental practice, the so-called dry alveoli and post-extractional pain are frequent and feared occurrences.

With surgical extraction and the use of ozone, it ought to have been possible to eliminate these symptoms a long time ago.

Occasional badly healing wounds - especially in those patients with a reduced resistance capacity
- can be rapidly brought under control with ozonized water and ointment wads.

To summarize, I am able to say:

Ozone equipment should be on hand in every modern dental practice.

The application of ozone and oxygen is a modern biological therapeutical agent which, when applied professionally, is beneficent, completely free of hazard and without complications of any kind for the patient.