Ozone-Therapy

Applications and Indications of Medical Ozone

Ozone Seminar Congress, Munich

May 23 –25, 2003
Medical Ozone

Medical Ozone is a mixture of pure Oxygen and pure Ozone

<table>
<thead>
<tr>
<th>Ozone Content</th>
<th>Volume Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>O₃</td>
<td>0.05%</td>
</tr>
<tr>
<td>O₂</td>
<td>99.95%</td>
</tr>
<tr>
<td>O₃</td>
<td>5% (Vol.)</td>
</tr>
<tr>
<td>O₂</td>
<td>95%</td>
</tr>
<tr>
<td>O₃</td>
<td>1 µg/ml</td>
</tr>
<tr>
<td>O₂</td>
<td>100 µg/ml</td>
</tr>
</tbody>
</table>
Indications for Ozone Therapy

- Arterial Circulatory Disorders
- Immunodeficiency and Immunodysbalance
  - Additive Therapy in Carcinoma Patients
  - Diseases caused by Viruses (espec. Hepatitis)
- Inflammatory Conditions
- Rheumatic Diseases
- External Ulcers and Skin Lesions
- Dentistry
Systemic Forms of Application

- **Major Auto Hemo Therapy MAH** as extracorporeal blood treatment with $O_3$ and reinfusion of activated blood

- **Rectal Insufflation** of $O_3$-$O_2$ mixture

- **Minor Auto Hemo Therapy** as intramuscular injection of activated blood
Major Auto Hemo Therapy

- Major Auto Hemo Therapy
  extracorporeal 
  blood treatment
  avoiding forms of
  intra vascular gas application
- Indications:
  - Arterial circulatory 
    disorders
  - Immunomodulation
  - Rheumatoid arthritis and
    related problems
Rectal Insufflation
for systemic und topical efficacy

Indications:
- Proctitis
- Colitis
- All Indications for Major Auto Hemo Therapy

1. Dosage bulb (150 ml)
2. Ozone reserve bag
3. Connection locking mechanism
4. Return valves
5. Connection tube (luer)
6. Rectal catheter
Ulcerative Proctocolitis

Active Stage of Colitis

Pat. male 62 yrs.

Cryptitis with cryptal abscesses, chronic inflammation, destruction of the epithelium and massive infiltration of leucocytes (350x).

Control biopsy after 4 weeks of rectal ozone insufflation with 8.5-27 µg O3/ml and 300 mls, 3x per week:

Regular epithelium and glandular tubes. Moderate leucocyte infiltration, significant reversal of inflammatory changes

(Knoch et al. „Aktuelle Koloproktologie“)
Minor Auto Hemo Therapy

Extracorporeal blood treatment: 10 ml ozone with a concentration of 10–20 µg/ml + 2-3ml of patient’s own blood and intramuscular injection

Indications
- Allergies,
- Acne, furunculosis,
- Supportive cancer therapy

by non specific activation of the immune system, general stimulation
Topical Forms of Application

- Transcutaneous Ozone Gas Application
  in gas-tight and ozone-resistant plastic covers
- Ozonized water
  in the form of spray or compresses
- Rectal O₃-O₂ insufflation
- Intraarticular injections
- Intramuscular injections
- Ozonized olive oil
Local Ozone Treatment
in the form of the low pressure system acc. to Werkmeister

Indications
- Decubitus ulcer
- Badly healing wounds
- Diabetic gangrene
- Burns
Ozone Treatment in Surgery

- 1915 A. Wolff
- 1935 E. Payr
- 1937 P. Aubourg
- 1977 O. Rokitansky
- 1981 H. Werkmeister
- 1987 H.G. Knoch
- 2002 Calderon, N.A. Kauffmann, T

Werkmeister 1984
The Use of Ozonized Water
in the form of spray or compresses
Intraarticular Injections in Orthopedics

- 1981  Z. Fahmy, Bad Kreuznach, Germany
- 1989  E. Riva-Sanseverino, Bologna, Italy

Indications:
- Gonarthrosis
- Arthrosis of other joints
- Rheumatoid arthritis as supportive therapy
Subcutaneous, intracutaneous and intramuscular injections

- 1979 Herget
  Gießen
- 1999 Balkanyi
  Zürich

Indications
- Myotraumatic syndrome
- Myoglobinosis
  eg in combination with
  tonanalgetic treatments
Mechanism of Action in Topical Applications

1. Microbicidal effects, i.e. bactericidal, fungicidal, virustatic
2. Wound cleansing effect
3. Wound healing effect
4. Immuno activation
Mechanisms of Action in Systemic Applic.: MAH

1. Activation of Immunocompetent Cells
2. Activation of Red Blood Cell Metabolism
3. Activation and Induction of Biological Antioxidants and Radical Scavengers
<table>
<thead>
<tr>
<th>Concentration</th>
<th>Application</th>
<th>Indication</th>
<th>Efficacy</th>
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<tbody>
<tr>
<td>100 µg O₃/ml</td>
<td>topical application</td>
<td>superinfected wounds</td>
<td>germicidal wound - cleansing</td>
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<tr>
<td>90</td>
<td>topical application</td>
<td>active colitis</td>
<td></td>
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<tr>
<td>80</td>
<td>topical + system.</td>
<td>badly healing wounds</td>
<td>germicidal, activation of cell metabolism</td>
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<tr>
<td>70</td>
<td>application, limit</td>
<td>proctitis</td>
<td></td>
</tr>
<tr>
<td>60</td>
<td>for system. treatment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>systemic treatment</td>
<td>Ciculatory disorders,</td>
<td>Immuno modulation, activation of RBC-metabolism, increase of antioxidants</td>
</tr>
<tr>
<td>40</td>
<td></td>
<td>immuno-dysbalance</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td></td>
<td>revitalization,</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
<td>improvement of wound healing</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
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</tbody>
</table>
Contra-Indications and Applications

Contra Indications
1. Glucose-6 Phosphat- Dehydrogenase-Deficiency (Favism)
2. Hyper Thyroidism

„Contra Applications“
1. Intravenous Gas Injections
2. Intraarteriel Gas Injections
3. Hyperbaric Reinfusion