

Ozone therapy - present and perspective.

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ABSTRACT

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This work connects extensive literature research of the last three decades on medical ozone and the personal clinical experience (more than ten years) of ozone therapy.

Classical and more recent concepts were considered: hormesis and low-dose concept, ozone action through messenger-molecules – reactive species (well-studied H₂O₂ and 4-HNE), their implication in the redox homeostasis and in cellular signalling and the consecutive cellular response by adaptation or apoptosis. Another issue in the therapy is a correct diagnosis – based on molecular mechanisms. Many current diseases are sharing commune etiopathogenesis – redox homeostasis alteration, mitochondrial dysfunction, chronic inflammation, endothelial disturbances, early cellular senescence, accelerated apoptosis. As such, a new therapeutic concept aimed to adjust these mechanisms appeared: “Many diseases - One therapy”, and the ozone fits perfectly to this pattern.

The mentioned diseases and their complications have a tremendous emotional and social impact on the patients and their families and a negative economic effect on society. If ozone therapy is correctly applied – proper diagnosis, low/medium doses, standard and safe procedures, complementary to the specific treatment/diet of undergone conditions – it will act on numerous diseases, improving the clinical status, stimulating the healing process, practically without side effects. Despite the O₃ clinical efficacy, its potential toxicity as a strong oxidant is a cause for concern. This occurs when the doctor does not correctly evaluate the oxidant status of the patient, while he is not aware of the disease etiopathogenesis and/or when he applies inadvertent ozone operational procedures.

Future works, especially controlled randomized studies, are necessary to demonstrate the efficacy and safety of ozone therapy and whether these effects persist over time.