

16. OZONETHERAPY IN HYPERTENSION AND ISCHEMIC DISEASES

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Introduction. Cardiovascular pathologies are the leading cause of death worldwide. These diseases can be either the main cause of death or an underlying condition that aggravates the patient's prognosis. About 17.9 million people die per year from cardiovascular disease, of which 85% come from low- to middle-income countries, in whose classification The Republic of Moldova takes part of. Furthermore, atherosclerosis is an underlying condition in about 50% of all fatal cases that take place in western countries. There are multiple ways of treating cardiovascular diseases, of which an underused but effective method is ozonotherapy which is useful for its vasodilatory, anti-aggregative, anti-inflammatory properties, and for its role in the oxidation of tissues.

Aim of study. As the background, we have identified pathologies that are a leading cause for death or a chronic physical ailment that could change the patient's way of living life, after which we have identified statistically significant studies that have used Ozonotherapy to study the effects of Ozonotherapy in the body, as a treatment option to enhance the prognosis of patients suffering from atherosclerosis or its efficacy in the rehabilitation of patients that have already suffered from a heart attack or other cardiological diseases.

Methods and materials. For the purpose of the study, we have accessed literature from relevant sources that is found in books or in databases, such as NihGov, PubMed, NCBI, and ScienceDirect. With the usage of keywords such as "Ozonotherapy", "Atherosclerosis", "Ischemic heart disease", "Hypertension", "Heart attack", "oxidative stress".

Results. After reviewing the relevant sources and verifying their legitimacy, we have found statistically significant improvements in parameters that are relevant for hypertension where the endothelin-1, Renin, and Nitric Oxide levels of subjects that had Hypertension induced and had subsequently undergone Ozonotherapy presented levels similar to the control group with $p < 0.05$, paradoxical anti-oxidative properties where shown to be present as well. After 5 and 15 sessions of Ozone therapy, Cholesterol levels dropped by 5.5% and 9.7% respectively, LDL levels were found to be significantly reduced by 15.4% and 19.8% respectively, while no significant modification was found in HDL levels, these molecules being Major contributors or inhibitors of Atherosclerosis pathogenesis. Ozonotherapy has shown its efficacy in enhancing the odds of a favorable prognosis in patients with peripheral atherosclerosis and in the rehabilitation of post-stroke patients as well.

Conclusion. Ozonotherapy is an underused but effective minimally invasive method in the treatment of patients with heart disease, in controlled dosages using methods such as abdominal insufflation, Ozone-treated NaCl solutions ("Physiological solution"), Minor and or Major Auto-Hemotherapy, Ozonotherapy improves the prognosis of patients suffering from ischemic heart disease by increasing the adaptability of the body to oxidative stress, as well as by transforming cholesterol into oxysterol that is later taken up by Lipoprotein molecules and processed in the hepatocytes. The importance of which is highlighted by the fact that Oxidative stress and cholesterol are major causes of ischemic heart disease. Thus concluding that Ozonotherapy is worthy of more studies and subsequently enhancing the frequency of its usage in a clinical environment.