Ozonetherapy in the Treatment of Internal Diseases

Oleg.V.Maslennikov [1], Claudia N. Kontorshchikova [2], Sergey V.Andosov [3] ,
Irina A.Gribkova [4], Elena E.Pavlovskaya [5], Elena A.Piatina [6]

[1,3,4,5,6] Department of New Medical Technologies, Nizhni Novgorod State Medical Academy,
3-Ashkhabadskaya str, N.Novgorod, 603600, Russia
[2] Chair of Clinical and Laboratory Diagnostics, Nizhni Novgorod State Medical Academy,
10/1 Minin sq., N. Novgorod, 603005, Russia

Abstract

The results of ozonetherapy used in managing 500 patients with the most common internal diseases is presented. There was used a wide range of methods based on ozone/oxygen mixtures. Ozonetherapy proved to be highly effective in the treatment of patients with cardio-vascular, pulmonary, gastrointestinal and endocrinological diseases. Positive results were received in 90% of cases.

Introduction

The use of ozone/oxygen mixtures in medicine has come to be quite a new approach in treatment of various diseases. Ozone capacity to enhance the delivery and release of oxygen into tissues, as well as its disinfectant properties stipulate the extensive use of ozonetherapy. It proved to be efficient, tolerable and easy to use (14,15).

The aim of the article is to share the results of ozonetherapy use in the treatment of 500 patients with internal pathologies - cardiology, gastroenterology, pulmonology, endocrinology.

Material and Methods

Various methods to administer ozone/oxygen mixtures were used: intravenous infusions of ozonated saline, major and minor autohaemotherapy of ozonated blood, intramascular and subcutaneous injections of gas mixtures, rectal insufflations, ozonated water or oil *per os*. Ozonetherapy was applied both as a monotherapy and in combination with medications. If it was started and continued along with the use of medicines, their dosage was gradually reduced with improvement of patients condition.

While evaluating the results of ozonetherapy we regarded 50% symptoms reduction as “Good”(valid improvement). A lower level in the improvement of patients condition was estimated as “Satisfactory”. No improvement or worsening in the patients state was qualified as “Unsatisfactory”.

Results and Discussion.

The effect of ozonetherapy was evaluated in patients with hypertonic disease and ischemic heart disease.

Among the methods used in ischemic heart disease treatment a special place belongs to ozonetherapy. The action of the available coronary-active preparations(nitrates, β-adrenoblocades, calcium antagonists) is based on reducing myocardium need in oxygen. It can be achieved by decreasing cardiac blood supply (nitrates), slowing down the cardiac rhythm, lowering the arterial pressure, inhibiting Myocardium contractile function **(**β-adrenoblocades, calcium antagonists), i.e. by generating pronounced hemodynamic effects.

To increase oxygen supply without launching these mechanisms seems to be of particular importance, since it implies the possibility to improve the treatment of this category of patients. The increase in oxygen supply can be achieved with the help of ozone/oxygen mixtures. Ozonetherapy can be appealed to in those cases when the administration of conventional medicine appears to be difficult due to bradicardia, hypotension, cardiac insufficiency. It can be recommended to patients with various forms of disease (6).

142 patients with ischemic heart disease were divided into 4 groups according to the functional class of the disease. The results of treatment are presented in Table I.

Table I. Evaluation of Ozonetherapy in Patients with Ischemic Heart Disease.

Functional class	Number of patient	Evaluation of Treatment		
		Good	Satisfactory	Unsatisfactory
FC-I	3	3	0	0
FC-II	82	74	6	2
FC-III	50	45	4	1
FC-IV	7	7	0	0
%		91%	7%	2%

As it can be seen from the Table, valid improvement was registered in 91% of cases. The received results coincide with the available references to high efficiency of ozonetherapy in cardiovascular pathology. It is explained by activation of oxygen transport, microcirculatory mechanisms and improvement of blood rheology (7,15).

The second positive effect of ozone is achieved due to its coagulation properties. Circulation disorders are known to result from the blood clots that are formed in the place of atherosclerotic plaques disruption or lesion of vessel epithelium. The main cause is in blood hypercoagulation and increase of thrombocytes activity.

Table II presents the changes in blood coagulation data before and after the course of ozonetherapy. It can be seen that ozone induces the decrease in thrombocytic activity, increase in fibrinolysis, deterioration of blood coagulation properties. Thus, it might prevent the thrombus formation or, most likely, eliminate upsetting the arterial bloodflow (5).

Table II Ozone Effect on Blood Coagulation

	Before the treatment	After the treatment
I.Thrombocytes aggregation With ADP (%)	44.4+ 4.9	39.7+ 4.5*
II.Fbrinolysis activation (min)	213+48	194+50*
III.Activated partial thromboplastin time(sec)	36.6+5.3	40.3+5.3*
IV.Fibrinogen (g/l)	4.37+0.9	3.02+1.3*

*-$p<0.05$

The appeal to ozonetherapy in the treatment of 68 patients with hypertension resulted in positive outcome of various degree in all cases.

According to the membrane theory of hypertonic disease, the increase of arterial pressure is caused by the dysfunctions of regulatory mechanisms in circulation system due to energy deficiency on the cellular level. The decrease of cellular energy is connected with genetical changes of membrane regulation(overload) of intracellular calcium.

Mitochondria are known to be responsible for energy supply with oxygen playing the leading role. It is in mitochondria with participation of oxygen that oxidation of fatty acids and glucose takes place. The released energy (in a form of ATP) is then used to meet energetic needs of the body.
The most significant manifestation of membrane defect in calcium regulation is observed in decrease of ATP synthesis and consequently the reduction of free energy delivered to membrane pumps. It makes cellular membrane system function on a lower energetic level.

Hypertension is considered to be a compensatory response of the circulation system to the reduction of cellular energy by activating sympathetic nervous system, endocrine system and other integration systems (10). Thus, the increased AP is a natural circulation condition that corresponds to the decreased level of cellular energy.

In ozonetherapy elevation of cellular oxygen supply activates proton ATP-ase that connects the processes of respiration and oxidative phosphorilation in mitochondria, improving ATP synthesis. It normalizes the activity of K,Na,Ca ATP-ase, transport pumps responsible for maintenance of cations concentration gradient and, thus, increases cellular energetic potential. It is also stipulated by activation of glycolytic and pentose ways of glucose oxidation.

It becomes evident from the fact that ozonetherapy as an independent hypotensive remedy proved to be effective in 70% of cases in initial labial hypertension. In patients with steady hypertension-II, when it became irreversible due to structural changes in the heart and vessels, kidneys, adrenal glands and other systems ozonetherapy was used in combination with hypotensive medications, reducing their dosage. In combined treatment such symptoms as headaches, dizziness, cardiac pains resistance to medicines were controlled much earlier compared to the patients that were on conventional treatment without ozonetherapy. Besides, the received results were achieved due to better oxygen supply to kidneys and brain. Blood rheology, vasodilatation of arteriols and postcappilary venules were also improved (7).

Positive results were received in patients with diabetes mellitus. The group consisted of 26 patients with insulin-dependent and 66 -with insulin-independent forms, 85% having moderate and severe

courses of the disease. Valid improvement (decrease of hyperglycemia, thirst, polyuria, weakness,etc.) was noted in 92% of insulin-dependent and 89% of insulin-independent patients. The results are presented in Table II and Table III.

TableII. Ozonetherapy Effect in Patients with Diabetes Mellitus-I

Course of the Disease	Number of patients	Results of Treatment		
		Good	Satisfactory	Unsatisfactory
Mild	0	0	0	0
Moderate	16	14	2	0
Severe	10	10	0	0
%		92%	8%	0

TableIII. Ozonetherapy Effect in Patients with Diabetes Mellitus-II.

Course of the Disease	Number of patients	Results of Treatment		
		Good	Satisfactory	Unsatisfactory
Mild	14	14	0	0
Moderate	45	38	0	7
Severe	5	5	0	0
%		89%		11%

The number of decompensated patients after the course of ozonetherapy diminished from 62% to 13%. In a major part of patients we managed to decrease the dose of glucosecontaining remedies. Positive changes were explained by enhanced transport of oxygen and glucose and improved functions of the pancreas and of the liver(8,13).

As a rule, significant decrease of glucose level started on the third day of treatment. In the majority of patients we managed to achieve the state of compensation that was regarded as the main criterion for successful treatment.

It should be noted, that the patients on having undergone the course of ozonetherapy could then keep taking a decreased dose of insulin (1/3) .the fact can be regarded of great medical and social importance. Ozonetherapy effect was found to be maintained for the period of 3 to 6 months. Then the patients were to re-undergo the course.

The group with broncho-pulmonary pathology consisted of 35 patients with chronic bronchitis and 42 patients with bronchial astma. The course of ozonetherapy resulted in positive effect in 79% and as a satisfactory - in 21% of patients with chronic bronchitis. 86% of patients with bronchial astma were noted to have valid improvement of their condition revealed in less number of suffocation fits and possibility to take less doses of the administered medicines. Satisfactory and unsatisfactory results were recognizes in 7% and 7% of cases, respectively. In this group ozone due to its immunomodelling properties produced the effect on bacterio-viral infection, caused its dilating influence on smooth muscles and provided oxygen delivery into the blood by-passing the lungs(14).

At present time prolonged oxygenotherapy (16-18 hours) is considered to play a major role in managing chronic obstructive diseases (11,16), decreasing the mortality rate and improving

the life quality in patients with severe course and pronounced hypoxemia. Ozonetherapy due to its capacity to control oxygen deficiency and to provide prolonged oxygen delivery into tissues seems to be a real alternative to prolonged oxygenotherapy.

Patients with chronic gasritis-B (101 cases) and ulcer of the duodenum(59cases) were included into the group with gastroenterological pathology. Ozonetherapy produced a positive effect in 97% of patients with chronic gastritis, improving their condition, and 95% of patients with ulcer, eliminating clinical symptoms. In 56% of cases it resulted in complete cicatrization of ulcerous defect. The essence of the treatment was in antihelicobacterial ozone action with elimination of ammonia cytotoxic effect on the mucous membrane of the stomach. Ozone, launching antioxidant mechanisms, also produced general and local immunomodelling effect, improving regional circulation. Ozonetherapy was used as monotherapy in patients with chronic gastritis and in combination with other medications in managing patients with ulcer (1,4)

Conclusion

The presented results of appealing to ozonetherapy in managing the most common inner pathologies give profound evidences of its high efficiency. Ozonetherapy can be used as an independent method and in combination with medications, potentiating their action.

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