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The influence of a single session application of the medical blanket (OLM-1) on the measurement of free radical processes in the blood

Currently the medical multilayered blanket (OLM-01) is used for the treatment and preventive maintenance of a multitude of conditions, which has grown from results of long-term research and developmental studies in the field of bio-resonant therapy. It belongs to a specific category of medical devices, which is based on bio-energetics and the particular functioning of the human body as a self-regulating system. OLM-01 is protected by a patented invention. The special film which is inside of the blanket does not allow the dissipation of the patient's own radiation, thereby reflecting them, influencing the organism, which adjusts the apparent imbalances in the maintenance of a homeostasis of the organism. The medical blanket differs from known analogues ("accumulators" of biological energy rays and Kolokoltseva) in that it reflects the patient's own electro-magnetic radiation of the highest frequency and of the infra-red spectrum.

Use of the medical blanket has allowed the application of the theory of adaptable reactions and resistances of an Organism in medical practice and also to expand on opportunities in activation therapies [2, 3]. OLM is essentially a new means of adjusting psycho-emotional and soma-vegetative functions of the patient. Regulation is achieved through the creation of an immediate ecological environment which is formed around the patient within the blanket.

The purpose of the given research was to present a clear indication of the influence of the medical blanket on processes of free radicals of the peroxide oxidations of lipids (POL) and activity of the antioxidant systems (AOS) of humoral and cellular (modelled on erythrocytes) systems of the organism. The basic task of the research was the study of changes in the range of indices of homeostasis in the clinically healthy person after the single application of a therapeutic blanket and its placebo. The placebo blanket used was outwardly similar, but did not contain the acting film.

The primary goal of research showed changes of levels of the diene conjugates (DC) estimates, malonic dialdehyde (MDA) and Schiff bases (SHO), and also a degree of catalysis activity (KA) in plasma and the erythrocytes of blood, activity of ceruloplasmin (CP) of plasma and superoxide dismutase (SOD) of erythrocytes.

Material and methods of research.

The research task was conducted with two groups of practically healthy persons from of 20 to 52 years of age, 7 of whom were men and 10 were women.

Group 1 (9 persons) comprised of persons, to whom a single full 30 minute wrapping of the medical blanket was applied. Group 2 (8 persons) included persons who received the procedure with the Blanket - placebo. Studies were conducted by the method of double blind control. A sample of blood for biochemical analysis was taken 1.5 hours before the procedure and 1.5 hours after its completion.

Diene conjugates (DC) in plasma and erythrocytes, a content of malonic dialdehyde (MDA) in plasma blood and hemolysates, Schiff bases (SHO), lipids from blood plasma and erythrocytic membranes were defined by conventional methods.

In determining the activity of the catalysis (KA) in the blood plasma, the methods of M.A. Korolook et. al. (1988) were used. Activity in the KA in the haemolysis of erythrocytes were defined by the method of M.Luck (1963). The oxidated activity of ceruloplasmin (CP) in blood plasma were determined by Revina's method modified by V.G. Kolba, V.C. Kamishnikova (1982). Activity of the superoxide dismutase (SOD) were defined by the method of Fried (1975). Summation peroxide activity (SPA) in the blood plasma – A.I. Lukash et. al. (1966). The number of peripheral erythrocytic haemoglobin (PEG) – haemoglobincyanidal method (A.V. Karakashov, E.P. Vichev, 1973).

Structural condition of erythrocytic membranes were determined with the assistance of fluorescent pyrene probes (U.A. Vladimorov, G.E. Dobretsov, 1980; G.E. Dobretsov 1989). The defined coefficient pyrene excimer (Fe/Fm). The micro viscosity of erythrocytic membranes was estimated at a wave stimulation length of 334 nanometers and 282 nanometers, maxima fluorescence of wave lengths formed for the monomers of pyrene - 393 nanometers, for excimers - 470 nanometers. The degree of immersion proteins in the lipid bilayer was defined by the suppression of the fluorescence pyrene proteins - ΔF (Fo-F/Fo), to a derivative at a maximum stimulation wave length of 282 nanometers and fluorescence wave length of 330 nanometers (U.A. Vladimirov, G.E. Dobretsov, 1980). Erythrocytic membrane polarity was estimated by the intensity ratio of the two fluorescence monomeric forms F372 / F393 near stimulation length of 334 nm and 282 nm (G.E. Dobretsov, 1989).

From the analysis results consideration was given to the changing research parameters within the time constraints of the investigation of each group and was expressed in percentages of baseline levels.

Research Results and Discussion.

Dynamics of the activity of the systems POL/AOS of plasma blood in the supervised groups is presented in Table 1.

Table 1

Dynamics of the activity of the systems POL/AOS of plasma blood in the supervised groups **Parameters [OLM] Group 1 Placebo Group 2**

Parameters	**[OLM] Group 1**		**Placebo Group 2**	
	Initial	**After 1 ½ hrs**	**Initial**	**After 1 ½ hrs**
DK nmol/ml	16,8±2,6	18,9±3,5 **+12,4%**	15,1±1,6	14,8±2,1 **-2,0%**
MDA nmol/ml	28,5±3,1	29,8±2,1 **+4,3%**	31,6±4,5	27,5±3,4 **-13,1%**
SHO otn. ed./ml	1,60±0,19	1,57±0,17 **-2,1%**	2,0±0,1	1,9±0,2 **-7,9%**
KA Nmol H2O2/ml	15,8±3,4	15,3±2,6 **-3,0%**	19,4±2,2	15,9±1,7 **-18,0%**
CP Mkm/l	0,9±0,1	0,9±0,1 **+2,7%**	1,4±0,1	1,3±0,1 **-5,9%**

Legend: In the second column percentage changes in the rate relative to its original value.

Due to the fact that the OLM's attributable factors were of a small intensity [9], we did not expect statistically significant changes in biochemical parameters, and we found this to be correct in considering dynamic tendencies of the research parameters.

In general, a picture of minor free radical and lipoperoxidization activation processes was seen in the parameter levels in the system POL/AOS of plasma blood of the volunteers of the first group. This activation is accompanied by accumulation only of primary and by-products of the POL as a result of the tendency to reduce its end-products, Schiff bases, i.e. those substances of POL which render irreversible effect [1, 4]. Against this backdrop are noted manifested variations of enzymatic antioxidants activity. So activity of KA had decreased by 3 %, and the CP – had increased by 2, 7 %. In the control group there was a tendency of a reduction in the formation of free radicals and products POL, as well as a reduction in enzymatic activity of AOS was also evident.

Table 2
Dynamics of parameters of the system POL/AOS erythrocytes, in the supervised group.

	[OLM] Group 1		Placebo Group 2	
Parameters	**Initial**	**After 1 ½ hrs**	**Initial**	**After 1 ½ hrs**
DK nmol/mg Nb	3,29±0,25	3,27±0,26 **-0,6%**	7,6±0,5	6,2±0,4* **-19,5%**
MDA nmol/ mg Nb	5,3±0,7	4,8±0,6 **-8,4%**	4,5±0,6	3,9±0,4 **-12,2%**
SHO otn. ed./ mg Nb	0,71±0,14	0,66±0,10 **-7,1%**	0,44±0,04	0,37±0,06 **-16,3%**
Sod ed./ mg Nb	3,3±0,2	4,0±0,3 **+19,9%**	32,3±0,2	3,5±0,1 **+4,8%**
KA Nmol H2O2/ml	23,6±0,8	26,3±2,2 **+11,3%**	18,6±1,1	18,8±1,4 **+0,7%**

Legend: * - reliability figure differences (P <0,05), compared with the reference value; in the second line the percentage changes in the rate relative to its original value.

Dynamics in the system's parameters of POL/AOS erythrocytes in the supervised groups is presented in Table 2. Changes in the levels of system's erythrocyte parameters of POL/AOS in the supervised groups were unidirectional and were expressed in the tendency of decreased activity in the processes of lipid pero-oxidations, accompanied with insignificant activation of enzymes of antiradical protection. But in the second group there was a greater reduction in the level of products of POL, where the level of DK decreased by 19,5 % (P <0,05), in comparison with the first group where parameters practically did not differ in the baseline. Activation of the erythrocytes SOD and KA was expressed more in the first group where the increase of activity SOD achieved 19,9 %, and KA – 11,3 % (in the second group of 4,8 % and 0,7 % respectively).

Table 3

Dynamics in the parameters of the structural condition of erythrocyte membranes in the supervised groups of OLM (group 1) and Placebo (group 2).

	OLM Group 1		Placebo Group 2	
Parameters	**Initial**	**After 1 ½ hrs**	**Initial**	**After 1 ½ hrs**
SPA ed./ml	6,3±1,1	6,7±0,9 **+7,7 %**	2,3±0,5	2,2±0,5 **-7,0 %**
VEG mkM/l	4,8±0,6	4,9±0,6 **+2,3 %**	6,5±1,5	4,4±0,4 **-33,3 %**
Fe/Fм 334 Otn.ed.	0,75±0,03	0,75±0,04 **-0,3 %**	0,76±0,03	0,81±0,03 **+7,1 %**
Fo-F/Fo (ΔF) Otn.ed.	0,13±0,01	0,10±0,01 **-22,9%**	0,147±0,01	0,154±0,01 **+4,3%**
F372/F393 (334) Otn.ed.	1,07±0,03	1,04±0,05 **-3,0%**	1,073±0,01	1,065±0,02 **-0,7%**
F372/F393 (282) Otn.ed.	1,12±0,03	1,15±0,04 **+2,7%**	1,27±0,02	1,26±0,02 **-1,1%**

Note: the second line shows the percentage changes in the rate relative to its original value.

Dynamics in parameters of the structural condition of erythrocyte membranes in the supervised groups is presented in Table 3. In the erythrocyte membranes surveyed in the first group the polarity environment of the pyrene probe (F 372/393) certified the transferred destructive cell processes of activation of the POL which increased in the zones of the lipid protein membrane contacts of 2,7 %, and in the lipid bi-layer there was a decrease of 2,3 %. Practical absence of dynamics in the excimer pyrene factor testifies to absence of changes in micro viscosity of lipid zones and lipid proteins membrane contacts that confirm minor alterations of activity and the POL. However, an exponent of the immersion of proteins in lipid bi-layers, as one of the parameters of stability of a membrane including functional, has decreased by 22, 9 %. Such a tendency can testify to some deterioration of functionalities and stability of the erythrocyte membrane due to deterioration of its structural parities. The level of figures of SPA and VEG indirectly confirm plasmas which in the first group have slightly grown (7, 7% and 2, 3 % respectively).

In the second group dynamics of the listed parameters testifies to more favourable changes in erythrocyte membrane structure. Micro viscosity of lipid zones and lipid protein membrane contacts had slightly decreased, consequences of activation of the POL in these zones was almost non evident, Membrane stability tended to increase which proved to be a true decrease in SPA and VEG levels (on 7,0 % and 33,3 % accordingly).

Conclusion.

1. The comparative analysis of parameters of the system POL/AOS of blood plasma and erythrocyte upon a single application of the OLM and placebo has revealed a difference of their influence on an organism of the healthy person.

2. In blood plasma upon a single application of the OLM the tendency to activate free radical processes and lipoperoxidisation is noted in the tendency to decrease the activity in KA and increase the activity of CP. In the group with the placebo there was the tendency of a decrease in the accumulation of free radicals and products POL, and also a decrease in enzymatic activity in the AOS was revealed.

3. In erythrocytic influence, the OLM practically does not change activity of the processes POL on the basis of the tendency of enzymatic activation in antiradical protection. Despite this, stability of the membrane decreased a little, to which modest levels of growth in SPA and VEG plasmas indirectly testifies. In the group with the placebo the tendency was a decrease in accumulation of products POL was revealed and a smaller enzymatic activation part of AOS on the basis of the tendency to increase the membrane stability that proved to be a true modest decrease in levels of SPA and VEG.

4. The changes noted in the system of free radicals POL-AOS in plasma and blood erythrocyte of practically healthy persons as a due result of the application of the OLM, a possibility to compare this analogy to the adaptable training reactions of activation promoting normalization of processes of self-regulation and cainogenesis.

The Literature.

1. Vnykov B.B., Kvasha P.P., Ananyan A.A., Milutina N.P. Lipid peroxidation and structurally functional properties of erythrocytes in rats with hypoxia. - Rostov-on-Don, 1995. – p.16 2. Garkavi L.H., Kvakina E.B., Ukolova M.A. Adaptable reactions and resistance of an organism. – Rostov-on-Don: Publishing house Rostov University, 1979. – p.128 3. Garkavi L.H., Kvakina E.B., Kuzmenko T.S. Antistressor Reactions and Activation Therapy. Reactions of activation as a way to health through processes of self-regulation. – M.: IMEDIS, 1998. – p.656 4. Zhdanov Г.Г., Nodel M.L. Problem of hypoxia with resuscitation patients in view of free-radical theory // the Bulletin Intensive Therapies. - 1996. - №1. - C.23-27.

5. Kashtanov S.I., Zvyagintseva M.A., Kosharskaya I.L., Mezentsev L.V., Gurin V.N. Nitrogen mono-oxide in mechanisms of stability in Cardiovascular functions under emotional stress // The Bulletin Russian Academy Of Medical Science. - 2000. - №4. - C. 21-25.

6. Manuhina E.B., Lyamina N.P., Dolotovskaja P.V., et. al. The Role of Nitrogen oxide and oxygen free radicals in pathogenesis of arterial hypertension // Cardiology. – 2002. - №11. – C.73-84.

7. Manuhina E.B., Malyshev I.J., Arhipenko J.V. Nitrogen oxide in the cardiovascular system: the role in adaptable protection // The bulletin Russian Academy of Medical Science. – 2000. - №4. - C.16-21.

8. Osipov A.N., Borisenko G.G., Kazarinov K.D., Vladimirov J.A. Nitrogen oxide, haemoglobin and laser irradiation // The Bulletin Russian Academy Of Medical Science. - 2000. - №4. - C.48-52.

9. Podkolzin A.A., Dontsov V.I. Factors of Small Intensity in Bio-activation and Immune Correction - M.: Panas-Aero, 1995. – p.195 10. Reutov V.P. Aspects of Medical and Biological Nitrogen Oxide cycles and Superoxide, an anion-radical // Russian Academy of Medical Science. - 2000. - №4. - C.35-41.

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