



## **Atherosclerosis and alternative methods of diagnostics.**

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At the moment the atherosclerosis is a serious medical and social problem because the clinical presentations of atherosclerosis, especially myocardial infarction and sharp cerebral blood flow abnormalities are constantly taking the first place in the pattern of diseases and death rate. The major risk factors in the development of the atherosclerosis are the following ones:

- arterial hypertension,
- surplus weight of body
- smoking,
- low physical activity,
- dislipoproteinemia,
- diabetes,
- frequent stressful situations,
- hypoestrogenemy during the period of menopause [1,2,3,4].

The behavior of the vessels atherosclerosis is greatly depending on the increasing of the general blood plasma cholesterol (GCh) content reaching the value of more than 5mmol/l and on the abnormal correlation of blood plasma lipoproteins trending towards the increased content of low density lipoproteins (LDL) of more than 3 mmol/l [2,6].

In the mechanism of atherosclerotic plaques formation the endothelial disorder, the superfluous proliferative activity of cells, vessels intima and fibrosis with the



subsequent formation of neointimal thickening with an increased content of endocellular cholesterol are of meaning especially.

An earlier detection and, as result, the elimination or reduction of these or those risk factors is the main way to do the primary and the secondary atherosclerosis prophylaxis. The polyethiological character of this disease dictates the necessity to improve the methods of primary diagnostics and to search the new ways to settle the problem of carrying out a mass examination of the patients contingent having the risk factors connected with the given pathology.

To optimize the early detection of atherosclerotic involvement of vessels we have applied the method of bio-resonance testing with the “Biolas-Oberon” Hardware and Software Complex [7].

104 persons in all (42 women and 62 men accordingly) in the age of 14 till 78 years have been examined; 65 of them were the group of patients with obviously diagnosed atherosclerotic involvement of large vessels (carotids in particular) with authentically increased GCh level  $> 5$  mmol/l and LDL  $> 3$  mmol/l. In the group of healthy men and women there were 39 persons, accordingly; their GCh and LDL level did not exceed the established norm. To verify the diagnosis, the ultrasonography method, the method of biochemical blood analysis have been applied.

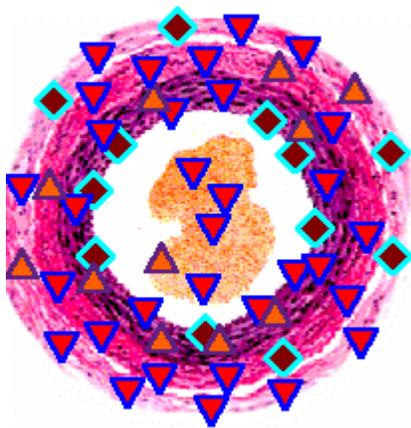
As result of the examination with using the “Biolas-Oberon” unit in the group of the tested patients having wittingly detected atherosclerosis on the cartograms corresponding to the carotic arteries and the arterial vessel lumen in the most cases (58 of 65) it was possible to detect visually the signs of the vascular walls intima pathology and of the subendothelial layer (violet triangles and black rhombuses as markers) and the spectral process “*atherosclerosis*” with the compliance factors of 0,424 to 0,119 was detected; this is the sign of a high probably disease.

Here are some examples:

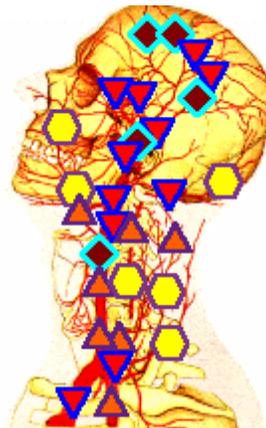
Patient D., 52 years. The index of GCh content in the blood was 6,5 mmol/l, the LPLD content was 4,2 mmol/l. In the anamnesis there were hypertonic illness, smoking, sedentary of life, frequent stressful situations. The ultrasonography showed the sclerosis of the carotids walls, the moderate narrowing of the carotids lumen. The bio-resonance testing resulted the spectral process "*atherosclerosis*" with the 0,215 factor. The cartograms of this patient are shown on fig. 1.

Patient A., 46 years. The index of GCh content in the blood was 4,3 mmol/l, the LDL content was 2,5 mmol/l. In the anamnesis there were sedentary of life, frequent stressful situations. The ultrasonography did not show any pathology of the arterial wall. The bio-resonance testing did not result the spectral process "*atherosclerosis*". The cartograms of this patient are shown on fig. 2.

Patient K., 29 years. The index of GCh content in the blood was 4,8 mmol/l, the LPLD content was 2,7 mmol/l. In the anamnesis there were smoking, the surplus weight of body, sedentary of life, frequent stressful situations. The ultrasonography did not show any pathology of the arterial wall. The bio-resonance testing resulted the spectral process "*atherosclerosis*" with the 0,495 factor. The cartograms of this patient are shown on fig. 3.



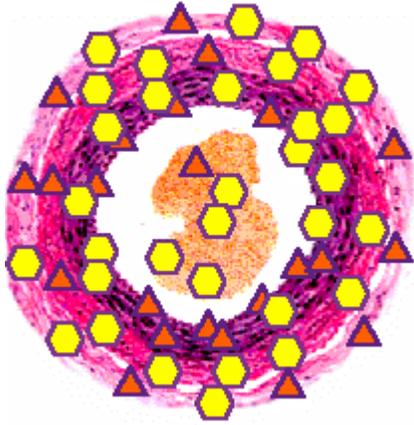
Arterial vessel lumen



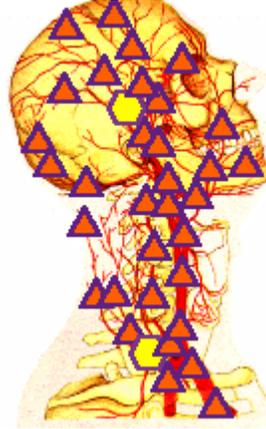
Head and neck arteries on the left side

Figure 1.

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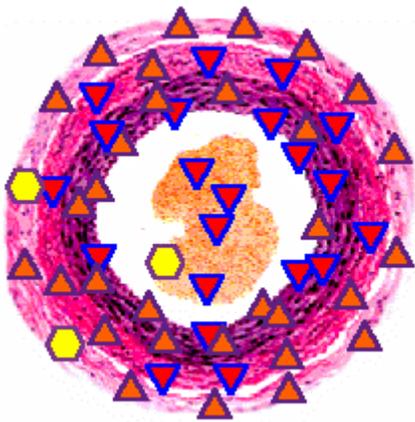
Arterial vessel lumen



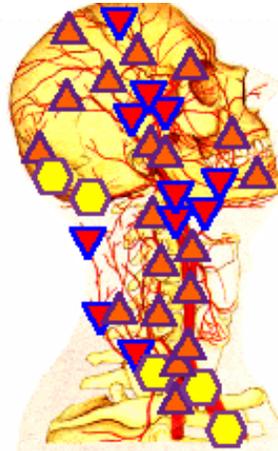
Head and neck arteries on the right side

Figure 2.

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Arterial vessel lumen



Head and neck arteries on the right side

Figure 3.

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In Fig.1 we can see, that the markers indicating the presence of an expressed pathological process are located on the course of the carotid, in the endothelial area, in the intima area and also in the deeper layers of the vascular wall. On the cartograms of patient A. having a minimal quantity of atherosclerosis risk factors there are no markers indicating the presence of any pathology. On the cartograms of the patient K., 29 years, there are indications of the presence of a not expressed vascular wall pathology. According to the description, the bio-resonance test results are confirmed by the ultrasonography examination and by the OCh and LDL labor results. As interesting can be considered the test results of patient K., 29 years, having a lot of risk factors which can be connected with some initial attributes of atherosclerosis; the CCh and LDL levels do not reach the threshold values but they are close to them.

#### Conclusions:

- The method of bio-resonance testing using the “Biolas-Oberon” hardware and software complex allows to detect the presence of atherosclerosis and to find the vascular wall pathology;
- The results of vessels examination using the “Biolas-Oberon” unit in the most cases are corresponding to the clinical methods of examination;
- The hardware and software complex "Biolas-Oberon" in some cases allows to detect the attributes of atherosclerotic changes of vessels at early stages.

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