

RESOLUTION

Of Teleconference «Interdisciplinary CardioTime»

November 25, 2021
Kyiv, Ukraine

Almost 5 000 health care specialists have registered to participate in the Teleconference “Interdisciplinary CardioTime”. Interdisciplinary format of the Teleconference was assured by involvement of speakers from different special fields, such as: cardiologists, endocrinologists, neurologists, anesthesiologists.

Cardiovascular diseases put at threat lives of patients. They are one of the main reasons of mortality in the world and Ukraine is not an exception. According to the results of STEPS research the mortality rate for cardiovascular diseases among non-communicable diseases is 63% in our country. And it is one of the highest rates in the world.

Coronary heart disease and blood stroke are the most widespread diseases of the cardiovascular system and the main factors of loss of health by Ukrainians. So the agenda of current teleconference is devoted to the following topical issues:

- What are the approaches to rehabilitation of patients with post-COVID syndrome?
- How to slow down damaging of heart, brain and kidneys in case of arterial hypertension?
- How is it possible to prevent development of chronic pulmonary hypertension after pulmonary artery thromboembolia – the results of research.
- Endocrinologist and anesthesiologist’s view of diabetes mellitus in the background of arterial hypertension.
- How to reduce ischemia reperfusion injury in acute myocardial infarction?

The chat was operated during the Teleconference “Interdisciplinary CardioTime”, so each participant had a chance to ask questions and to get answers from the speakers. And many participants left most heartfelt thanks to the speakers in the chat for their informative reports.

Conclusions and decisions based on discussion of reports:

1. Three pathophysiological syndromes launch development of post-COVID complications: endotheliitis, system background inflammation, pneumonitis and a significant clinical syndrome – asthenia. Endotheliitis is one of the leading syndromes during COVID-19 and of triggering mechanisms of the Long-COVID syndrome. System background inflammation appears as a result of damaging of vascular endothelium by cytokines and free radicals during hyperimmune reaction; the patients after recovery have higher concentration of pro-inflammatory cytokines and it proves that inflammatory process continues after recovery.
2. Prescription of edaravone during Long COVID let us reduce system background inflammation through depression of pro-inflammatory cytokines IL-1, IL-6, TNF- α and metalloproteinases, neutralizes free radicals, impedes iNOS and nNOS function, and amplifies the adhesive contacts of the endothelium. Fixed combination of L-carnitine and L-arginine will improve the power supply of myocardium and help to eliminate the effects of endotheliitis, to enhance the latter effect it is

recommended to take L-arginine aspartate peroral after the infusion therapy. Xylitol-containing electrolytes solution can be assigned to reduce asthenic syndrome, as far as xylitol metabolizes without insulin and provides energy to cells.

3. Pulmonary artery thromboembolism (PATE) is the third among the most frequent reasons of cardiovascular mortality (together with acute myocardial infarction and blood stroke). The average mortality rate in case of PATE is 15%, and within the first 3 months it is 17%. Each fifth PATE is associated with oncology. Pulmonary hypertension significantly reduces patients' quality of life, requires expensive treatment, leads to disability of the working population and is associated with adverse prognosis and increased mortality. According to the results of the research conducted on the ground of Kharkiv Clinical Hospital No. 8 with the participation of 59 patients, it was concluded that damaging of right ventricle and post-thromboembolic pulmonary hypertension are independent risk factors of poor prognosis in case of PATE. At the same time adding of fixed combination of L-carnitine and L-arginine to PATE standard therapy helps to reduce right ventricle damage and pulmonary hypertension.
4. According to the data provided by the European Society of Cardiologists male and female deaths from myocardial infarction are 14 and 23 times higher in Ukraine than in France and there are no reasons for that. No-reflow phenomenon can be found in 5-50% of patients with acute myocardial infarction with ST-segment elevation after primary coronary intervention or thrombolysis. Reperfusion injury may also induce the phenomenon of intramyocardial hemorrhage, which can be detected in half of patients with successful reperfusion of infarcted myocardial site. Edaravone increases eNOS expression with inhibition of oxidation of low density lipoproteins. Administration of edaravone right before reperfusion may reduce oxidative stress and improve remote clinical results of treatment of patients with acute myocardial infarction.
5. Uncontrolled lipid peroxidation and/or accumulation of free radicals because of other reasons is one of mechanisms of damaging of structure and function of organs and systems. Ferroptosis is a new type of regulated cell death, which is characterized by redistribution or accumulation of ferrum and increase of lipid peroxidation in membrane. Ferroptosis is involved into many pathological conditions, such as cancer, neurodegenerative diseases and ischemia reperfusion injury. Edaravone truly reduces the risk of development of reperfusion arrhythmias, and if edaravone is not prescribed it is an independent predictor of cardiovascular events after acute myocardial infarction (refractory angina, nonfatal myocardial infarction, ischemic stroke) within 415 ± 32 days.
6. Anemia is just the "top of the iceberg". Iron deficiency is a direct threat to survival of the patients. It is unreasonable, and sometimes even dangerous, to compensate "lost" iron with a help of a diet. To correct iron deficiency it is recommended to use non-saline ferric iron preparations, for example, iron (III) hydroxide sucrose complex, which is transferred to transferrin and ferritin directly from the preparation and then deposited. This explains the impossibility of overdosing, as opposed to iron salt compounds, which include intramuscular iron forms, which are absorbed according to concentration gradients. Iron (III) hydroxide sucrose complex without dextrin does not create free radicals upon entry into the body, which gives high tolerance. Prolonged injection (on autoblood) let us compensate iron deficiency even in the outpatient settings.
7. Up to 150 million people in the world have diabetes mellitus and up to 1 million of them live in Ukraine; about 90% of them have type 2 diabetes mellitus. Diabetes and arterial hypertension have common risk factors: genetic predisposition, insulin resistance, dyslipidemia, obesity, endothelial dysfunction and vascular inflammation. At the same time NO synthesis is reduced due to reduced bioavailability of L-arginine. Exogenous administration of L-arginine reduces the negative effects of asymmetric dimethyl arginine (ADMA), increases NO production, and restores endothelial function.

Early vascular ageing syndrome is a premature and accelerated development of structural and functional age changes in vessels; usually it is a result of smoking, increase in cholesterol, diabetes mellitus and arterial hypertension. Protection of vessels with double dose of L-arginine (8.4 g) may postpone vascular ageing.

8. The patients having diabetes mellitus, especially type 2, have such problems as insulin resistance, accelerated atherosclerotic processes, high blood glucose levels that are difficult to reduce. Infusion solution based on xylitol solves both problems: through the contents of xylitol, it provides an insulin-independent energy metabolism instead of glucose and stimulates the synthesis of adiponectin, which reduces the level of visceral fat and protects against the manifestations of atherosclerosis.
9. Only 14% of patients having arterial hypertension take antihypertensive medication and have controlled arterial pressure in Ukraine. Ukraine ranks first among European countries in terms of stroke incidence. Therefore, there is a need for effective protection of organs of patients with arterial hypertension to be conducted in four directions: modification of way of life, efficient control of arterial pressure, statin therapy with achievement of target cholesterol values for low-density lipoproteins and use of additional protection for neurovascular units. Vegetable-based levorotatory isomer of arginine is expected to protect target-organs of arterial hypertension, and brain, in particular. L-arginine improves endothelium function, truly reduces the peripheral vascular resistance index of intracranial arteries.
10. Cerebral small vessel ischemic disease is a term that combines the pathological processes influencing parenchymal brain circulation. Changes in the microvascular system of the brain result in reduced cerebral perfusion, chronic hypoperfusion and loss of adaptive responses. As a result, the ability to adequately supply the brain with the necessary nutrients is severely impaired, resulting in stroke, brain damage, loss of cognitive ability and dementia. Ready-to-use pentoxifylline improves flow properties and microcirculation; original L-arginine improves cerebral circulatory dynamics by activating of endothelium-dependant mechanism of vasodilation and provides physiological angioprotection. Metabolism in affected brain tissue can be improved with Lodyksem, a universal protector of organs with an effect of day-time tranquilizer. The combination of electrolytes and citicoline provides for dual modulation of nerve pulse transmission, thus restoring cognitive and motor functions of the CNS.

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