

МЕДИЧНІ НАУКИ

UDC 442.16-234.1:437.10-217.45-876

SOME MECHANISMS OF EFFICACY PATHOGENETIC KARDIOLIN IN PATIENTS WITH CORONARY ARTERY DISEASE WITH CONCOMITANT PATOLOGY OF DIABETES

**Andruschyshyn O.V., Piddubna A.A.,
Vivsyannyk V.V., Vintoniak M.V.**

Higher State Medical University
«Bukovina State Medical University»

Proskurnyak J.M., Halysh I.V.
Chernivtsi Regional Hospital

The paper studied the basic pathogenic mechanisms in the development of coronary heart disease and type 2 diabetes, defined the common aspects of the etiology and clinical manifestations of similarities. The main pathophysiological characteristics and causes of coronary heart disease when accompanied by type 2 diabetes. Based on specific data pathogenesis expediency kardiolini use as auxiliary phytotherapeutic drug in patients with coronary artery disease with co-morbidities of diabetes. Also, the influence of the main components of the drug on humans. Kardiolini – complex herbal preparation, which is characterized sedation, isotropic positive and negative chronotropic effect, improve cerebral and coronary blood flow, preventing thrombosis, lowering lipids, cholesterol and triglyceride blood, that the impact on common pathogenic mechanisms of coronary heart disease and type 2 diabetes.

Keywords: coronary heart disease, insulin resistance, type 2 diabetes, atherosclerosis, kardiolin.

Formulation of the problem. Coronary heart disease (CHD) in accordance with the Guidelines of the Ukrainian Association of Cardiology is a major health and social problem today. Despite sufficient progress in the study of pathogenesis, clinical manifestations, diagnosis and treatment of coronary artery disease is the most common severe cardiovascular disease with multiple complications, both in Ukraine and throughout the world. In the US, the results of epidemiological studies of adults, the prevalence of CHD is 7.3%, in Russia – 7%, in Ukraine – 10% (by IV Navchukom, 2012). The structure of causes of death in cardiovascular disease CHD share in 2015 was 68.9%, which is above the world average, which is 45% (by V. Covalence, 2016). In Chernivtsi region CHD prevalence from 2008 to 2012 increased by 17.1% and disease – by 14.2% (by AS Biduchakom, 2013) [3]. The problem of the treatment and rehabilitation of patients with coronary heart disease is that they have a number of associated diseases that can not be ignored in the selection of treatment regimens and physical therapy programs. Nowadays more and more violations ascertained combination of CHD with endocrine disorders.

Analysis of recent research. Throughout the world a growing number of patients with type 2 diabetes. According to the International Diabetes Federation, the number of diabetic patients in the world's adult population is about 382 million, and by 2035 will be about 592 million. The pathology of the cardiovascular system is available in more than half of patients with type 2 diabetes, and according to some authors its prevalence reaches 90-100%. In particular, coronary heart disease occurs in 50-70% of patients with diabetes mellitus

(DM). These atherosclerotic vascular changes occur in patients with diabetes for 8-10 years earlier than the general population, even in the absence of classic risk factors such as hypertension, smoking, and hyperlipidemia. This indicates the presence of specific, associated with diabetes risk factors that require deeper study and adequate correction. Therefore, timely diagnosis and effective treatment of CHD patients with concomitant diabetes is closely linked to the definition of pathogenic factors and the search of new treatment regimens.

Early disability and high mortality due to the development of cardiovascular complications can be considered as type 2 diabetes, cardiovascular disease (American Heart Association) [15]. Type 2 diabetes is characterized by accelerated development of atherosclerosis and coronary heart disease due to the presence in these patients of diabetic dyslipidemia (increased cholesterol low density lipoprotein (LDL), triglycerides (TG), lower HDL cholesterol (HDL cholesterol)), hyperinsulinemia, hyperglycemia, activation of systemic inflammation, systemic oxidative stress [6].

Outstanding job. It is advisable to note that the pathogenesis of vascular complications of diabetes rather complex and not fully understood. Until recently, the pathophysiological processes leading to CHD considered primarily from the perspective of neurohumoral hypothesis, based on overexpression of neurohormones are initiating remodeling and progressive dysfunction of the left ventricle. In recent years, has become common hypothesis «common ground» («common-soil» hypothesis), according to which a close correlation between type 2 diabetes and coronary heart disease is determined that they have a common origin, that is «common ground». The hypothesis suggests that IBS is not

just a consequence of type 2 diabetes, but Type 2 diabetes and cardiovascular diseases have a single entity pathophysiology.

The purpose of the work. Currently, there is evidence of etiological role of inflammation, epithelial dysfunction, oxidative stress in the pathogenesis of insulin resistance and type 2 diabetes [4]. This concept not only gives rise to a new paradigm of understanding diabetic atherosclerosis, but has implications for prevention and treatment. Therapeutic strategies directed to reduce endothelial dysfunction and chronic inflammation, make it possible to prevent and treat both type 2 diabetes and coronary artery disease [5].

Research results. Patients with type 2 diabetes often have multiple diffuse coronary artery disease, reduced vazodylatatsiynny reserve, decreased fibrinolytic activity, increased platelet aggregation ability and diabetic cardiomyopathy. Usually there are classic symptoms of angina in patients with type 2 diabetes already expressed in the presence of coronary system. Previously, most patients IBS occurs in such silent myocardial ischemia or manifested by nonspecific symptoms such as fatigue, breathlessness attacks, arrhythmia. Diabetic autonomic neuropathy and early desympatyzatsiya infarction leads to high prevalence of silent and atypical variants course of CHD with type 2 diabetes [9]. It is therefore important to early diagnosis of coronary artery disease type 2 diabetes immediately after the first symptoms, which provides for adequate treatment and prevention of disease progression.

Established that diabetes and coronary heart disease have a number of common risk factors, including excessive consumption of fatty and high-calorie foods, sedentary lifestyle, obesity, high cholesterol and more. There are works which show the presence of correlation between the levels of lipids in the blood serum and the presence of atherosclerosis of the main vessels [7, 8]. In patients with endocrine disorders as well as with IBS appear psychosomatic disorders. Patients with diabetes irritable, picky, conflict, distrustful; in which there is emotional lability, tearfulness, dysphoria, increased irritability and anxiety [12].

Existing medicines at IBS mainly aimed at increasing coronary blood flow and decrease myocardial oxygen demand. Often medical therapy accompanied by complications caused by side effects of medications. Recently, growing interest in folk medicine, due to a number of benefits before prescribing herbal synthetic drugs. In plants used by traditional medicine, contains a complex of natural vitamins, macro- and microelements in optimal combinations [13]. When choosing drugs in the treatment of dual pathology promising area is the use of herbal drugs, which are usually basic ability to optimize pharmacotherapy and characterized by a mild effect on damaged organs [1]. Herbal medicine allows for a comprehensive approach to the treatment of patients with concomitant coronary heart disease with type 2 diabetes, to conduct effective secondary prevention. A principle of pathogenesis therapy of coronary heart disease is to apply koronarorozshyryuyuchyh, protyaterosklerotychnyh, anesthetics, and drugs that improve myocardial oxygen demand and delivery of nu-

trients [10]. The number of plant koronarolitykiv relatively small. They are used in the early stages of the disease and they efficiently prevent spastic bouts of illness. In developing rational approaches to medical rehabilitation for patients with type 2 diabetes on the background of CHD our attention was drawn kardiolini – complex herbal preparation, which is characterized sedation, positive isotropic and negative chronotropic effect, improve cerebral and coronary blood flow, preventing thrombosis, lowering lipids, cholesterol and triglyceride levels.

The composition 1 ml of drops contains: tincture of medicinal plants (1: 12.5), Adonis herb ordinary, normal fruit juniper, arnica, mint leaves.

In normal grass Adonis (*Herba adonidis vernalis*) found 0,13-0,83% of cardiac glycosides. The largest number of them contained in the leaves. Total spring Adonis contains 25 individual cardiac glycosides. In the aerial part of the plant found strophantine K-beta and tsymaryn and specific kardenolid Adonis adonitoksyn which is hydrolyzed to adonitoksiheninu and L-rhamnose. In the grass contains glycosides and 2.6 dymetoksyhydon, phytosterols, flavonoids (0,59-1,25%), steroids (6-9,4%), glycoside adonivernit, ascorbic acid (33,4-49,2 mg %), carotene, choline, ado nit (4%), coumarone and organic acids. [2] The normal grass Adonis has cardiogenic action, normalizes heart rhythms (slow), extends diastole, systole increases, increases stroke volume of blood, moderately slows intracardiac conduction. The nature of glycosides Adonis spring close to the plant digitalis glycosides poisonous, but compared with digitalis drugs in the body do not accumulate, but less active and much less stable and provide less prolonged action.

Peppermint leaves (*Folia Menthes piperitae*) containing 1-3% efirmoyi butter in there by up to 50% menthol, menthol esters 4-11%, 7-25% Menton Maintenon piperyton, pineol, Menten, felandren alpha-pinen, limonene, pulehon and other terpenes, acetic, and other izovalerianovu vilni acid, 5-10% mentofuranu. Raw contains 3,5-12% tannins, bitter substances, and its nikotyнову acid amide, coffee and chromogenic acids, carotenoids, flavonovi hlikozydy. Peppermint causes irritation of the nerve endings, stimulating cold receptors. In response, the surface blood vessels constrict, and internal expanding. The effects – reduce or eliminate pain. Peppermint leaves has beneficial properties, regulates arterial and venous circulation, prevents increased intracranial pressure and redirects blood flow to the external veins. Has choleric effect of active excretion of cholesterol and holativ, strengthens anti-toxic liver function, relieves spasms and normalizes metabolism. The leaves of peppermint extracts taken as insomnia, hysteria and neuralgia; appointed in cardiology practice as cardiac stimulant (part of validoli), to improve blood circulation and as atherosclerotic agent.

The fruits of juniper ordinary (*Furcates Juniper*) contain essential oil (0.5-1.5%) of the composition: alpha-pinene, kadynen, borneol, yuniperol, terpineol, camphene, yunen, alpha terpenes, felandren, dependent, Sabine, tsydrol, juniper camphor and other terpene derivatives. Containing more invert sugar (30%), bitter glycoside yuniperyn, flavones glycosides, dyestuffs, pectin, organic acids,

resins, waxes and so on. In fresh fruits to 0.35 mg % of vitamin C. The common juniper is bracing, a strong diuretic, analgesic, cholera, expectorant, blood-purifying, healing, antibacterial, disinfectant, delicious and soothing effect. Preparations containing juniper increases urine output and disinfect the urinary tract.

Flowers Arnica (*Arnica montana* L.) contain essential oils with disinfectant, anti-inflammatory and wound-healing effect, coloring agents (arnitsyn, lutein), fats, resins, waxes, gums, carbohydrates, ascorbic acid (about 21 mg%), fructose, sucrose, dextrose, tannins, proteins, flavonoids (astragaloside, izokvertsytyn) polyphenol compounds (tsinarin – 0.05% Coffeehouse acid). The rhizomes and roots contain Arnica montana essential oil (1.5% – 0.6% and fresh – dried), sulfur compounds, tannins, inulin, waxes, resins, arnitsyn, organic acids (izomaslyanu, formic, anhelikovu). DA Axelrod, GK Nikonov, AD Turov (1974) have shown that the drugs are mountain arnica tonic and stimulating the central nervous system, and in large doses – soothing. Preparations roots of plants increase the amplitude of heart rate, dilate coronary vessels, improves supply the heart muscle. Arnica is effective in the treatment of ulcers; it can help strengthen the blood vessels in the brain. It is used in thrombophlebitis, angina, also the best means of rehabilitation after suffering a heart attack and stroke. It should be noted that due to the presence of drugs mountain arnica trimaran prolonged use of significantly reduced blood cholesterol levels.

Kardiolini has a slight sedative effect, which is caused by the properties of the components that it

contains. Also, the drug reduces symptoms of diencephalic disorders, improves tolerance of physical activity, and increases efficiency. Biologically active substances extracts of herbs positively affect metabolism in the myocardium, liver, particularly inhibit lipid peroxidation, increase the activity of antioxidant enzymes, energy balance of cells incentives synthesis adenylate nucleotides, glycogen lysis, increase the activity of some enzymes of the Krebs cycle.

The action of the drug is the result of the cumulative effect of its components, so it is impossible to detect drug metabolites. Kardiolini administered orally 20-30 drops 2-3 times a day 30 minutes after eating. The course of rehabilitation is 20-30 weeks.

Conclusions. 1. Type 2 diabetes and coronary artery disease share common pathogenic mechanisms that allow some authors consider type 2 diabetes as a cardiovascular disease.

2. The hypothesis of «common ground» confirms single entity pathophysiology of type 2 diabetes and coronary artery disease.

3. When choosing drugs in the treatment of dual pathology of coronary heart disease and type 2 diabetes promising area is the use of herbal drugs, which are characterized by a mild effect on damaged organs.

4. Kardiolini – complex herbal preparation, which is characterized sedation, isotropic positive and negative chronotropic effect, improve cerebral and coronary blood flow, preventing thrombosis, lowering lipids, cholesterol and triglyceride blood, that the impact on common pathogenic mechanisms of coronary heart disease and type 2 diabetes.

References:

1. Baranov A.P., Upnytskyy A.A. Opportunities in the Treatment of dyslipidemia with phytotherapy of patients / A.P. Baranov, A.A. // Upnytskyy Attending physician. – 2008. – № 4. – P. 80-82.
2. Barnaul O.D., Pospelov M.L. Value of phytotherapy at the prevention of ischemic heart disease / O.D. Barnaul, M.L. Pospelov // *Obzori on clinical pharmacology and therapy*. – 2011. – T. 9. – № 4. – P. 47-53.
3. Biduchak A.S. Epidemiological features of cardiovascular diseases in Ukraine and Chernivtsi region / A.S. Biduchak, I.D. Shkrobanets, S.I. Leo // *Medical Journal*. – Volume 17. – Number 3(67). – Ch. 2. – 2013. – P. 100-103.
4. Volkov V.I. Heart disease with diabetes mellitus 2nd type: epidemiology, pathophysiology and prevention / V.I. Volkov, S.A. Serik // *The International Medical Journal*. – 2006. – Vol 12, № 4. – P. 41-47.
5. Evstratova I.N. Physical rehabilitation of patients with heart disease and obesity / I.N. Evstratova, Muhannad Alshbul // *Scientific Journal of the National Pedagogical University named after M.P. Dragomanova*. – K.: Izd. house of M.P. Dragomanova 2015. – Issue 10(65) 15. – P. 55-58.
6. Efymov A.S., Sokolova L.K. Dyslipoproteinemia and its role in development and progression of heart disease in patients with type 2 diabetes mellitus / A.S. Efymov, L.K. Sokolov // *Endocrinology*. – 2013. – № 18, № 3. – P. 28-33.
7. Zhuravleva L.V. Analysis of indicators of atherosclerotic lesions in the arteries of patients with heart disease in dependence on availability of diabetes type 2 diabetes / L.V. Zhuravleva, N.A. Lopyna // *Medicines Ukraine* // plus. – 2016. – № 2(27). – P. 32-37.
8. Zhuravleva L.V. Violations of lipid metabolism in patients with heart disease in dependence on availability of the sugar diabetes 2nd type and nature of coronary artery lesions / L.V. Zhuravleva, N.A. Lopyna, I.V. Kuznetsov, V.P. Kono, D.A. Bondarenko // *Heart and blood vessels*. – 2016. – № 2(54). – S. 63-71.
9. Lopyna N.A. Effect of phytotherapy and factors of risk for atherosclerotic lesions in patients with heart disease in dependence on availability of diabetes type 2 diabetes / N.A. Lopyna // *therapeutic Ukrainian magazine*. – 2016. – № 2. – S. 86-96.
10. Omarova R.A. Combination therapy in heart disease with hypothyroidism and dyslipidemia / R.O. Omarova and others // *Vestnik of medical Kazakh of National University*. – 2014. – № 1. – P. 60-61.
11. Serhiyenko V.A., Sergienko E.A., Efimov A.S. Early diagnosis of functional and structural disorders of the cardiovascular system in patients with type 2 diabetes mellitus (literature review and own research) / V.A. Serhiyenko, E.A. Sergienko, A.S. Efimov // *J. AMS Ukraine*. – 2010. – T. 16. – № 4. – S. 630-650.
12. Tregubenko E.V. Features of heart disease in patients with diabetes mellitus type 2 / E.V. Tregubenko, A.S. Klimkin // *TRUDNIY patient*. – 2015. – T. 13. – № 7. – P. 26-29.

13. Chekyna N.A., Chukaev S.A., Nikolaev S.M. Saharniy diabetes: Opportunities Using pharmacotherapy with funds rastitelno origin / N.A. Chekyna, S.A. Chukaev S.M. Nikolaev // Vestnik Buryat state-owned university. – 2010. – №. 12.
14. Huang Y. Associations of prediabetes with all-cause and cardiovascular mortality: A meta-analysis / Y. Huang, X. Cai, P. Chen, W. Mai et al. // Annals of Medicine. – 2014. – Vol. 46. – P. 684–692.
15. Standards of medical care in diabetes – 2016. American Diabetes Association // Diabetes Care. – 2016. – Vol. 39 (Suppl. 1). – S. 1. – S. 109.

**Андрущишин О.В., Піддубна А.А.,
Вівсяник В.В., Вінтоняк М.**

Вищий державний медичний університет
«Буковинський державний медичний університет»

Проскурняк І.М., Галиш І.В.
Чернівецька обласна клінічна лікарня

ДЕЯКІ МЕХАНІЗМИ ПАТОГЕНЕТИЧНОЇ ЕФЕКТИВНОСТІ КАРДІОЛІНУ У ХВОРИХ НА ЗАХВОРЮВАННЯ КОРОНАРНИХ АРТЕРІЙ У ПАЦІЄНТІВ З ЦУКРОВИМ ДІАБЕТОМ II ТИПУ

Анотація

У статті вивчалися основні патогенні механізми розвитку ішемічної хвороби серця і діабету 2 типу, визначалися загальні аспекти етіології та клінічні прояви подібності. Основні патофізіологічні особливості і причини ішемічної хвороби серця, що супроводжуються діабетом 2 типу. Грунтуючись на конкретних даних про доцільність патогенезу Кардіолін використовують в якості допоміжного фітотерапевтичного препарату у пацієнтів з ішемічною хворобою серця із супутніми захворюваннями цукрового діабету. Крім того, вплив основних компонентів препарату на людину. Kardiolini – комплексний трав'яний препарат, який характеризується седатцією, ізотропним позитивним і негативним хронотропного ефектом, покращує церебральний і коронарний кровотік, запобігає тромбозу, знижує рівень ліпідів, холестерину і тригліцеридів крові, що впливає на загальні патогенні механізми ішемічної хвороби серця і цукровий діабет.

Ключові слова: ішемічна хвороба серця, резистентність до інсуліну, цукровий діабет типу II, атеросклероз, кардіолін.

**Андрущишин О.В., Піддубна А.А.,
Вівсяник В.В., Вінтоняк М.В.**

Высший государственный медицинский университет
«Буковинский государственный медицинский университет»

Проскурняк И.В., Галиш И.В.
Черновицкая областная клиническая больница

НЕКОТОРЫЕ МЕХАНИЗМЫ ПАТОГЕНЕТИЧЕСКОЙ ЭФФЕКТИВНОСТИ КАРДИОЛИНА У БОЛЬНЫХ С ЗАБОЛЕВАНИЕМ КОРОНАРНЫХ АРТЕРИЙ С СОБСТВЕННОЙ ПАТОЛОГИЕЙ САХАРНОГО ДИАБЕТА

Аннотация

В статье изучались основные патогенные механизмы развития ишемической болезни сердца и диабета 2 типа, определялись общие аспекты этиологии и клинические проявления сходства. Основные патофизиологические особенности и причины ишемической болезни сердца, сопровождающиеся диабетом 2 типа. Основываясь на конкретных данных о целесообразности патогенеза кардиоллина используют в качестве вспомогательного фитотерапевтического препарата у пациентов с ишемической болезнью сердца с сопутствующими заболеваниями сахарного диабета. Кроме того, влияние основных компонентов препарата на человека. Kardiolini – комплексный травяной препарат, который характеризуется седацией, изотропным положительным и отрицательным хронотропным эффектом, улучшает церебральный и коронарный кровоток, предотвращает тромбоз, понижает уровень липидов, холестерина и триглицеридов крови, что влияет на общие патогенные механизмы ишемической болезни сердца и сахарный диабет.

Ключевые слова: ишемическая болезнь сердца, резистентность к инсулину, сахарный диабет II типа, атеросклероз, кардиолин.