

UDC: 616-035=00(061/068)"312"(477.54) (=1-82)-053.88

THE IMPORTANCE OF THE COMPLIANCE TO A MEDICAL TREATMENT OF A PATIENT WITH A VERY HIGH CARDIOVASCULAR RISK AND COMORBIDITY: ARTERIAL HYPERTENSION, ATRIAL FIBRILLATION AND DIABETES MELLITUS

Zolotarova T. V.¹, Brynza M. S.¹, Mehtieva F. B.²

¹ V. N. Karazin Kharkiv National University, Kharkiv, Ukraine

² Kharkiv Railway Clinical Hospital № 1 of Brence of «HC» JSC «Ukrzaliznytsia», Kharkiv, Ukraine

The ultimate goal of any prescribed medical therapy is to achieve certain desired results in the patients concerned. Compliance to medical recommendations not only includes patient compliance with medication but also with diet, exercise, or lifestyle changes. Considered a clinical example of the patient of a very high cardiovascular risk with comorbid pathology: arterial hypertension, atrial fibrillation and diabetes mellitus. We have shown with this case as in comorbid patients with high cardiovascular risk could be organized medical treatment without polypharmacy.

KEY WORDS: compliance, cardiovascular risk, hypertension, heart failure, atrial fibrillation, diabetes mellitus

ВАЖЛИВІСТЬ ПРИХИЛЬНОСТІ ДО МЕДИЧНОГО ПРИЗНАЧЕННЯ ПАЦІЄНТА ВИСОКОГО КАРДІОВАСКУЛЯРНОГО РИЗИКУ ТА КОМОРБІДНОЮ ПАТОЛОГІЄЮ: АРТЕРІАЛЬНОЮ ГІПЕРТЕНЗІЄЮ, ФІБРИЛЯЦІЄЮ ПЕРЕДСЕРДЬ ТА ЦУКРОВИМ ДІАБЕТОМ

Золотарьова Т. В.¹, Бринза М. С.¹, Мехтієва Ф. Б.²

¹ Харківський національний університет імені В. Н. Каразіна, м. Харків, Україна

² ХКЛ ЗТ № 1 Філії «ЦОЗ» ПАТ «Укрзалізниця», м. Харків, Україна

Кінцева мета будь-якої призначеної медичної терапії - досягнення певних бажаних результатів у зацікавлених пацієнтів. Дотримання лікарських рекомендацій включає в себе не тільки дотримання пацієнтом медикаментозної терапії, а й зміна дієти, фізичних вправ, або способу життя. Розглянуто клінічний приклад пацієнта високого кардіоваскулярного ризику та коморбідною патологією: артеріальною гіпертензією, фібриляцією передсердь та цукровим діабетом. Ми показали цим випадком як при коморбідності у пацієнта з високим кардіоваскулярним ризиком можна організувати медикаментозну терапію минаючи поліпрагмазію.

КЛЮЧОВІ СЛОВА: прихильність, кардіоваскулярний ризик, гіпертензія, серцева недостатність, фібриляція передсердь, цукровий діабет

ВАЖНОСТЬ ПРИВЕРЖЕННОСТИ МЕДИЦИНСКИМ НАЗНАЧЕНИЯМ ПАЦИЕНТА ВЫСОКОГО КАРДИОВАСКУЛЯРНОГО РИСКА И КОМОРБИДНОЙ ПАТОЛОГИЕЙ: АРТЕРИАЛЬНОЙ ГИПЕРТЕНЗИЕЙ, ФИБРИЛЛЯЦИИ ПРЕДСЕРДИЙ И САХАРНЫМ ДИАБЕТОМ

Золотарева Т. В.¹, Брынза М. С.¹, Мехтеева Ф. Б.²

¹ Харьковский национальный университет имени В. Н. Каразина, г. Харьков, Украина

² ХКБ ЖДТ № 1 Филиала «ЦЗ» ПАО «Укрзалізниця», г. Харьков, Украина

Конечная цель любой назначенной медицинской терапии - достижение определенных желаемых результатов у заинтересованных пациентов. Соблюдение врачебных рекомендаций включает в себя не только соблюдение пациентом медикаментозной терапии, но и изменение диеты, физических упражнений, или образа жизни. Рассмотрен клинический пример пациента высокого кардиоваскулярного риска и коморбидной патологией: артериальной гипертензией, фибрилляцией

предсердий и сахарным диабетом. Мы показали этим случаем как при коморбидности у пациента высокого кардиоваскулярного риска можно организовать медикаментозную терапию уйдя от полипрагмазии.

КЛЮЧЕВЫЕ СЛОВА: приверженность, кардиоваскулярный риск, гипертензия, сердечная недостаточность, фибрилляция предсердий, сахарный диабет

INTRODUCTION

Compliance with medical recommendations, especially with drug therapy, has been recognized to represent a complex challenge since its first mentioning by Hippocrates about 2400 years ago. An in-depth scientific approach towards this problem, however, can only be traced over the past three decades with a strong increase in published studies over this period of time [1].

Major barriers to compliance are thought to include the complexity of modern medication regimens, poor «health literacy» and lack of comprehension of treatment benefits, the occurrence of undiscussed side effects, the cost of prescription medicine, and poor communication or lack of trust between the patient and his or her health-care provider. Efforts to improve compliance have been aimed at simplifying medication packaging, providing effective medication reminders, improving patient education, and limiting the number of medications prescribed simultaneously [2–3].

Estimation of total CV risk is easy in particular subgroups of patients, such as those with antecedents of established cardiovascular disease (CVD), diabetes, coronary heart disease (CHD) or with severely elevated single risk factors [4].

Compliance to medical recommendations is important for patients with comorbidity because of high one-year- mortality in this group of patients especially without adequate treatment [5].

We represent a clinical example of the patient of a very high cardiovascular risk with comorbid pathology: arterial hypertension, atrial fibrillation and diabetes mellitus without previous compliance to medical recommendations.

CLINICAL CASE

The patient L., a man born in 1949, was admitted to the Kharkiv Railway Clinical Hospital № 1 of Brence of «HC» JSC «Ukrzaliznytsia» cardiology department in October, 2015 with complaints of disruptions of the heart beats and heart palpitations which are not related to physical activity (appeared at

rest, night and during every day physical activity); shortness of breath when walking (observed during usual physical exertion), disappearing after the rest; unstable blood pressure (increasing of BP despite taking hypotensive drugs – Lisinopril, amlodipine); additional: dry mouth, intermittent numbness in the toes.

HISTORY OF DISEASE

Essential hypertension was diagnosed more than 30 years with the maximum blood pressure (BP) over 200/140 mm Hg. The usual BP is about 140/90 mm Hg (antihypertensive drugs – Lisinopril 10 mg, amlodipine 5 mg but sometimes he misses the dosage). Since 2012 reports the attacks of palpitations (heart rate over 130 beats/min).

Since 2012, is hospitalized 1-2 times a year for a planned examination and treatment to the cardiology department (Diagnosis: Arterial hypertension stage II, 3 grade. Persistent Atrial Fibrillation. HF II-A stage, FC III). Intakes warfarin 5 mg per day. Does not check INR regularly. Last admission in November 2014.

Current worsening from 27.10.2015 when the aggravation of the complaints has been happening, that's why he was hospitalized to the second cardiological department of CCH UZ for examination and correction of the treatment.

ANAMNESIS VITAE

He denies tuberculosis, malaria, viral hepatitis, sexually transmitted diseases and AIDS intake; denies allergic reactions to drugs. Diabetes mellitus since 2010 year, intakes metformin 500 mg twice a day. Hasn't been controlling his glucose level.

Previous smoker. Denies smoking for over 20 past years; denies alcohol consumption.

Sedentary life style. Hasn't been following recommended low-carb diet; hasn't checked his lipid profile over 6 months. Hereditary (father-essential hypertension).

PHYSICAL EXAMINATION

General condition is satisfactory, consciousness is clear, emotionally stable,

optimistic mood. Height = 178 cm, Weight = 95 kg, BMI = 30 kg/m², waist-to-hip ratio 1,15.

Skin is normal colored, without any scars. Peripheral lymph nodes, the thyroid gland are not palpable.

Pulmonary percussion–resonant sound, auscultation – weakened vesicular breathing, no adventitious sounds. Heart borders extended to the left on 1,5 cm of midclavicular line, HR = 72 bpm irregular. Ps = 72 bpm. No pulse deficiency.

Auscultation of the heart - heart sounds are muted, accent of the II tone above the aorta. Systolic murmur above the aorta. BP dextr = BP sin = 170/100 mm Hg (on the background of antihypertensive therapy).

Abdomen is soft, painless, symmetrical, no discrepancies of the abdominal muscles. No visible peristalsis. Liver edge is smooth, painless, palpated 1.5 cm below the costal arch. Spleen and pancreas are not palpable. Symmetrical mild shin pitting edema.

REFERRAL DIAGNOSIS

Essential arterial hypertension. Atrial fibrillation. Heart failure. Diabetes mellitus. Obesity.

RESULTS OF LABORATORY AND INSTRUMENTAL DIAGNOSIS

Complete blood count (29/10/15): hyperhemoglobinemia, erythrocytosis, hemoconcentration.

Urinalysis (29/10/2015): glycosuria (174.5 mmol/l (23 g/l)).

Biochemical analysis (29/10/2015): hyperglycemia (17.27 mmol/l): patient reported that he ate a big cake the day before the test and he didn't remember if he took a metformin in the evening; decreased kidney function (GFR by Cockcroft -Golt 66 ml/min/1.73 m²)

Fasting glucose test (30/10/15): hyperglycemia (13.1 mmol/l).

Blood lipid spectrum (29/10/15): II b type of dyslipidemia.

INR (29/10/15) – 1.04; (02/11/15) – 1.52; (05/11/15) – 2.47.

Electrocardiography (ECG) (28/10/15): atrial fibrillation with ventricular contraction rate 72 bpm. Premature left ventricle contraction. Deviation of the heart electrical axis to the left.

Echocardiography (29/10/15): sclerotic changes of aortic walls, aortic and mitral valves. Dilation of the ascending aorta. The

aortic stenosis (atherosclerotic). Dilatation of both atriums. Left ventricular hypertrophy. Signs of increasing diastolic stiffness of the left ventricular wall.

Ultrasonography of the abdomen (29/10/15): hepatomegaly, liver steatosis. Diffuse parenchymal changes of the liver. Stagnation of the bile in the gallbladder. Gallbladder cholesterosis. Diffuse changes of the pancreas parenchyma without increasing of its size. Microstones in the kidney.

Consultation endocrinologist (01/11/15): Diabetes mellitus type 2, moderate severity, decompensation. Prescription: increase the dosage of metformin to 1000 mg twice a day.

RECOMMENDATIONS FOR FURTHER EXAMINATION

24 hour ambulatory ECG monitoring.

Daily glycemic profile, glucose tolerance test, HbA1C.

Creatinine after 2 weeks to exclude kidney disease.

Ophthalmologist, neurologist consultation.

TREDMIL-TEST to exclude silent myocardial ischemia.

ECHO for evaluation of diastolic function of LV.

Lipid profile (LDL), ALT (liver) +/- CK (rhabdomyolysis) – control of efficacy and safety of rosuvastatin.

Blood electrolytes (K, Na, BUN) [6–7].

CLINICAL SYNDROMES

Atherosclerosis (sclerotic changes of aortic valve, mild atherosclerotic aortic stenosis);

Arterial hypertension*;

Arrhythmias (permanent (constant) AF);

Heart failure;

Dyslipidemia*;

Hypertensive heart (LVH, atrial enlargement, increased diastolic stiffness);

Hepatomegaly, liver steatosis;

Erythrocytosis, hemoconcentration;

Hyperglycemia / glycosuria syndrome*;

Obesity: BMI = 30 kg/m², waist-to-hip ratio 1,15*.

– features of metabolic syndrome.

CLINICAL DIAGNOSIS

Main:

Systemic atherosclerosis (atherosclerosis of the aorta, mild aortic stenosis);

Arterial hypertension stage II, 3 grade. Hypertensive heart (LVH);

Permanent atrial fibrillation, normosystolic type;

EHRA IIa class. CHA2-DS2-VASC-4. HAS-BLED-2;

Heart failure with preserved left ventricle systolic function, II FC, stage B. Dyslipidemia II B type (after Fredrickson);

Very high added total CV risk.

Comorbidity:

Diabetes mellitus type II, moderate severity, subcompensation;

Obesity I degree;

Nonalcoholic fatty liver disease [4, 6–8];

CASE MANAGEMENT IN THE HOSPITAL

Drug therapy:

Bisoprolol 5 mg in the morning;

Torsemide 2,5 mg in the morning;

Perindopril 5 mg in the morning;

Amlodipine 5 mg in the morning;

Warfarin according to the scheme (starting dosage -5 mg per day at 5 p.m.);

Metformin 1000 mg 2 times a day.

IV therapy:

Thiotriazoline 2.0 + NaCl 0.9 % 10.0 N10;

«Asparcam» (Mg+K) 10,0 + NaCl 0.9 % 200.0 N10.

OUR RECOMMENDED TREATMENT ACCORDING LAST GUIDELINES

Lifestyle modification.

1. Reduce weight by 5 % to 10 %.
2. Regular physical activity.
3. Diet: eat regular meals and snacks; avoid fasting to lose weight; consume plant-based diet (high in fiber, low calories/glycemic index, and high in phytochemicals/antioxidants); understand Nutrition Facts Label information; use mild cooking techniques instead of high-heat cooking.

4. Follow to doctor's appointments [6-7].

Drug treatment

1. Angiotensin-converting enzyme (ACE) inhibitor-PERINDOPRIL 8 mg in the evening (target BP – 130/85 mm Hg).

2. Diuretic – TORASEMIDE 10 mg in the morning.

3. B- blocker – BISOPROLOL 5 mg in the morning (target HR – 60 b/m).

4. Statin - ROSUVASTATIN 10 mg in the evening.

5. Anticoagulant – WARFARIN according to the scheme 17:00; better – the new oral anticoagulants (NOAC – Dabigatran – 110 mg 2 times daily or Rivaroxaban – 15 mg p/day).

6. Oral hypoglycemic agents-METFORMIN 1000 mg 2 times a day.

7. Control of compliance to medical recommendations [4, 6–8].

PROGNOSIS

Prognosis for life – non-compliance to doctor's appointments – non-satisfactory. The prognosis for recovery – an unfavorable.

CONCLUSIONS

Compliance to a prescribed medication showed a positive effect in different researches. Patients with a high adherence to medication had improved the quality of life (QOL). These results in importance not only in developing intervention programs for patients but also in improving their QOL through sustainable health promotion [1, 9]. Avoiding of polypharmacy another main condition which increases the compliance of comorbid patients with high cardiovascular risk to medical recommendations. Making sure patients understand the drug dosing regimen could also improve compliance.

REFERENCES

1. Osterberg L., Blaschke T. Adherence to medication / Osterberg L., // The New England Journal of Medicine. – 2005. – Vol. 353, Is. 5. – P. 487–497.
2. Elliott R. A. Supporting adherence for people starting a new medication for a long-term condition through community pharmacies: a pragmatic randomised controlled trial of the New Medicine Service. / R. A. Elliott, M. J. Boyd. // BMJ Quality & Safety. – 2016. – № 25. – P. 747–758.
3. Kobalova Z. D. Antihypertensive treatment compliance and obstacles to its improvement. Results of Russian program ARGUS-2 / Z. D. Kobalova, E. G. Starostina. // Terapevticheskii Arkhiv. – 2008. – № 80. – P. 76–82.
4. 2016 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure: The Task Force for the Diagnosis and Treatment of Acute and Chronic Heart Failure of the European Society of Cardiology (ESC) // Journal of Heart Failure. – 2016. – Vol. 37, Is. 27. – P. 2129–2200.

5. Noh J. Prevalence of Comorbidity among People with Hypertension: The Korea National Health and Nutrition Examination Survey 2007-2013. / J. Noh, H. C. Kim. // Korean Circulation Journal. – 2016. – Vol. 45. – P. 672–680.
6. 2016 ESC Guidelines for the management of atrial fibrillation developed in collaboration with EACTS The Task Force for the management of atrial fibrillation of the European Society of Cardiology (ESC) [Electronic source] // European Heart Journal. – 2016. – Link: <http://eurheartj.oxfordjournals.org/content/ehj/early/2016/09/08/eurheartj.ehw210.full.pdf>.
7. 2013 ESC Guidelines on diabetes, pre-diabetes, and cardiovascular diseases developed in collaboration with the EASD : The Task Force on diabetes, pre-diabetes, and cardiovascular diseases of the European Society of Cardiology (ESC) and developed in collaboration with the European Association for the Study of Diabetes (EASD) // European Heart Journal. – 2013. – Vol. 34, Is. 39. – P. 3035–3087.
8. 2013 ESH/ESC Guidelines for the management of arterial hypertension: The Task Force for the management of arterial hypertension of the European Society of Hypertension (ESH) and of the European Society of Cardiology (ESC) // Journal of Heart Failure. - 2013. – Vol. 34, Is. 28. – P. 2159–2219.
9. Medication Adherence Contributes to an Improved Quality of Life in Type 2 Diabetes Mellitus Patients: A Cross-Sectional Study / D. A.Sofa, S. Hadyana, L. Keri, A. Rizky. // Diabetes Therapy. – 2016. – Is.7. – P. 1–10.