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**DRUG MANAGEMENT OF PATIENTS WITH PERSISTENT ATRIAL
FIBRILLATION BEFORE AND AFTER RADIOFREQUENCY ABLATION
ON THE EXAMPLE OF CLINICAL CASE**



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Defenition, frequency, the clinical significance

- Atrial fibrillation (AF) - a common supraventricular arrhythmia characterized by uncoordinated atrial electrical activity and incomplete atrioventricular block with a high risk of thromboembolic complications and the development of heart failure
- The frequency of AF increases with age
- 1/3 of all hospital admissions of cardiac rhythm disturbances is patients with AF
- Thromboembolic complications and heart failure lead to disability and double mortality in patients

Types of AF

(The recommendations were developed in collaboration with the European Heart Rhythm Association (EHRA) and approved by the European Association of Cardiothoracic Surgery (EACTS))

First diagnosed	any first episode of AF, regardless of the duration and severity of symptoms
Paroxysmal	sinus rhythm restored alone, usually within 48 hours up to 7 days
Persistent	duration of AF episodes more than 7 days, it is necessary to restore the rhythm by medication or electrical cardioversion
Long-term persistent	AF duration ≥ 1 year and rhythm control strategy was selected
Permanent	diagnosed in cases when the patient and physician consider it possible to preserve the arrhythmia

Risk factors for AF

(The recommendations were developed in collaboration with the Heart Rhythm Association (EHRA) and approved by the European Association of Cardiothoracic Surgery (EACTS))

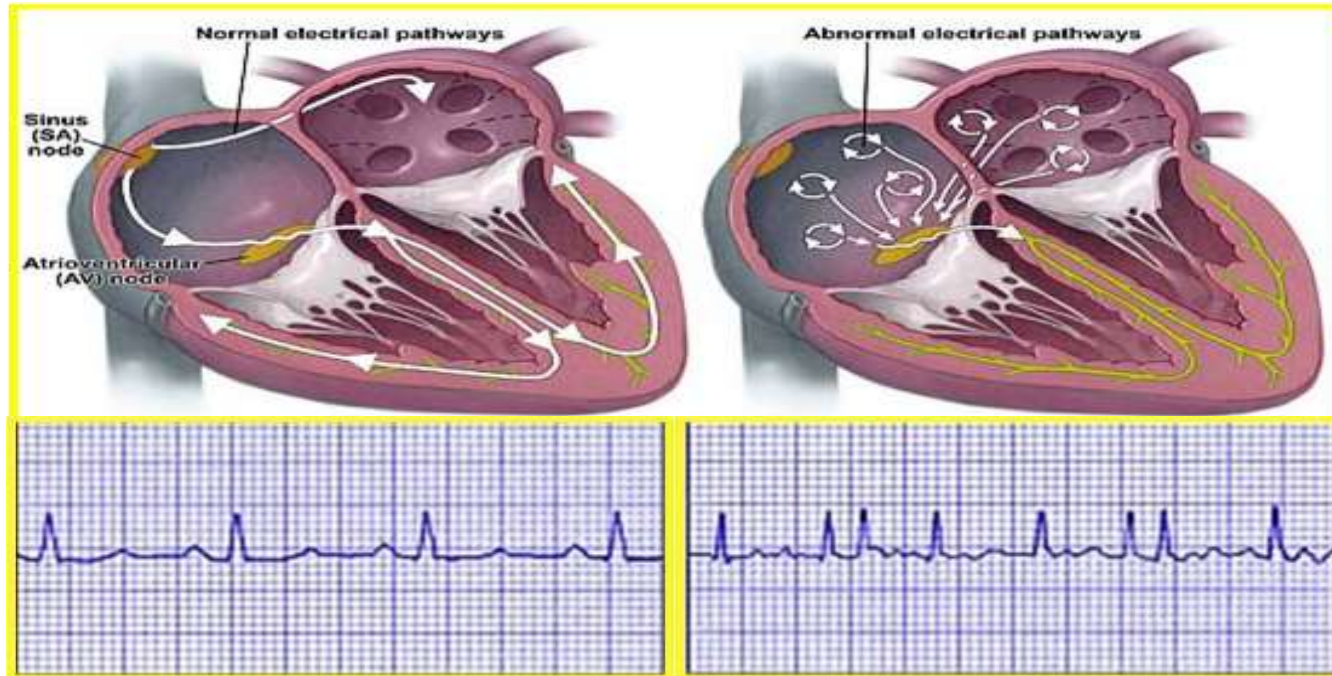
- Age over 65 years
- Hypertension
- Coronary heart disease (CHD)
- Structural heart disease (valvular dysfunction, hypertrophic cardiomyopathy, systolic / diastolic cardiac dysfunction, heart failure)
- Thyroid dysfunction
- Obesity
- Diabetes mellitus
- Chronic obstructive pulmonary disease (COPD)
- Sleep apnea
- Chronic kidney disease

Mechanisms of atrial fibrillation
(RECOMMENDATIONS of European society of
Cardiology (ESC) on the management of
atrial fibrillation (2010))

Two hypotheses of atrial fibrillation

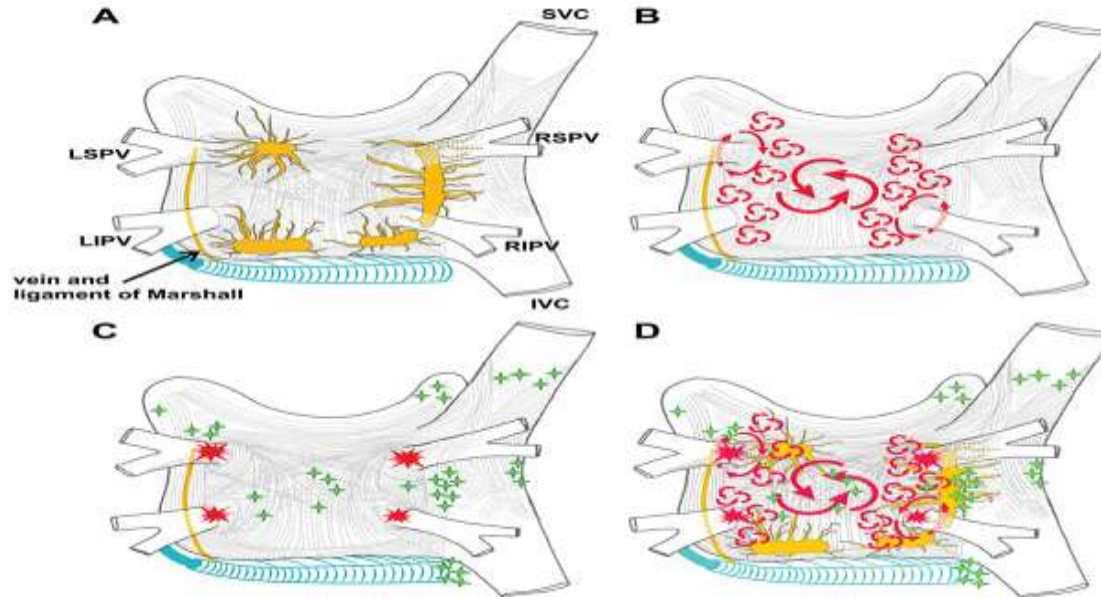
- Myocardial remodeling with the development of electrical heterogeneity and the formation of multiple foci of Re-Entre
- Focal trigger activity of myocardial cells in the mouth of the pulmonary veins

Atrial fibrillation on ECG



The intervals between QRS complexes are different. Heart rate can change from 40-50 to 150 beats/min. P waves are absent. Flickering wave (wave F) can be seen in some leads, more frequently in V1. Irregular contractions of the ventricles.

Triggers of atrial fibrillation



A - Schematic representation of the left and right atrias, rear view. It can be seen muscle fibers into the PV. Four main autonomous ganglion plexus LA and their axons (upper left, lower left, front right, bottom right) showed by yellow color. Coronary sinus, and a bunch of Vienna Marshall, who comes from the coronary sinus to the area between the left superior PV and LA eyelet showed by blue color.

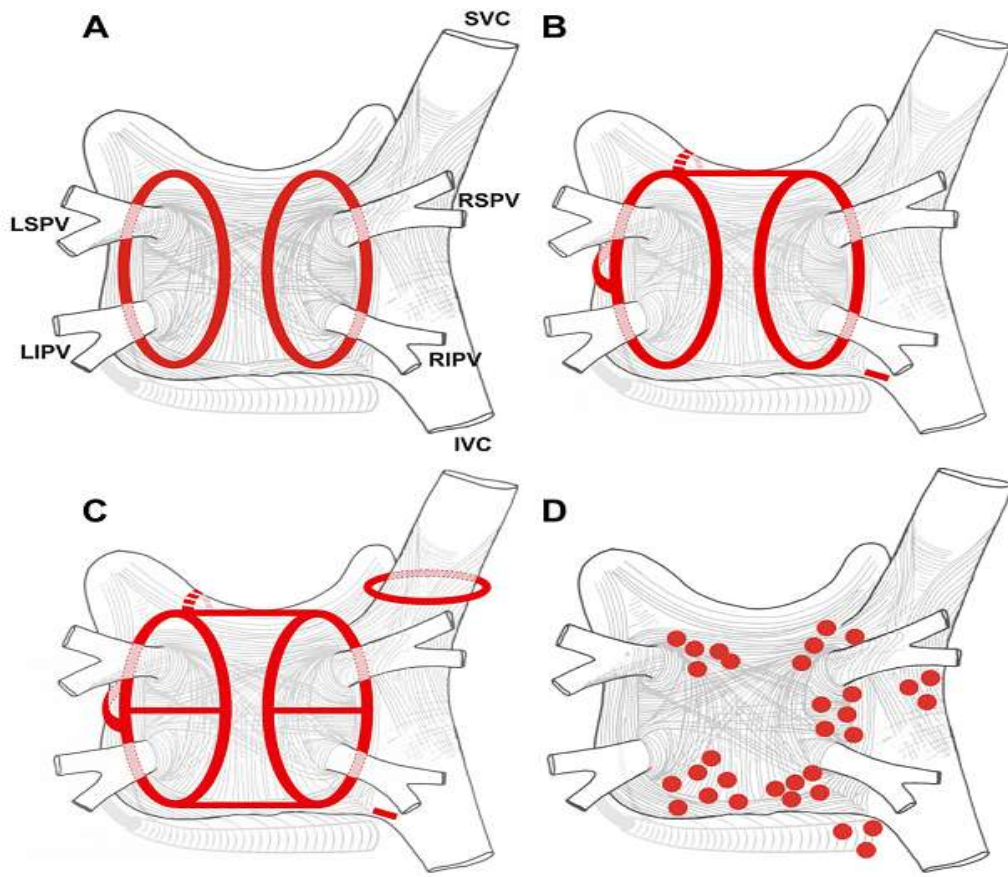
B - Large and small waves re-Entre playing a role in the initiation and maintenance of AF.

C - The most frequent location of the triggers of AF in LV (shown in red) and the trigger is PV (shown in green)

D - The combination of anatomical and arrhythmic mechanisms of AF.

Rationale for catheter ablation of AF

The objectives are the prevention of AF ablation by applying radiofrequency energy and either remove the trigger that initiates AF or change arrhythmogenic substrate. The most frequently used today ablation strategy, which includes electrical isolation of pulmonary veins by creating openings around the peripheral damage of the right and left pulmonary veins probably affects both the trigger and the substrate AF.



A - circular impact around the right and left PV

B - line exposure ("line on the roof", line "mitral isthmus")

C - eight-like shaped line ablation

D - areas with complex fractionated endogramms.

Radiofrequency ablation



- Nowadays the radiofrequency ablation is the most promising and rapidly growing method of treatment of AF. By the evidence of leading international arrhythmic centers the **efficiency reaches 60-95%**.
- Complications (deep vein thrombosis or clot propagation by subcutaneous veins) are extremely rare **(1-2%)**.

Indications for AF catheter ablation

Class I.

- 1) Patients with atrial tachycardia resistant to the action of drugs, as well as intolerance of drugs by the patient or his unwillingness to continue long-term antiarrhythmic therapy.
- 2) Patients with atrial tachycardia, when the latter is combined with the "focus" of paroxysmal (continuously-recurrent) atrial fibrillation from the clutches of the pulmonary veins, the superior vena cava and the mouth of the coronary sinus, the left and right atria, resistant to the action of drugs, as well as intolerance of drugs the patient or his unwillingness to continue long-term antiarrhythmic therapy.
- 3) Patients with atrial flutter resistant to the action of drugs or RFA of AF, as well as intolerance of drugs by the patient or his unwillingness to continue long-term antiarrhythmic therapy.

Class II.

- 1) atrial fibrillation / atrial tachycardia associated with paroxysmal and persistent atrial fibrillation, tachycardia unless resistant to drugs, as well as intolerance of drugs by the patient or his unwillingness to continue long-term antiarrhythmic therapy.
- 2) Patients with paroxysmal and persistent atrial fibrillation, provided that starting or supporting factors arrhythmias are clearly localized (pulmonary veins, atria) of its occurrence, if tachycardia resistant to drugs, as well as intolerance of drugs by the patient or his unwillingness to continue long-term drug therapy.

Class III.

- 1) Patients with atrial fibrillation are amenable to drug therapy if the patient tolerates treatment and prefers to conduct its ablation.
- 2) Patients with chaotic atrial tachycardia.

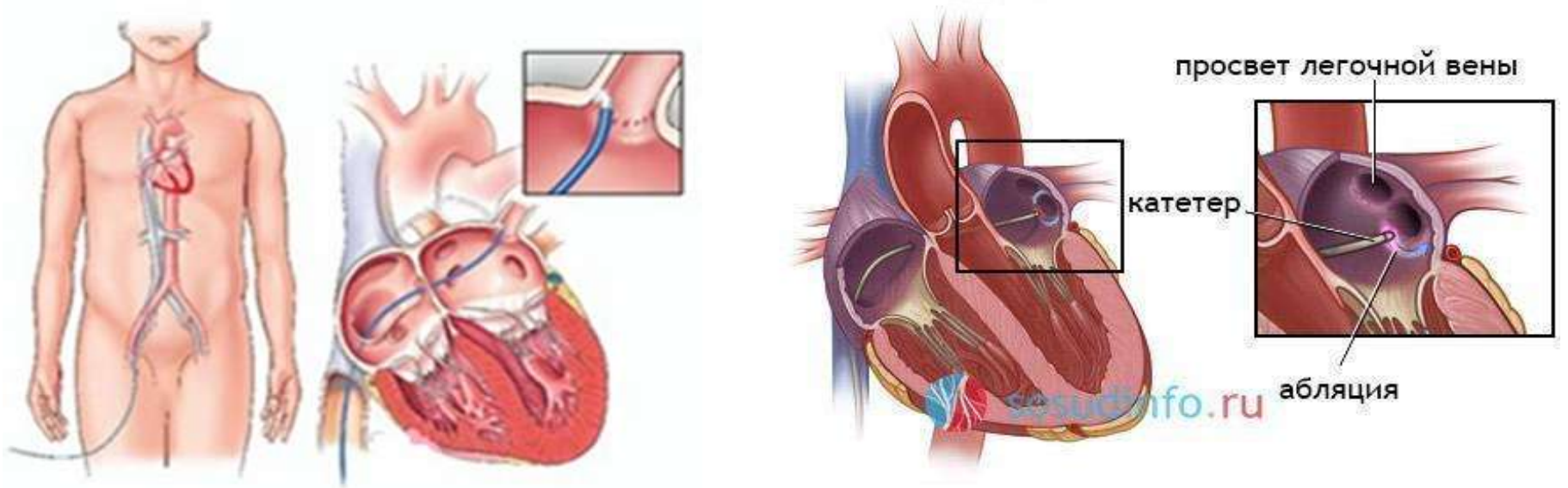
Contraindications for radiofrequency catheter ablation of AF

Absolute	Relative
inability to use anticoagulant therapy	decompensation of chronic heart failure
atriomegaly (LA sagittal dimension larger than 50 mm or a volume more than 200 ml)	circulatory failure III-IV functional classes
life-threatening cardiac or non-cardiac status	severe renal insufficiency
inability to puncture the femoral vein	exacerbation of peptic ulcer
lack of consent of the patient and / or his legal representatives of the procedure	allergy to drugs (local anesthetics, narcotic drugs);
	inflammatory diseases of the heart and surrounding structures;
	lack of access to large vessels and / or violation of their permeability;
	exacerbation of chronic diseases;
	impossibility of receiving antiarrhythmic drugs.

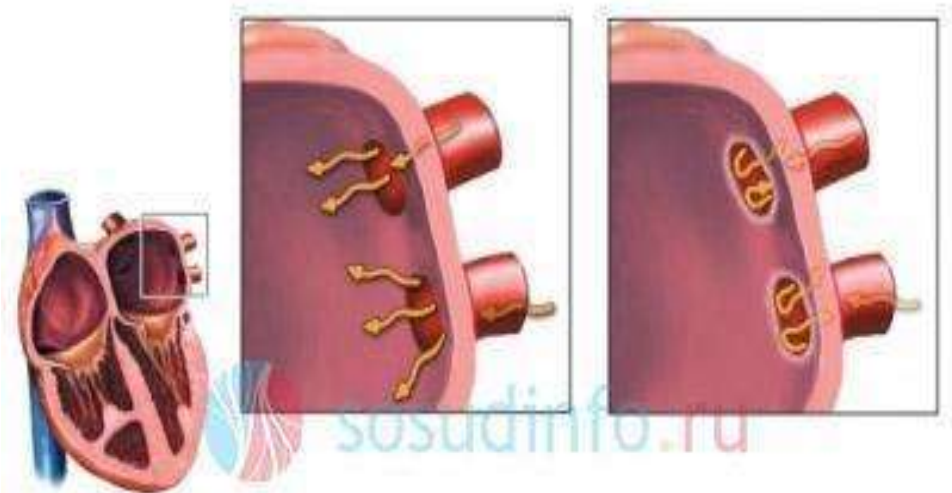
Technique radiofrequency catheter ablation (RFA)

- The operation is performed under local anesthesia
- Femoral and subclavian vein are punctured
- Catheter-electrode introduced through punctate via the introducer under X-ray control into the heart cavity
- The first stage is the heart electrophysiological investigation (EFI) performing with the induction of tachyarrhythmias and localization of arrhythmogenic substrate is influenced by the energy of radio frequency current
- After 20 minutes, a repeated EFI to assess the effectiveness of the impact
- Patients are advised to strict bed rest to 24 hours.
- Rehabilitation after RFA for several months, during which can be assigned the antiarrhythmic drugs

Result of Radiofrequency Catheter Ablation (RFA)



After ablation: chaotic impulses that trigger arrhythmia can not fall into the cavity of the atrium



Complications after AF catheter ablation

- Embolism, transient ischemic attacks, strokes
- Stenosis / occlusion of the pulmonary vein
- Appearance of atrio-esophageal fistula
- Cardiac tamponade
- Phrenic nerve damage (primarily the right)
- Damage to the esophagus
- Arterio-venous fistula
- Aneurysm formation
- Radiation injury
- Damage to the mitral valve
- Acute coronary artery disease
- Air embolism
- Hematoma at the puncture site
- Mortality

Mechanisms of AF recurrence after catheter ablation

The highest risk of recurrence of AF during the first 6 - 12 months after ablation, there is the risk of 'new' late repeated appearance of AF

- The basic mechanism - electrical reconnection of the pulmonary veins
- The presence of arrhythmogenic foci, which were not identified and isolated during the first ablation
- Postablation result of changes autonomic innervation of the heart and the pulmonary veins
- Result of fisiological aging, heart failure (HF), inflammation
- associated diseases: diabetes mellitus, sleep apnea, hypertension, hypercholesterolemia

The hybrid approach (surgery combined with medication) can significantly improve the quality of life by reducing the number of attacks and symptoms of arrhythmia

Management of patients with atrial fibrillation 1

(Recommendations of the American College of Cardiology, the American Heart Association and the European Society of Cardiology for the management of patients with atrial fibrillation (ACC / AHA / ESC 2006))

Basic methods of therapy:

1. Restoration of sinus rhythm

1.1. Drug cardioversion

1.2 Electro-Cardioversion Defibrillation

1.3 Surgical methods

2. Anticoagulation

3. preventive treatment

4. Treatment of the underlying disease

Management of patients with atrial fibrillation 2

1.1.drug cardioversion

Drug	Daily dose	Features of administration
Chinidin sulfate	300-600 mg once	Drugs of IA, IC classes: using in patients without myocardial structural lesions. Flecainide or propafenone are not used for a long time, but only for attack relieving.
Novokainamid	1000-4000 mg	
Flecainide	50-400 mg	
Propafenone	450-900 mg	
Dofetilide	500-1000 mg	
Amiodarone	100-400 mg	
Sotalol	480 mg (up to 640 mg)	In the presence of cardiac disease. In the case of left ventricular dysfunction, MI and CHF.

Management of patients with atrial fibrillation 3

1.2 Electro-cardioversion defibrillation (ECD) – transthoracic impact of sufficient force to cause depolarization of the entire myocardium, the sinoatrial node and then resumes control of the heart rhythm.

- Cardioversion - the impact of direct current synchronized with the QRS complex
- Defibrillation - the impact of direct current without complex synchronization QRS.

Management of patients with atrial fibrillation 4

1.3. surgical

- AV-node radiofrequency catheter ablation (AV-modulation of the slow destruction of the α -ways, destruction AV- node with pacemaker implantation - preferred biventricular pacing)
- endovascular catheter ablation (in the left atrium: focal ablation, ablation of ganglionic plexuses, the isolation of the pulmonary veins; isthmus ablation of the right atrium)
- Implantation of automatic atrial defibrillator
- Surgical isolation of the left atrial surgery - MAZE (I-III) ("Labyrinth")

Management of patients with atrial fibrillation 5

2. Anticoagulation therapy

Anticoagulants (at low risk of bleeding)

- Warfarin inside 5mg / day initial dose titrated to a target INR of 2.0-3.0 (unless contraindicated), or
- Dabigatran 110 mg 2 times a day, or rivaroxaban 10,15, 20 mg / day (subject to availability bruising patient) in 1 reception.

Antiplatelet agents

- Acetylsalicylic acid 75 mg / day after the meal
- Clopidogrel 75 mg per day.

Management of patients with atrial fibrillation 5

3. Preventive treatment:

Groups of drugs	Member of drug groups	Features of administration
Calcium antagonists	<ol style="list-style-type: none">1. Verapamil inside of 40-80 mg 3-4 times/ day.2. Diltiazem inside at 60-180 mg 2 times / day.	
Beta-blockers	<ol style="list-style-type: none">1. Sotalol 160 mg 2 p / day.2.5-10 mg bisoprolol inside 1 times / day.2. Betaxolol inside 50 mg 2 times/ day.3. Metoprolol inside of 50-100 mg 2 times / day.4. Propranolol inside the 80-240 mg / day.	Combination with amiodarone or class 1C drugs (flecainide, propafenone)
Statins	<ol style="list-style-type: none">1. Atorvastatin 10 mg/ day.2. Lovastatin, 20 mg / day.3. Simvastatin 20 mg / day.4. Fluvastatin 20 mg / day.	

Our patient

- Woman
- 72 year old
- retired
- A townswoman
- Date of admission: October 2014

Complaints

- Seizures disruptions of the heart and heart palpitations (heart rate over 130 beats / min) without warning and a clear link to the provoking factor, accompanied by discomfort in the heart, weakness, lasting from 15 minutes to 2-3 hours stopped by taking 300 mg Propanorm .
- Headache in the occiput, inner discomfort that arise for no apparent reason, often with an increase in blood pressure to 150-160 / 90 mm Hg, which is relieved by drugs (losartan or amlodipine) for 1.5-2 hours.
- Shortness of breath, heart palpitations, fatigue, arising from the normal exertion.
- Recurrent pain in the cervical spine, interscapulum.
- Recurrent pain in the right knee that occur after exercise.

Medical history 1

- Since 2000, blood pressure instability with the rise to 150-160/90 mmHg (maximum 200/100 mm Hg), familiar to the patient - 140/80 mm Hg Repeatedly she was treated in the cardiology department of the Central Clinical Hospital № 5 and at the hospital in the community about arterial hypertension and sinus bradycardia.
- Since 2004, the attacks of palpitations (heart rate over 130 beats / min), up to 2 times a month, arise spontaneously, without warning and a clear link to the provoking factor, often at night, accompanied by general weakness, headache, discomfort in the heart. Most of the attacks proceeded with loss of consciousness. Sinus rhythm was restored spontaneously within 10 minutes to 1 hour. During the next 2 years the duration of attacks increased up to 2-2.5 hours.
- Since 2006, the paroxysms of self is not docked. The patient was admitted in the hospital, with diagnosed persistent AF. 150 mg propanorm was appointed to restore sinus rhythm . On the background of the drug short paroxysms began to cut for 1 hour .
- Since 2012 she was increased Propanorm dose herself up to 300 mg
- Since 2013 the number of attacks increased up to 2-3 times a day.

Medical history 2

- In July 2013 there were planned treatment in CCH №5. Losartan, Warfarin, Nebivolol, Propanorm were taken situationally after discharge. Warfarin was canceled because of gross hematuria
- June 2013 - February 2014 the frequency of attacks was maintained (2-3 times a day), every second attack was accompanied with loss of consciousness. Nightly episodes were dominated, because of what the sleep was disturbed.
- In February 2014 the catheter ablation of pulmonary veins (removal of AF and slow path) was conducted at the N.M. Amosov Institute of Cardiovascular Surgery. AF attacks were stored after the operation on the background of bradycardia during the rest (50 beats / min). The incidence of attack was 1-2 times a week and was not accompanied by syncope. The patient receives Losartan 25 mg, Carvedilol 12.5 mg Amlodipine 2.5mg systematically.
- From 1 to 9 October 2014 there were 7 attacks (almost daily), stoped by Propanorm 300 mg during 2-3 hours. The increase of episodes the patient connects with the reception of the gelatin mixture (which was taken as a folk remedy for treatment of osteoarthritis). Repealing gelatin patient noted a decrease in paroxysms (up to 3 times a week).
- Current hospitalization on CCH №5 planned for control after catheter ablation.

Life history

1. Electrician by profession. From 1962 to 1999 she worked in office manager, professional stress was noted.

2. Injuries: bruised right knee in childhood.

Since 1986, osteochondrosis of the cervical-thoracic spine.

Secondary gonarthrosis.

1973 appendectomy.

February 2012 there was conducted puncture of the right kidney cyst.

Tuberculosis, diabetes, sexually transmitted diseases, viral hepatitis, rheumatism, mental illness history denies.

Family history is not burdened.

Allergic history (intolerance to warfarin and sinkumar - gross hematuria).

No bad habits.

Lifestyle of the patient

- The patient does not smoke, does not drink alcohol
- Controls body weight
- Nutrition includes eating more fruits and vegetables, as well as products low in animal fats in the diet and the prevalence of vegetable fats. In cooked food adheres most gentle ways (decoction, stewing and steaming)
- Reduced consumption of salt (about 1 g daily).
- Of exercise 5 times a week (gymnastics, charge), swimming 2 times a week.

Objective status

The general condition is satisfactory, consciousness is clear, emotionally stable, optimistic mood.

Normosthenic physique, height 165 cm, weight 56 kg, BMI = 20.7 kg / cm²

Skin, visible mucous membranes pale pink and clean.

Peripheral lymph nodes were not enlarged.

Lobe of the thyroid is not palpable, the isthmus is palpated in the form of a uniform cross-strand smooth, 1 cm wide

Musculoskeletal system without singularities, pain in the neck palpation and poorly marked tenderness of the right knee with patellar displacement in the projection of joint space

Respiratory System: Pulmonary percussion sound auscultation - vesicular breathing, no additional noise.

CCC: the left boundary of the relative dullness of 5 m / d in the midclavicular line, rhythmic activity of the heart, heart sounds are muffled, accent II tone of the aorta. Heart rate = heart rate = 50 beats / min. Blood pressure of 140/90 mm Hg. Art. against the background of antihypertensive therapy.

Stomach of normal size, palpation soft, painless. Liver 2 cm protrudes from under the costal margin, painless.

No peripheral edema.

PLAN OF SURVEY IN THE HOSPITAL

1. Complete blood count
2. Urinalysis
3. Biochemical blood analysis (cholesterol, bilirubin, ALT, AST, glucose, creatinine, urea)
4. Chest X-ray
5. ECG
6. Holter ECG
7. Ultrasound of the heart with the doppler analysis
8. Ultrasound of abdomen

Additional recommended

- Blood lipid profile (LDL, VLDL, HDL, triglycerides)
- Ultrasound of Thyroid Gland
- TSH, T3, T4
- Neurologist consultation
- X-ray of the cervical-thoracic spine and right knee

Complete blood count (21/10/2014)

INDEX	RESULT	NORMAL
hemoglobin	140 g/l	120 -140 g/l
erythrocytes	4.62	3.9 -4.7
CPU	0.9	0.85-1.15
hematocrit	41.3%	36-42%
thrombocytes	261g/l	160-320g/l
leukocytes	5.6g/l	4.0-9.0g/l
stab	2%	1-6%
segmented	62.9	47-72%
eosinophils	3%	0.5-5.0%
basophils	1.2%	0-1.0%
lymphocytes	24%	19-37%
monocytes	6.9%	3-11%
ESR	7mm/h	2-15mm/h

Urinalysis (10/21/2014)

INDEX	RESULT	NORMAL RANGE
AMOUNT (ml)	70.0	
Color	Yellow	Light Yellow
TRANSPARENCY	transparent	transparent
OTNOS.PLOTNOST	1.010	1.001-1040
REACTION (pH)	6.0	5.0-6.0
PROTEIN (g / l)	not found	to 0.033g/l
Glucose (mmol / l)	Not found	-
leukocytes	1-2	6-8
TRANSITIONAL EPITHELIUM	Not found	
BACTERIA	Not found	

Biochemical analysis of blood (21/10/2014)

Index	Result	normal range
total cholesterol	5.58	<5.2MMOL/L
total bilirubin	24.15	1.7-21.0 MMOL/L
direct	7.5	<3.4 MMOL/L
indirect	16.65	<19MMOL/L
ALT	16	<31M/L
AST	0.34	TO 0.5 MMOL/L
creatinine	91.6	53-97MMOL/L
glucose	5.51	4.2-6.1MMOL/L
urea	5.2	4.2-8.3MMOL/L

Chest X-ray (10/21/2014)

Focal and infiltrative changes in the lungs were not identified. The roots of the structural, not increased.

Right pleuro-diaphragmatic sinus obliterated.

Diaphragm clearly delineated.

Heart enlarged to the left. Aortic arch with sclerotic changes. Determined by the extension of the upper mediastinum.

ECG (10/20/2014)

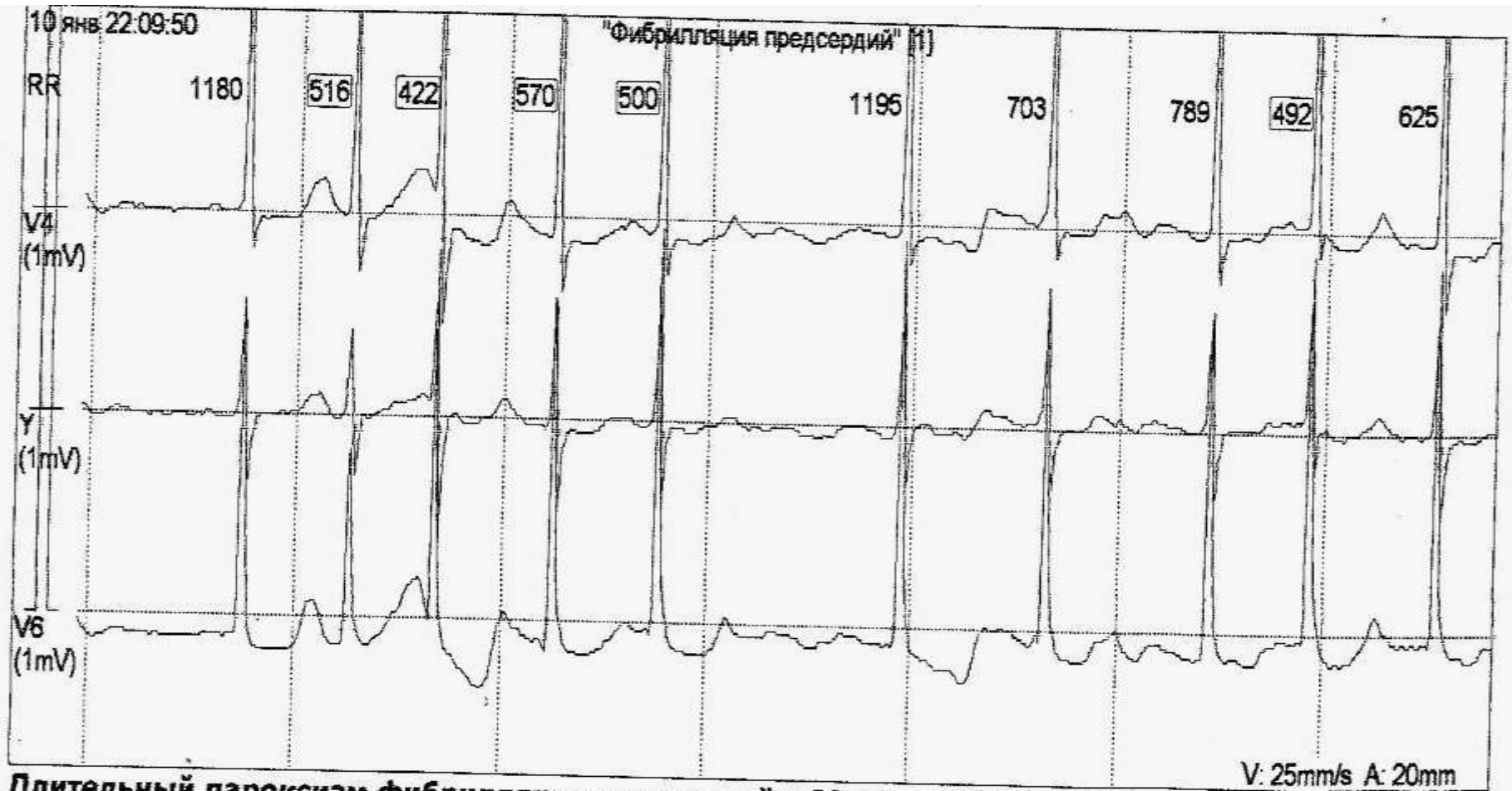


Sinus rhythm, right. Left ventricular hypertrophy, heart rate 53 beats / min.

Comparison the results of daily ECG monitoring before and after RFA

Index	Before RFA (10/01/14)	After RFA (21/10/14)
The average heart rate during the observation	Day 76 bpm Night 79 bpm	Day 53 bpm Night 48 bpm
Maximum heart rate	105 beats / min	82 beats / min
Minimum heart rate	45 beats / min	40 beats / min
Single supraventricular extrasystoles	total 2	total 6
Single polymorphic ventricular extrasystoles	total 13	only 2 (1 day, 1 night)
AF paroxysm	Long with a heart rate of 116 to 208 beats / min, Short with a heart rate of 116 to 151 beats / min. (58 hours)	not found

AF Paroxysm Holter ECG monitoring before RFA 1 (10.01.14)



Длительный пароксизм фибрилляции предсердий с 22:09 до 00:54 с ЧСС от 116 до 208 уд/мин в пери.
Ночью: 60. (11 в час).

Ultrasound of the heart with Doppler analysis (21/10/14)

- Aortic regurgitation, grade 2.
- Mitral valve prolapse, grade 3
- The cavities of the heart are not enlarged.
- Signs of increased pressure in the pulmonary artery.
- Indices of myocardial contractility and pump function of the left ventricle are saved.
- Mitral regurgitation, 1 degree.
- Tricuspid regurgitation, 1 degree.
- Abnormal left ventricular chord

Comparison the results of echocardiography of the heart, with the Doppler analysis before and after RFA

Index	Before RFA (01/11/14)	After RFA (21/10/14)
aorta	diameter 34 mm, wall echodensity enhanced thickened wall	diameter 31 mm, wall echodensity enhanced thickened wall
Aortic Valve	Opening the valves 16.0 mm, sash thickened. Regurgitation has traces	Opening the valves 21 mm sash thickened. Regurgitation of II degree
Left atrium	extended, anteroposterior dimension 37.6 mm	Not extended, anteroposterior dimension of 32.8 mm
Left ventricle	EF Ejection fraction 65% Fractional shortening FS 36%	EF ejection fraction of 65% Fractional shortening FS 36%
Right atrium	not extended, the diameter of 35.6 mm	not extended, the diameter of 36.8 mm
The right ventricle	Not expanded, diameter 22.1 mm, thickness of the front wall of 5.6 mm, thickened	Not expanded, diameter 22 mm, thickness of the front wall 5 mm, thickened

Ultrasound of the abdomen and kidneys (10/21/14)

- hepatomegaly
- Diffuse parenchymal changes in the liver and pancreas
- Cyst of the right kidney, measuring 46.7 mm.

Basic clinical syndromes

- Atherosclerosis (sclerotic changes of aortic and mitral valves, mild atherosclerotic aortic stenosis).
- Arterial hypertension
- Arrhythmias (persistent AF)
- Heart failure
- Hepatomegaly
- Articular syndrome (osteocondrosis of the cervical-thoracic spine, right secondary gonarthrosis)
- Right kidney liquid formation

Clinical diagnosis (According
to the classification)

Classification of CHD

(On the recommendations of the European Society of Cardiology ESC, 2013)

1. sudden coronary death
 - 1.1. Clinical sudden coronary death with successful resuscitation
 - 1.2. Sudden coronary death (fatal case)
2. Angina
 - 2.1.1. Stable angina (indicating the functional classes (FC).
 - 2.1.2. Stable angina with angiographically intact vessels (coronary syndrome X).
 - 2.2. Vazospastichna angina (angiospastic, spontaneous, variant, Prinzmetal's).
 - 2.3 Mixed angina
 - 2.4 Unstable angina (up to 28 days)
 - 2.4.1. Angina, which appeared for the first time to 28 days (angina that occurred for the first time, with transient ECG changes - rest).
 - 2.4.2. Progressive angina (angina at rest or the appearance of night attacks in a patient with angina pectoris, angina change, progressive decrease in exercise tolerance, transient ECG changes - rest).
 - 2.3.3. Early post-infarction angina (from 3 to 28 days).
3. Acute myocardial infarction
 - 3.1. Acute myocardial infarction with the presence of wave Q (transmural, macrofocal)
 - 3.2. Acute myocardial infarction without tooth Q (melkoochagovy).
 - 3.3. Acute subendocardial myocardial infarction.
 - 3.3 Acute subendocardial myocardial infarction
 - 3.4. Acute myocardial infarction (unspecified)
 - 3.5. Recurrent myocardial infarction (from 3 to 28 days).
 - 3.6. Recurrent myocardial infarction (after 28 days)
 - 3.7. Acute coronary insufficiency. The diagnosis of intermediate - elevation or depression of segment ST, which displays acute ischemia to develop signs of myocardial necrosis or sudden coronary death
4. Cardiosclerosis
 - 4.1. focal kardiosklerosis
 - 4.1.1. Myocardial infarction with an indication of the form and stage heart failure, arrhythmias and nature conductivity, the number-myocardial, their localization and time of occurrence).
Chronic cardiac aneurysm
 - 4.1.2. Focal cardio, without indicating myocardial infarction.
 - 4.2. Diffuse cardiosclerosis (with an indication of the stage of heart failure, arrhythmias and conduction)
5. painless form of CHD.

Classification of hypertension according to the level of blood pressure

(Recommendations by the Ukrainian Association of Cardiologists Prevention and treatment of hypertension, 2008)

The degree of hypertension	Systole	Diastole
Hypertension 1st severity (mild)	140-159	90-99
Hypertension 2nd severity (moderate)	160-179	100-109
Hypertension 3rd severity (severe)	≥ 180	≥ 180

stage	The degree of target organ damage Classification of hypertension stages (Recommendations of the Association of Cardiologists of Ukraine 2008)
I	Objective changes in the target organs are absent
II	<p>There is objective evidence of target organ damage without symptoms with their hand or dysfunction:</p> <ul style="list-style-type: none"> Left ventricular hypertrophy (on ECG, ultrasound, Ro); generalized narrowing of retinal arteries; Microalbuminuria and / or a small increase in serum creatinine (y m. - 115 - 133 mmol / L at x. - 107 - 124 mmol / l); carotid artery disease - a thickening of the intima-media > 0.9 mm or the presence of atherosclerotic plaques.
III	<p>There is objective evidence of target organ damage with symptoms from their side and impaired</p> <ul style="list-style-type: none"> heart - myocardial infarction, heart failure II A - III stage; brain - stroke, transient ischemic attack, acute hypertensive encephalopathy, vascular dementia; fundus - hemorrhage and retinal exudates with papilledema the optic nerve or without; Kidney - concentration of plasma creatinine in males > 133 umol / L, y Women > 124; vessels - dissecting aortic aneurysm; peripheral arterial occlusion

Risk stratification of hypertension

(Recommendations Ukrainian Heart Association, 2008)

risk Factors	high normal 130-139 / 85-89	Hypertension 1st degree 140-159 / 90-99	Hypertension 2nd degree 160-179 / 100-109	Hypertension 3rd degree > 180/110
NO	-----	LOW RISK	MODERATE RISK	HIGH RISK
1-2 RISK FACTOR	LOW RISK	MODERATE RISK	MODERATE RISK	VERY HIGH RISK
MORE THAN 3 RISK FACTOR	HIGH RISK	HIGH RISK	HIGH RISK	VERY HIGH RISK
accompanying clinical States	VERY HIGH RISK	VERY HIGH RISK	VERY HIGH RISK	VERY HIGH RISK

Classification of atrial fibrillation

(HRS / EHRA / ECAS Expert Consensus Statement on Catheter and Surgical Ablation of Atrial Fibrillation, 2012; Recommendations of Ukrainian Heart Association, 2011)

By the flow

- Paroxysmal (lasting less than 7 days.)
- **Persistent (lasting more than 7 days.)**
- Permanent (long-existing AF, cardioversion is ineffective or not done)

By AV conducting status

- **The correct form - regular**
- Irregular shape - irregular

According to the frequency of ventricular rhythm:

- Tachy **variant (HR over 90 beats / min)**
- Normo variant (HR 60-90 beats / min)
- Brady variant (HR below 60 beats / min)

CHA2DS2-VASc rating Scale risk of thromboembolic complications in patients with Fibrillation / atrial flutter

RISK FACTOR	Points
Stroke, transient ischemic attack, or thromboembolism	2
Age \geq 75 years	2
arterial hypertension	1
diabetes mellitus	1
Congestive heart failure / LV dysfunction (ejection fraction \leq 40%)	1
Cardiovascular disease (history of myocardial infarction, peripheral atherosclerosis, atherosclerotic plaques in the aorta)	1
AGE 65-74 YEARS	1
Woman sex	1

Total points 3. The expected frequency of strokes per year 3.2%

SCALE HAS-BLED: risk factors for bleeding
(ESC Guidelines for the management of atrial fibrillation, 2011)

RISK FACTOR	POINTS
Arterial hypertension (SBP > 160 mm.pt.ct.)	
Abnormal liver function, severe cartilage. disease or increased bilirubin ≥ 2 times the upper limit of normal in conjunction with povysheniem \geq AST / ALT ≥ 3 times	1
Impaired renal function: creatinine ≥ 200 , dialysis and transplantation	1
insult	1
Bleeding history or predisposition	1
Labile INR (unstable or high in the therapeutic range less than 60% of the time)	1
Age over 65 years	1
alcohol abuse	1
Acceptance of others. Drugs that increase the risk of bleeding (NSAIDs, antiplatelet agents, and before.)	1

Clinical stage of chronic Heart failure (CHF)

(By Strazhesko ND, VH Vasilenko, 1935; Ukrainian recommendations of Heart Association for diagnosis, treatment and prevention of heart failure, 2013)

stage	clinical Manifestations
I	Starting hidden, appear only on exertion as breathlessness, tachycardia, excessive fatigue, expressed sharper and longer than in the healthy human. Hemodynamics and organ function is not impaired; earning capacity lowered.
II	Signs of hemodynamic instability. Metabolic and the function of other organs
II A	Insufficiency of the right or left of the heart. Stagnation and disruption the function of other organs are mild and usually manifest by the end of the working day or after exercise (disappear after a night of rest)
II B	Failure of right and left heart chambers. Stagnation of blood expressed stronger and occur at rest (do not disappear after a night's rest, may be slightly decrease)
III	Certainly, dystrophic CH with severe hemodynamic resistant Metabolism and functions of all the organs, the development of irreversible

Functional class of heart failure

(According to the criteria of the New York Heart Association - NYHA)

RISK FACTOR	clinical characteristics
I	Patients with cardiac disease whose ordinary physical activity does not cause shortness of breath, fatigue, or palpitations
II	Patients with heart disease and moderate limitation of physical activity. Under normal physical activities observed Dyspnea, fatigue, and palpitations
III	Patients with cardiac disease and marked limitation of physical activity. At rest, there are no complaints, but even minor physical exertion dyspnea, fatigue, palpitations
IV	Patients with cardiac disease in which any physical activity level is above the subjective symptoms. These arise dormant

Variants of left ventricular dysfunction

(Ukrainian Heart Association Guidelines for diagnosis, treatment and prevention of CHF, 2013).

Variant I Left ventricular systolic dysfunction:
ejection fraction less than 40%

Variant II. Preserved systolic function: ejection
fraction greater than 40%

DIAGNOSIS

On admission:

Arterial hypertension II stage, 3 degree, high risk. CHD. Atrial fibrillation paroxysmal form. Tachysystole. Condition after pulmonary vein isolation (24.02.14). CHF I st.

Clinical:

CHD. Aorta atherosclerosis, mild atherosclerotic aortic stenosis, atherosclerotic cardiosclerosis. Sinus bradycardia. Persistent atrial fibrillation, tachysystolic form. Condition after pulmonary veins isolation (February 2014). HAS-BLED score 3 points, CHA2DS2-VAS score 3 points. Arterial hypertension stage II, mild degree, moderate added risk. Chronic heart failure stage I, II FC with preserved LV systolic function. Comorbid conditions: Osteochondrosis of the cervical-thoracic spine. Right secondary gonarthrosis. Right kidney liquid formation (cyst), size 46.7 mm.

Treatment in hospital

- Acetylsalicylic acid 75 mg
- Carvedilol 12.5 mg 2 times / day.
- Valsartan 80 mg 2 times / day.
- Trimetazidine 1t. 2 times / day.
- Kardioarginin 5 ml / Cap. 2 times / day
- Meldonium 100 mg / ml in / pp. (Cardiac)
- Nikomeks (Emoxypine) –i/v 75 mg 2 times / day.
(Drugs affecting the nervous system)
- Thiotriazoline 2.5% i/v. № 10

Recommended treatment

1. Lifestyle modification:

- Change in daily routine (sleep duration of at least 8 hours per day; day sleep 1-2 hours).
- Continued adherence to diet and physical activity.

2. Drug therapy:

- Losartan 50 mg / day.
- Atorvastatin 10 mg at bedtime
- Aspirin 75 mg / day.
- Propafenone 150 mg - with paroxysm
- Local medication (NPVS- ointments)
- Physiotherapy

Differences in treatment after radiofrequency catheter ablation

Treatment in hospital

- Acetylsalicylic acid 75 mg
- Carvedilol 12.5 mg 2 p / day.
- Valsartan 80 mg 2 p / day.
- Trimetazidine 1t. 2 p / day.
- Kardioarginin 5 ml / Cap. 2 p / day
- Meldonium 100 mg / ml in / pp. (Cardiac)
- Nikomeks-in / in / Cap. 75 mg 2 p / day.
- Thiotriazoline 2.5% w / p. № 10

The recommended treatment

Losartan 50 mg / day.

Atorvastatin 10 mg at bedtime

Aspirin 75 mg / day.

Propafenone 150 mg at paroxysm

PROGNOSIS

- for life, with compliance - satisfactory
- to recovery: adverse

With persistent AF catheter ablation success probability is about 65%, with about 40-50% of patients require re-ablation

In addition to re-establish communication between the isolated pulmonary veins with atrial tissue main cause arrhythmias after ablation is an iatrogenic atrial tachycardia mechanism re-entry

The most effective results radiofrequency ablation shows early development of AF.

PREVENTION

1. Maintain a healthy lifestyle

- diet
- perform physical activities
- avoiding harmful habits
- avoidance of emotional tension

2. Maintaining body mass indices and cholesterol, and glucose in normal

3. The patient should be evaluated after 3 months. after radiofrequency ablation, and then every 6 months. for at least 2 years

4. A person suffering from arrhythmia, should take medication constantly (to prevent or treat).

THANK YOU FOR YOUR ATTENTION

