

## **CLINICAL CASE OF PERSISTENT ATRIAL FLUTTER IN PATIENT WITH COMORBID PATHOLOGY**

**O. V. Gavrilyuk<sup>1</sup>, Y. Y. Boeva<sup>1</sup>, I. Ch. Anyasi<sup>1</sup>, M. S. Maltseva<sup>1</sup>, D. E. Volkov<sup>2</sup>**

<sup>1</sup>V. N. Karazin, Kharkiv National University, Faculty of Medicine, Department of Internal Medicine

<sup>2</sup> SI «V. T. Zaycev Institute of General and Urgent Surgery NAMS of Ukraine», Department of ultrasound and instrumental diagnosis with miniinvasive interventions

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Clinical case of persistent atrial flutter in combination with comorbid pathology is presented. Clinical diagnosis, choice of optimal interventional and drug therapy are discussed. Catheter ablation was considered as the optimal method for radical treatment of the atrial flutter. A modification of drug therapy is required according to the condition of the patient after the catheter ablation.

**KEY WORDS:** atrial flutter, anticoagulation therapy, dabigatran, catheter ablation

## **КЛІНІЧНИЙ ВИПАДОК ПЕРСИСТУЮЧОЇ ФОРМИ ТРІПОТІННЯ ПЕРЕДСЕРДЬ ПАЦІЄНТА З КОМОРБІДНОЮ ПАТОЛОГІЄЮ**

**O. B. Гаврилюк<sup>1</sup>, Ю. Ю. Боева<sup>1</sup>, А. Ч. Ан'ясі<sup>1</sup>, М. С. Мальцева<sup>1</sup>, Д. Є. Волков<sup>2</sup>,**

<sup>1</sup> Харківський національний університет імені В. Н. Каразіна, медичний факультет, кафедра внутрішньої медицини

<sup>2</sup> ДУ «Інститут загальної та невідкладної хірургії ім. В. Т. Зайцева НАМН України», відділення ультразвукової та інструментальної діагностики захворювань внутрішніх органів та мініінвазивних втручань

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Розглянуто клінічний випадок ведення пацієнта з персистуючою формою тріпотіння передсердь у поєднанні з коморбідною патологією. Описана діагностика, постановка клінічного діагнозу і вибір оптимальної інтервенційної та медикаментозної тактики. Вирішальним у виборі тактики лікування стало радикальне усунення причини тріпотіння передсердь методом катетерної абляції. Після виконання абляції потрібна модифікація медикаментозної терапії, яку приводять відповідно до стану пацієнта і його змінами.

**КЛЮЧОВІ СЛОВА:** тріпотіння передсердь, антикоагулянтна терапія, дабігатран, катетерна абляція

## **КЛИНИЧЕСКИЙ СЛУЧАЙ ПЕРСИСТИРУЮЩЕЙ ФОРМЫ ТРЕПЕТАНИЯ ПРЕДСЕРДИЙ У ПАЦИЕНТА С КОМОРБИДНОЙ ПАТОЛОГИЕЙ**

**Е. В. Гаврилюк<sup>1</sup>, Ю. Ю. Боева<sup>1</sup>, А. Ч. Ан'яси<sup>1</sup>, М. С. Мальцева<sup>1</sup>, Д. Е. Волков<sup>2</sup>**

<sup>1</sup> Харьковский национальный университет имени В. Н. Каразина, медицинский факультет, кафедра внутренней медицины, Украина

<sup>2</sup> ГУ «Институт общей и неотложной хирургии им. В. Т. Зайцева НАМН Украины», отделение ультразвуковой и инструментальной диагностики заболеваний внутренних органов и мининвазивных вмешательств

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Рассмотрен клинический случай ведения пациента с персистирующей формой трепетания предсердий в сочетании с коморбидной патологией. Описана диагностика, постановка клинического диагноза и выбор оптимальной интервенционной и медикаментозной тактики. Решающим в выборе тактики лечения явилось радикальное устранение причины трепетания предсердий методом тактики лечения явилось радикальное устранение причины трепетания предсердий методом катетерной абляции. После выполнения абляции требуется модификация проводимой медикаментозной терапии в соответствии с состоянием пациента и его изменениями.

**КЛЮЧЕВЫЕ СЛОВА:** трепетание предсердий, антикоагулянтная терапия, дабигатран, катетерная абляция

Atrial flutter is one of the most commonly encountered disturbances of cardiac rhythm, which accounts for close to 10 % paroxysms of ventricular tachyarrhythmias [1].

Atrial flutter remarkably reduces the patient's quality of life, however, most danger is due to its complications, such as stroke and other consequences of thromboembolism in the systemic circulation, development and progression of heart and kidney failure [2].

Special difficulties are presented by occurrence of combined atrial flutter with comorbid pathologies, this requires coordinated interventions and medical treatment. This article dedicated to one such case.

### **CLINICAL CASE**

Patient V, an 81 year old female, came to the hospital with complaints of breathlessness on exertion (walking more than 500m), and bending of the trunk, feelings of increased heart rate and heaviness in the area of the heart, edema of the legs, dizziness, episodes of loss of loss of consciousness, general weakness and easy fatigability.

### **HISTORY OF DISEASE**

In 1975, 1<sup>st</sup> registered episode of increased blood pressure 200/110 mm Hg. Treatment: Enalapril, Acetylsalicylate. 2007 - transitory ischemic attack (TIA). 2008 - complaints of breathlessness, feelings of heaviness in the area of the heart, dizziness. Coronary ventriculography did not detect any pathology of the coronary arteries. On echocardiography - stenosis of bicuspid aortic valve. 2008 - implantation of prosthetic aortic valve in the A.N Bakuleva RAMN Scientific Center for Cardiovascular Surgery (Biological prothesis «Biolab-26»). In the post operative period (20 days), she was placed on warfarin. Condition stabilized after the surgery. August 2012 – complaints of acute dizziness and loss of consciousness, discovered syndrome of bradycardia-tachycardia. During attacks of the bradycardia took zelenin drops with a positive effect. June 2013 - deterioration of patient's condition, once more complaints of dizziness, loss of consciousness, feeling of increased heart rate. On electrocardiogram (ECG) - atrial flutter, complete blockade of right bundle branch of His. Therapy: amiodarone 200mg 2 times a day. Therapy continued twice a month, condition did not improve, reported to Central

Clinical Hospital Ukrzaliznitsi. Diagnosis of atrial flutter was confirmed. Therapy: bisoprolol, valsartan, dabigatran, atorvastatin, furosemide, consultation and of intervention cardiologist, recommended surgical correction of the arrhythmia.

### **MEDICAL HISTORY**

Childhood infections: diphtheria, measles, pneumonia. Transmissible infections: tropical malaria (1947). Acute thrombophlebitis of the deep veins of the left lower limb, thromboembolism of the small pulmonary arteries - Pulmonary embolism (1980). In the postmenopausal period (1985), in connection with uterine hemorrhage, curettage of the uterine cavity was performed. In 2008 she was diagnosed with diabetes mellitus type 2, placed on gliclazide 30 mg a day along with monitoring of diet. In 2013 was diagnosed with euthyroid autoimmune thyroiditis.

Viral hepatitis, tuberculosis, venereal diseases, HIV are absent. Hereditary diseases not detected. No allergies. Patient does not smoke or drink.

### **PHYSICAL EXAMINATION**

General condition satisfactory. Clear consciousness. Patient is active. Body type – normosthenic. Skin and mucosa clean, pale and dry. Skin is flabby and wrinkled, turgor is reduced. Subcutaneous fat is evenly distributed. On the chest wall is a scar from previous thoracotomy. Peripheral lymphatic nodes are not enlarged. Shape of neck is not changed. Palpable enlargement of the halves of the thyroid gland on swallowing. Musculoskeletal and respiratory system without abnormalities. Borders of the heart expanded to the left by 2 cm. Arrhythmic heart activity with weakened tones. Systolic murmur over the aortic projection and diastolic murmur over the mitral valves. Blood pressure 150/76 mm Hg (on the background of antihypertensive medication), pulse 72 bpm, no pulse deficit. Edema of the lower extremities from the shins to the level of knee joint. The gastrointestinal and renal systems are without abnormalities.

### **DIAGNOSIS OF REFERRING HOSPITAL**

Atrial flutter, persistent form. Arterial hypertension stage 3, very high risk. Chronic heart failure Stage IIB, functional class II. Diabetes Mellitus type 2. Euthyroid autoimmune thyroiditis.

## **RESULT OF LABORATORY AND INSTRUMENTAL EXAMINATIONS**

Complete blood count: erythrocytoses  $4.86 \times 10^6/L$  (T/L), thrombocytopenia 148,000/L.

Urinalysis: all results within normal ranges.

Protein electrophoresis: increased  $\alpha_2$  globulin 15.31 %.

Biochemical analysis of blood: ALT increased to 46u/L, Hyperglycemia (8.6mmol/L).

International Normalization Ration (INR): increased to 2.02.

Coagulogram: increased Soluble Fibrin Monomer Complex to  $13.0 \times 10^{-2}g/L$ .

Lipid profile: all results within normal ranges.

Blood Analysis for Thyroid hormones: All results within normal ranges.

Analysis for antibodies to thyroglobulin: result within normal range.

Echocardiogram: sclerotic changes of aortic walls and leaves of the mitral valve. Dilatation of both atria. Condition after prosthetic aortic valve implantation. Mitral regurgitation I-II stage. Moderate hypertrophy of myocardium of the left ventricle. Mild pulmonary hypertension (pressure at the mouth of the pulmonary artery 21.7mm Hg). Ejection fraction (EF)-62 %.

ECG: Atrial flutter, irregular form, heart rate 62 bpm. Complete blockade of the right bundle branch of His (complete RBBB). Hypertrophy of the myocardium of the left ventricle. Disturbance of the process of myocardial repolarization.

24hr ECG Holter monitoring: Length of monitoring- 13 hrs 53 minutes. On the background of atrial flutter with heart rate ranging from 49 to 115 (day average-68, night average-49) bpm. 57 single ventricular extrasystoles, 4 pauses with intervals RR 2019 -2237 ms. Ischemic changes of ST-segment not detected.

24hr monitoring of blood pressure: average day BP 139/73 mm Hg, average BP during active period 147/77 mm Hg and passive period 139/67 mmHg (group «Non-dipper» according to systolic BP).

Ultrasonography of Abdominal Organs: diffuse changes of parenchyma of the liver with increase d size typical of Fatty liver. Calculi in the gallbladder. Diffuse changes of the pancreas without its enlargement. Micro-lithiasis.

Ultrasonography of the Thyroid gland: hyperplasia stage II-III, with nodal changes of the parenchyma - focal type, with mixed structures in both halves.

Chest X-Ray: focal and infiltrative changes in the lungs not detected. Root structures not widened, sinuses are free. Diaphragm clearly outlined. Heart has aortal configuration and is widened to the left, aorta has no changes.

## **RECOMMENDATIONS FOR FURTHER EXAMINATION**

Further examination of the patient to determine the stage of damage to the kidneys: determine glomerular filtration rate (GFR), creatine clearance, Nechiprenko urinalysis, Zimnitski urinalysis, bacterial culture of urine.

Further examination to determine the stage of compensation of diabetes mellitus: determine glycyated hemoglobin HbA1c.

Examination by a gastroentologist for gallstone disease, decide further treatment tactics. Consultation by a cardiologist with the aim of correction of the antihypertensive therapy and selection of optimal doses for achieving the target systolic blood pressure. Observation by an endocrinologist with the aim of control of hormone levels and staging hyperplasia of the thyroid gland, and also to simultaneously control the diabetes mellitus and determine any complications.

## **BASIC CLINICAL SYNDROMES**

- Syndrome Disturbance of activation and conduction
- Syndrome of Bradycardia-tachycardia
- Syndrome of Arterial Hypertension
- Syndrome Chronic Heart failure
- Edema Syndrome
- Syndrome of Hyperglycemia
- Syndrome of Nodular goiter
- Cholelithiasis

## **STAGING OF CLINICAL DIAGNOSIS**

Classification of atrial flutter [3]: according to duration - persistent form, by condition of AV conduction- irregular form, by rate of ventricular contraction - normosystolic variant.

Classification of arterial hypertension [4]: according to degree - severe hypertension (degree 3), by damage to target organs - III stage (heart failure, transient ischemic attack in the history).

Stratification of risk with arterial hypertension [4]: 3<sup>rd</sup> stage combined with

associated clinical status (i.e heart failure and history of TIA) - very high cardiovascular risk.

Classification of chronic heart failure [5]: by stage - IIB, by functional class (FC) (NYHA) - IIFC, by variant - II variant (EF 62 %).

Classification of Diabetes Mellitus [6]: by severity – moderate (II stage) severity, by stage of compensation of glucose tolerance - sub-compensation.

Classification of goiter [7]: by stage - I stage.

Classification of nodular goiter [7]: multinodular goiter.

Classification of gallstone disease [8]: by stage of disease - asymptomatic, by clinical form - latent («stone carrier»).

## CLINICAL DIAGNOSIS

Primary disease:

Atrial flutter, persistent type, normosystolic variant. Condition after prosthesis of aortic valve «Biolab 26» (2008) due to stenosis of the bicuspid aortic valve. Arterial hypertension stage 3, degree 3. Very high cardiovascular risk. Heart failure IIB stage, II FC, with retention of systolic function (EF 62 %)

Basic Complications:

TIA (2007).

Accompanying Conditions:

Diabetes Mellitus type 2, stage of sub-compensation, moderate severity.

Multinodular goiter, stage I, Euthyroid.

Gallstone disease, latent form.

## PATIENT MANAGEMENT

Relief of atrial flutter can be achieved by medications, transesophageal pacing and catheter ablation. Considering the high probability of recurrence of attacks of atrial flutter with the use of the first two methods, the patient has been recommended catheter ablation (in agreement with HRS/EHRA/ECAS expert Consensus Statement on the catheter and surgical ablation of atrial fibrillation, 2012, class evidence IIa, level B) [9].

In preparation for the operation requires additional laboratory information (clinical analysis of blood, coagulogram, biochemical

analysis of blood), ECG, echocardiogram for exclusion of fresh thrombi in the heart cavities as this is an absolute contraindication for performing catheter ablation [10].

## LIFESTYLE MODIFICATION

Present recommendations are control by physical exercise, reduced intake of easily digested carbohydrates and animal fat products, salt (4-6 g/day), limit calorie-rich foods with exclusion of rations of products with high content of highly digestible proteins, fibers and vitamins C, E, mineral and adequate intake of fluid. Also recommended limiting intake of legumes (beans, peas) and coffee.

## MEDICATION THERAPY

Amiodarone 200-400mg/day and bisoprolol 5mg/day with correction of dosage after relief of atrial flutter, dabigatran 110-220 mg/day, enalapril 10mg/day, furosemide 10mg twice a week, atorvastatin 10 mg/day, gliclazide 30 mg/day.

Anticoagulant therapy (Dabigatran) taken for prophylaxis of stroke, systemic thromboembolism and reduce the risk of cardiovascular death [11, 12].

Patient sent for catheter ablation in Scientific Center of Cardiovascular Surgery a.n. Bakyleva RAMN, as a citizen of the Russian Federation.

## CONCLUSION

Comorbidity is the hallmark of elderly patients. It is an evidence of the systemic character of impairment of functioning of the organism and worsening of severity of their condition and prognosis of life.

This clinical case is interesting in that the patient with persistent form of atrial flutter with comorbid pathologies was placed on a complex medical therapy and intervention of elimination of arrhythmic pathways by catheter ablation.

After performing catheter ablation, it is required to conduct a modification of medication according to changes in the patient's condition.

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