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A CLINICAL PHARMACOLOGICAL APPROACH TO THE RATIONAL USE OF DRUGS IN ARRHYTHMIA SYNDROME

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ABSTRACT

Ventricular arrhythmias (VA) of the heart are among the most common and complex arrhythmias. They occur in acute and chronic diseases, and sometimes in practically healthy individuals. Holter ECG monitoring (HM ECG) reveals ventricular extrasystole (VE) in approximately 50–80% of individuals without signs of cardiovascular disease, and high grade VC is detected in 25–35% of cases. And in patients with coronary heart disease (CHD), this type of arrhythmia is recorded in more than 90% of cases. PVCs are more common in older people.

Keywords: VA, method, arrhythmias, treatment, diagnosis.

INTRODUCTION

Often, ventricular arrhythmias aggravate the course and prognosis of cardiovascular diseases, causing hemodynamic disorders and worsening the quality of life [1, 2]. A number of authors divided VA into simple and complex forms [3]. The latter include paired, polytopic, early (R on T phenomenon) ex-racistols (Table 1). These arrhythmias are often called high-grade extrasystoles. Suggestions have been made about a direct connection between high-grade ventricular extrasystoles and the occurrence of ventricular tachycardia (VT) and ventricular fibrillation (VF), which allows them to be considered one of the main markers of the development of sudden arrhythmic death.

MATERIALS AND METHODS

Often, ventricular arrhythmias aggravate the course and prognosis of cardiovascular diseases, causing hemodynamic disorders and worsening the quality of life [2]. A number of authors divided VA into simple and complex forms [4]. The latter include paired, polytopic, early (R on T phenomenon) ex-racistols (Table 1). These arrhythmias are often called high-grade extrasystoles. Suggestions have been made about a direct connection between high-grade ventricular extrasystoles and the occurrence of ventricular tachycardia (VT) and ventricular fibrillation (VF), which allows them to be considered one of the main markers of the development of sudden arrhythmic death.

Table 1 Classification of ventricular arrhythmias according to B.Lown and M.Wolf

Gradation	Quantitative and morphological characteristics of PVCs
0	Absence of PVCs
1	Rare, monotopic (up to 30 per hour)
2	Frequent, monotopic (>30 per hour)
3	Polytopic
4	A – paired (2 complexes in a row), B – salvo (3 complexes in a row)
5	Early PVCs (R to T)

RESULTS AND DISCUSSION

Studies conducted in recent years indicate that the group at high risk of sudden death should include those patients who have a combination of complex VA with significant dysfunction of the left ventricle of the heart (left ventricular ejection fraction <40%), and not morphological characteristics of ventricular arrhythmias [3]. J.T. Bigger [4] proposed a "prognostic" classification of ventricular cardiac arrhythmias and divided them into harmless, potentially dangerous and life-threatening arrhythmias (Table 2).

Table 2 Prognostic classification (stratification) of ventricular arrhythmias

Characteristic	Safe	Potentially dangerous	Life-threatening
Risk of sudden death	Very low	Moderate	High
Clinical manifestations	Heartbeat, arrhythmia detection	Heartbeat, arrhythmia detection	Palpitations, interruptions, syncope, stopping
Heart disease	upon examination	upon examination	hearts
Post-infarction scar, myocardial hypertrophy	Absent	Eat	Eat
Purpose of treatment measures	No	Eat	Eat

Safe arrhythmias include any ventricular extrasystoles and ventricular tachycardia in patients without signs of organic heart damage that do not cause hemodynamic disturbances. The prognosis is favorable; there are no absolute indications for antiarrhythmic therapy.

Life-threatening arrhythmias are episodes of ventricular arrhythmias with hemodynamic disturbances or ventricular fibrillation. The fundamental difference between life-threatening VA and the previous category is the presence of organic heart disease. The risk of sudden death in this category of patients is high. Such heart rhythm disturbances, as a rule, occur in patients against the background of stenotic atherosclerosis of the coronary arteries, post-infarction cardiosclerosis, chronic cardiac aneurysm, ischemic or idiopathic cardiomyopathy and heart defects of various etiologies. These arrhythmias require the prescription of antiarrhythmic drugs (AAPs) against the background of the treatment of the underlying disease. However, none of the multicenter studies has proven that effective treatment with antiarrhythmic drugs improves the life prognosis of this category of patients (the exceptions are ß-blockers and class III drugs - cordarone, sotalol).

Potentially dangerous arrhythmias occupy an intermediate position between safe and life-threatening rhythm disturbances. These arrhythmias also occur against the background of organic damage to the heart (there are signs of left ventricular dysfunction) and do not cause pronounced hemodynamic disturbances. The presence of a combination of organic heart disease with VA indicates the risk of sudden death as significant. Ventricular arrhythmias in these patients may be a trigger for the possible development of VT and VF. Treatment of these patients should be aimed at reducing the risk of sudden death.

Of significant practical importance is the separation of ventricular extrasystoles that occur during physical activity or in the early recovery period and at rest. The former often occur in patients with organic diseases or myocardial ischemia. They may be equivalent to angina

pectoris. Resting extrasystoles, on the contrary, appear or intensify during rest and often disappear during physical activity.

Thus, the clinical significance of VA is mainly determined by the nature of the underlying disease, the degree of organic damage to the heart, and the functional state of the myocardium and conduction system. In persons without signs of organic heart damage, the presence of ventricular extrasystole (regardless of frequency and nature) does not pose a threat to life. On the other hand, in patients with organic myocardial damage (post-infarction cardiosclerosis, cardiomyopathy) with signs of heart failure, extrasystolic arrhythmia can lead to a further decrease in hemodynamic parameters, and the detection of ventricular extrasystole of high grades according to Laun-Wolf may be an additional unfavorable prognostic factor.

The lack of a clear correlation between high grade VA and the risk of sudden death forces us to establish indications for the prescription of AAS in each specific case. Pharmacological antiarrhythmic drugs should be prescribed only to those patients in whom ventricular arrhythmias are poorly tolerated subjectively or are accompanied by disturbances in hemodynamic parameters. Treatment of patients resuscitated after ventricular fibrillation is aimed at preventing recurrent fibrillation using antifibrillator drugs. If the risk of possible recurrent VF remains, implantation of a cardioverter-defibrillator is indicated.

Currently, there are a large number of AAS available for the treatment of patients suffering from VA.

CONCLUSION

It is currently difficult to find any area in cardiovascular therapy that has experienced such apparent rethinking and change in recent years. This is due to the introduction into clinical medicine of new highly sensitive examination methods and highly effective methods of treating patients with ventricular arrhythmias. Thus, the results of large randomized multicenter studies indicate that the main methods of treatment for patients with ventricular arrhythmias and reduced myocardial inotropic function remain class II, III drugs and an implantable cardioverter-defibrillator.

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