Treatment Strategies For Ventricular Arrhythmias

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Since the introduction of the implantable cardioverter defibrillator (ICD) therapy in the 1980's treatment of ventricular tachycardias and ventricular fibrillation has become simple and straight forward. Nowadays many patients are treated with an ICD, but a low threshold for this therapy may lead to high implantation rates. Some forms of ventricular tachycardia have a low risk on sudden death and can be treated in different ways: catheter ablation techniques, antiarrhythmic drugs or combinations of these therapies. It is important to make a risk stratification of every individual patient. The underlying etiology is of major importance to estimate the risk on sudden death; the following categories can be identified:

1. VT in a patient who suffered from an myocardial infarction
2. VT in the setting of a cardiomyopathy
3. VT in absence of a structural heart disease (Idiopathic VT)
4. VT in congenital abnormalities (channellopathy, long QT, Brugada syndrome etc)

Ad 1): The first line of treatment in patients with a diminished left ventricular ejection fraction (< 30%) after one or more myocardial infarctions is ICD treatment.[1] This is true for secondary prevention (after an episode of cardiac arrest) or primary prevention.[2] Risk stratification has simplified in recent years and ICD implantation rate has increased dramatically. This may be combined with antiarrhythmic drugs or catheter ablation therapy in case of frequent recurrences of ventricular tachycardias.

Ad 2): VT/VF in the setting of Cardiomyopathy (CMP): Arrhythmogenic Right Ventricular Cardiomyopathy (ARVC), Dilated CMP, Restrictive CMP, hypertrophic CMP, sarcoid disease, amyloidosis.

In ARVC risk stratification will involve the following factors: sudden death at young age, left ventricular involvement, number of affected family members, and right and/or left sided heart failure. Especially in case of familial appearance, sudden death at young age, fast ventricular arrhythmia's ICD implantation will be the first choice. However in isolated cases with ARVC without a family history mortality will be determined by the pump function of the right ventricle. If right ventricular function is (nearly) normal patients will have many recurrences (70%) but do not die from these recurrences. Drug therapy will be the first treatment choice. If not sufficient antitachy pacing in the ICD device may be helpful.[3]

Ad 3) If no structural heart disease can be demonstrated (ECG, Echo, MRI etc) the VT is called idiopathic. It has to be stated that with increasing diagnostic possibilities the number of idiopathic VT is slowly decreasing. One can differentiate two different predilection site of the idiopathic VT: the left and right ventricle. The ECG pattern for a right ventricular origin is typical: a left bundle branch block like morphology, a right, vertical or intermediate electrical axis. In case the left bundle branch block like morphology has a left electrical axis cardiomyopathy is very likely!! The predilection sites in the left ventricle are the lower part of the septum or the apex (in the vicinity of the posterior fascicle). Also the ECG in this origin of VT is quite typical: a right bundle branch like morphology, a left or north-west directed electrical heart axis. The therapy of choice in these idiopathic ventricular tachycardias is catheter ablation therapy. This is curative in 85-90% of the cases.[4]

REFERENCES

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