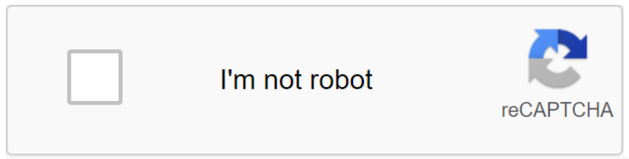

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Four types of arrhythmias pdf

For other purposes, see Arrhythmia (disambigation). A group of conditions under which the heartbeat is irregular, too fast, or too slow ArrhythmiaOther namesCardiac arrhythmia, cardiac dysritmia, irregular heartbeat, cardiac arrhythmiaVenicular fibrillation (VF), showing disorganized electrical activity, producing spikes trace on an electrocardiogram (ECG)Specialty CardiologySmptomspitAtions lightweight fainting, shortness of breath, chest pain, complications, heart failure, ventricular arrhythmia, bradyarrhythmia 3CausesProblem with electrical conduction system of the heart 2 Diagnostic methodElectrocardiogram, Holter monitor 5TreatmentMedias, medical procedures (cardiostuulator) , surgery FrequencyMillions 4 Arrhythmia, also known as cardiac arrhythmia or heart arrhythmia, is a group of conditions in which the heartbeat is irregular, too fast, or too slow. A heart rate that is too fast - above 100 beats per minute in adults - is called tachycardia, and a heart rate that is too slow - below 60 beats per minute - is called bradycardia. Some types of arrhythmias have no symptoms. Symptoms when present may include a rapid heartbeat or a feeling of pause between the heartbeat. In more serious cases, there may be lightheadedness, fainting, shortness of breath or chest pain. Although most types of arrhythmia are not severe, some predispose a person to complications such as stroke or heart failure. Others can lead to sudden death. There are four main groups of arrhythmias: additional strokes, supraventricular tachycardia, ventricular arrhythmias and bradiarrhythmias. Additional strokes include premature atrial contractions, premature ventricular contractions and premature contraction of the compound. Supraventricular tachycardia include atrial fibrillation, atrial flutter and paroxysmal supraventricular tachycardia. Ventricular arrhythmias include ventricular fibrillation and ventricular tachycardia. Arrhythmias are caused by problems with the electrical system of the conducted heart. Arrhythmias may also occur in children, however, the normal heart rate range is different and depends on age. A number of tests can help with diagnostics, including an electrocardiogram (ECG) and a Holter monitor. Most arrhythmias can be effectively treated. Treatment may include medications, medical procedures such as inserting a pacemaker and surgery. Medications for rapid heart rate may include beta blockers or agents that try to restore a normal heart rate such as procainemyd. This latter group may have more significant side effects, especially if taken for a long period of time. Pacemakers are often used for a slow heart rate. Those with irregular often treated blood thinners to reduce the reduce Complications. Those with severe symptoms of arrhythmia may receive urgent treatment with controlled electric shocks in the form of cardioversion or defibrillation. Arrhythmia affects millions of people. In Europe and North America, according to 2014 data, atrial fibrillation affects between 2% and 3% of the population. Atrial fibrillation and atrial flutter led to 112,000 deaths in 2013, up from 29,000 in 1990. Sudden cardiac death is responsible for about half of deaths from cardiovascular disease and about 15% of all deaths worldwide. About 80% of sudden cardiac death is the result of ventricular arrhythmia. Arrhythmias can occur at any age, but are more common among the elderly. The classification sounds irregular heartbeat. The sound of an irregular heart rate. Problems with playing this file? See the media report. The sound of a teenager's heart during tachycardia. The sound of a racing heart during an episode of tachhiarrhythmia. Problems with playing this file? See the media report. The broad classification of arrhythmias, depending on the area of the heart needed to maintain the rhythm of Arrhythmia, can be classified by speed (tachycardia, bradycardia), mechanism (automaticity, re-entry, triggered) or duration (isolated premature strokes; pairs; runs, i.e. 3 or more strokes; unchronic less than 30 seconds or sustained) more than 30 seconds). It is also advisable to classify by place of origin: Atrial arrhythmia sinus bradycardia Premature atrial contractions (PACs) Wandering atrium pacemaker atrial tachycardia multifocal atrial tachycardia Supraventricular tachycardia (SVT) Atrial flutter Merial atrial fibrillation (Afib) AV nodal reentrant tachycardia Junction ayl arrhythmia AV nodent reantial tachycardia Junctional Rhythm Junctional tachycardia Premature reduction of compound ventricular arrhythmia Premature ventricular contractions (PVC), sometimes called ventricular extra strokes (VEBs) Premature ventricular strokes , occurring after each normal stroke are called ventricular bigeminy PVC, which occur at intervals of 2 normal beats to 1 PVC called PVC in trigeminy Three premature ventricles grouped together called the launch of PVC in general, runs longer than three strokes with an increase in heart rate called ventricular tachycardia Accelerated idioventricular rhythm Monomorphic ventricular tachycardia Polymorphic ventricular tachycardia Ventricular fibrillation Torsades de points Arrhythmia right ventricular dysplasia Re-entry of the ventrice because the vast majority of them are due to pathology in the atrioventricular node. They are the most common causes of bradycardia: The first degree of the heart block, which manifests itself as PR Second Degree Heart Block Type 1 Second Degree Heart Block, also known as Mobitz I or Wenckebach Type 2 Second Degree Heart Block, also known as Mobitz I or Wenckebach Type 2 Second Degree Heart Block, also known as as as II is the second unit of the heart degree, also known as the complete block of the heart. First, a second- and third-degree unit may also occur at the sinoatrial compound level. This is called a sinoatrial block usually manifested with varying degrees and patterns of sinus bradycardia. Sudden Death Arrhythmia Syndrome Sudden Arrhythmia Syndrome (SADS), is a term used as part of Sudden Sudden Death Syndrome to describe sudden death due to cardiac arrest caused by arrhythmia in the presence or absence of any structural heart disease during autopsy. The most common cause of sudden death in the U.S. is coronary heart disease precisely because of poor oxygenation of the heart muscle, i.e. myocardial ischemia or heart attack. SADS may occur for other reasons. There are many hereditary diseases and heart diseases that can affect young people, which can subsequently lead to sudden death without prior symptoms. Causes of SADS in young people include viral myocarditis, long-term CT syndrome, Bregada syndrome, catheholaminergic polymorphic ventricular tachycardia, hypertrophic cardiomyopathy and arrhythmic dysplasia of the right ventricle. Fetal arrhythmia can also be found in the fetus. The normal heart rate of the fetus is between 110 and 160 beats per minute. Any rhythm outside these limits is abnormal, and is classified as fetal arrhythmia. They are mainly the result of premature atrial contractions, usually do not give any symptoms, and have few consequences. However, about one percent of them will result from significant structural damage to the heart. The signs and symptoms of the term cardiac arrhythmia cover a very large number of very different states. The most common symptom of arrhythmia is awareness of an abnormal heartbeat called rapid heartbeat. They can be rare, frequent or continuous. Some of these arrhythmias are harmless (although they distract patients), but some are predisposed to adverse outcomes. Some arrhythmias do not cause symptoms and are not associated with increased mortality. However, some amptomatic arrhythmias are associated with adverse events. Examples include a higher risk of blood clotting in the heart and a higher risk of insufficient blood being transported to the heart due to a weak heartbeat. Other increased risks are embolization and stroke, heart failure and sudden cardiac death. If arrhythmia leads to a heartbeat that is too fast, too slow or too weak to meet the body's needs, it manifests itself as lower blood pressure and can cause frivolity or dizziness, or syncope (fainting). Some types of arrhythmia lead to cardiac arrest or sudden death. Medical assessment using an electrocardiogram is one way to diagnose and assess risk any given arrhythmia. Differential Diagnosis Normal Electrical Activity Main article: The electrical system held by the heart Every heart beat arises as an electrical impulse from a small area of tissue in the right atrium of the heart called the sinus node or synoathral node (SA node). The pulse first causes both the atria and the contract, and then activates the atrioventricular node (AV node), which is usually the only electrical connection between the atria and ventricles (the main pumping chambers). The pulse then spreads through both ventricles through a bundle of it and Purkinje fibers causing synchronous contraction of the heart muscle and thus a pulse. In adults, the normal resting heart rate ranges from 60 to 90 beats per minute. The heart rate in children is much faster. In athletes, however, the heart rate can be as slow as 40 beats per minute, and is considered normal. The term sinus arrhythmia (17) refers to the normal phenomenon of alternating light acceleration and slowing of the heart rate, which occurs when breathing in and out accordingly. It is usually quite pronounced in children and steadily decreases with age. It can also be present during meditation breathing exercises that include deep inhalation and breathing delay patterns. Bradycardia Normal sinus rhythm, with solid black arrows indicating normal P-waves, which are representative of the normal function of the sinus nodes, followed by a pause in the activity of the sinus nodes (resulting in the transient loss of the heartthrob). Note that the P wave that breaks the pause (indicated by the dotted arrow) is not similar to the previous (normal) P Waves - the last wave P arises from another part of the atrium, which is the escape rhythm. Slow rhythm (less than 60 beats/min) is marked with bradycardia. This can be caused by the slowing of the signal from the sinus node (sinus bradycardia), a pause in the normal activity of the sinus node (arrest of the sinus) or blocking of the electrical impulse on the way from the atria to the ventricles (AB block or heart block). The heart block comes in varying degrees and severity. This can be caused by reversible AV node poisoning (with drugs that impair conductivity) or irreversible damage to the node. Bradycardias can also be present in normally functioning heart endurance athletes or other well-conditioned individuals. Tachycardia In adults and children over 15 years of age, the heart rate is more than 100 beats per minute called tachycardia. Tachycardia can lead to a rapid heartbeat; however, tachycardia is not necessarily an arrhythmia. Increased heart rate is a normal reaction to exercise or Stress. It is mediated by the sympathetic nervous system on the sinus node and is called the sinus tachycardia. Other conditions that increase the sympathetic activity of the nervous system in Heart include ingestion or injectable substances such as caffeine or amphetamines, and hyperactive thyroid (hyperthyroidism) or anemia. Tachycardia, which is not sinus tachycardia, is usually the result of the addition of abnormal impulses to the normal heart cycle. Abnormal impulses can start with one of three mechanisms: automaticity, re-entry or triggered activity. A specialized form of re-entry, which is both common and problematic, is called fibrillation. Although the term tachycardia has been known for more than 160 years, the basis for classifying arrhythmias is still being discussed. (quote necessary) Heart defects Congenital heart defects are structural or electrical pathway problems in the heart that are present at birth. Anyone can be affected by this because general health does not play a role in this problem. Problems with the electrical pathway of the heart can cause very fast or even fatal arrhythmia. Wolf-Parkinson-White syndrome is associated with an additional pathway to the heart, which consists of electrical muscle tissue. This tissue allows the electrical impulse, which stimulates the heartbeat, to occur very quickly. The right ventricular outflow of the tachycardia tract is the most common type of ventricular tachycardia in otherwise healthy people. This defect is associated with an electrical node in the right ventricles in front of the pulmonary artery. When the node is stimulated, the patient will go to the ventricular tachycardia, which does not allow the heart to fill with blood before being beaten again. Long CT syndrome is another complex problem in the heart and has been labeled as an independent mortality factor. There are several treatments for them including cardiac ablation, medication treatment, or lifestyle changes to have less stress and exercise. Automatic main article: Automatic tachycardia automatism refers to the heart muscle cell firing impulse in itself. All cells in the heart have the ability to initiate the potential of action; However, only a few of these cells are designed to regularly cause a heartbeat. These cells are located in the system of the held heart and include the SA node, THE AV node, the bundle of it and the Purkinje fibers. The Sinoatrial node is one specialized place in the atrium that has a higher automaticity (a faster pacemaker) than the rest of the heart and is therefore usually responsible for setting the heart rate and initiating each heartbeat. Any part of the heart that initiates momentum without waiting for a Chinese node is called an ectopic focus and, by definition, a pathological phenomenon. This can lead to one premature blow from time to time, or if the ectopic focus fires more often than a sinoatrial knot, it may sustained abnormal rhythm. Rhythms produced by the ectopic focus in the atria, or atrioventricular node, are the least least Dysthymia; but they can still produce a decrease in heart pumping efficiency because the signal reaches different parts of the heart muscle with different durations than usual, and may be responsible for poorly coordinated contraction. Conditions that increase automatism include sympathetic stimulation of the nervous system and hypoxia. The resulting heart rate depends on where the first signal begins: if it is a sinoarate node, the rhythm remains normal but fast; If it is an ectopic focus, many types of dysthymia may occur. Re-entry re-entrant arrhythmias occur when the electrical impulse periodically travels into a narrow circle in the heart, rather than moving from one end of the heart to the other and then stopping. Each heart cell is capable of transmitting arousal impulses in all directions, but will only do so once in a short time. Typically, the action of a potential pulse will spread through the heart quickly enough that each cell will react only once. However, if there is some significant heterogeneity of the fireproof period or if conductivity is abnormally slow in some areas (such as in heart damage), so that myocardial cells are unable to activate a fast sodium channel, part of the pulse will arrive late and potentially be seen as a new impulse. Depending on the time, this can lead to a stable abnormal rhythm of the chain. As a kind of re-entry, vortexes of arousal in the myocardium (autowave vortexes) are considered the main mechanism of life-threatening cardiac arrhythmias. In particular, the autowave reverb is common in the thin walls of the atrium, which sometimes leads to atrial flutter. Re-entry is also responsible for most paroxysmal supraventricular tachycardia, and dangerous ventricular tachycardia. These types of re-entry chains are different from WPW syndromes that use abnormal pathways. Although omega-3 fatty acids from fish oil may be protective against arrhythmias, they can make it easier to re-hang arrhythmias. Fibrillation When the entire heart chamber is involved in several micro-resentiations and is therefore dredged with chaotic electrical impulses, it is said to be in fibrillation. Fibrillation can affect the atrium (atrial fibrillation) or ventricular (ventricular fibrillation): ventricular fibrillation inevitably threatens life. Atrial fibrillation affects the upper chambers of the heart, known as atrium. Atrial fibrillation can be caused by serious comorbidities and should be evaluated by a doctor. This is usually not a medical emergency. Fibrillation of the ventricles occurs in the ventricles (lower chambers) of the heart; it's always a medical emergency. If left untreated, ventricular fibrillation (VF, or V-fib) can lead to death in a few minutes. When the heart goes to V-fib, effective blood pumping stops. V-fib V-fib is considered a form of cardiac arrest. A person suffering from it will not survive unless cardiopulmonary resuscitation (CPR) and defibrillation are provided immediately. CPR can prolong brain survival in the absence of a normal pulse, but defibrillation is the only intervention that can restore a healthy heart rate. Defibrillation is done by causing an electrical blow to the heart, which resets the cells, allowing the normal rhythm to recover. Provoked strokes are triggered when problems at the level of ion channels in individual heart cells lead to an abnormal spread of electrical activity and can lead to a stable abnormal rhythm. They are relatively rare and may be the result of antiarrhythmic drugs or after depolarization. The mechanism of Tachiarrhythmia are the result of spontaneous action potentials arising from the cells of the heart muscle. The diagnostic approach of cardiac arrhythmia is often first detected by simple but non-specific means: the disalation of the heartbeat with a stethoscope, or the feeling of peripheral impulses. They usually cannot diagnose a specific arrhythmia, but can give an overall idea of the heart rhythm and whether it is regular or irregular. Not all electrical impulses of the heart produce sound or tangible blows; in many cardiac arrhythmias, premature or abnormal strokes do not produce effective pumping and are experienced as missed strokes. The simplest specific diagnostic test for heart rate assessment is an electrocardiogram (shortened ECG or ECG). The Holter Monitor is an ECG registered over a 24-hour period to detect arrhythmias that can occur briefly and unpredictably during the day. A more advanced study of the electrical activity of the heart can be performed to assess the source of abnormal heartbeat. This can be achieved in the study of electrophysiology, an endovascular procedure that uses a catheter to listen to electrical activity from inside the heart, additionally, if the source of arrhythmia is found, often abnormal cells can be ablative and arrhythmia can be permanently corrected. Transesophageal atrial stimulation (TAS) instead uses an electrode inserted through the esophagus to the part where the distance to the back wall of the left atrium is only about 5-6 mm (remaining constant in people of different ages and weights). Transesophageal atrial stimulation can distinguish atrial flutter, AV nornavent tachycardia and orthodrom atriventricular transant tachycardia. It can also assess the risk in people with Wolf-Parkinson-White syndrome, as well as discontinue supraventricular tachycardia caused by re-recording. The management of the heart rate management method depends, first of all, whether the injured person is stable or unstable. Treatment may include physical manoeuvres, manoeuvres, electricity conversion, or electro- or cryo-cauterium. In the U.S., people hospitalized with cardiac arrhythmia and behavioral disorders with and without complications were hospitalized in intensive care more than twice in 2011. Physical maneuvers A number of physical acts can increase parasympathetic nerve supply of the heart, which leads to the blockage of electrical conductive through the node AV. This can slow down or stop a number of arrhythmias that occur above or on the node A.V. (see the main article: supraventricular tachycardia). Parasympathetic nerve supply of the heart through the vagus nerve, and these maneuvers are collectively known as vaggal maneuvers. Antiarrhythmic Drugs Main article: Antiarrhythmic agents there are many classes of antiarrhythmic drugs, with different mechanisms of action and many different individual drugs in these classes. Although the goal of drug therapy is to prevent arrhythmia, almost every antiarrhythmic drug has the potential to act as pro-arrhythmia, and therefore must be carefully selected and used under medical supervision. Other drugs a number of other drugs may be useful in cardiac arrhythmia. Several groups of drugs slowly carry through the heart, actually not preventing arrhythmia. These drugs can be used to control the speed of the fast rhythm and make it physically bearable for the patient. Some arrhythmias promote blood clotting in the heart, and increase the risk of embolism and stroke. Anticoagulant drugs such as warfarin and heparin, and anti-ablated drugs such as aspirin, can reduce the risk of blood clotting. Electricity arrhythmia can also be treated electrically, applying shock throughout the heart - either externally to the chest wall, or internally to the heart with implanted electrodes. Cardioversion is achieved either pharmacologically or by the use of shock synchronized with the main heartbeat. Used to treat supraventricular tachycardia. In optional cardioversion, the recipient is usually under anesthesia or lightly anesthesia for the procedure. Defibrillation is different in that the blow is out of sync. It is necessary for the chaotic rhythm of ventricular fibrillation, and is also used for pulsed ventricular tachycardia. Often, defibrillation requires more electricity than cardioversion. In most defibrillation, the recipient lost consciousness, so there is no need for sedation. Defibrillation or cardioversion can be performed by an implantable cardioverter defibrillator (ICB). Electrical treatment of arrhythmias also includes a heart rate. A temporary rate may be necessary for reversible causes of very slow heartbeat, or bradycardia (e.g. drug overdose or myocardial infarction). A permanent pacemaker can be placed in situations where is not expected to recover. Restored. Burning Some cardiologists further sub-specialize in electrophysiology. In specialized catheter laboratories, they use thin probes inserted through blood vessels to map electrical activity from inside the heart. This allows the abnormal areas carried out to be positioned very accurately and then destroyed by heat, cold, electrical or laser probes in a process called catheter ablation. This procedure can be completely curative for some forms of arrhythmia, but for others, success remains disappointing. THE AV node of prevant tachycardia is often curable by ablation of one of the pathways in the AV node (usually a slow path). Atrial fibrillation can also be treated by performing pulmonary vein insulation, but the results are less reliable. Studies of arrhythmias due to medications have been reported since the 1920s using quinine. Problems with antihistamines and antipsychotics were found in the 1960s and 1970s. It was only in the 1980s that the main problem, the extension of the TC, was identified. Cm. also Pre-excitement syndrome Links : b c d What are the signs and symptoms of arrhythmia?. National Heart, Lung and Blood Institute. July 1, 2011. Archive from the original on February 19, 2015. 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