THE HEART IS PERPETUAL MOTION MACHINE

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Abstract: Our heart is often compared with a motor. Cardiac wall consists of three layers.The heart makes 2.5-3 billion beats in it`s life. It can contract for some time after death. Normal rate of heart contractions in an adult is 70 beats per minute,in newborns 120-140. Great progress has been made in cardiac surgery.

Keywords: heart, human, cardiac, beats, blood circulation.

СЕРДЦЕ - ВЕЧНЫЙ ДВИГАТЕЛЬ

Аннотация: Наше сердца часто сравнивают с мотором. Сердечная стенка состоит из 3-х слоев. Сердце производит 2.5-3 млд. ударов за свою жизнь. Оно может сокращаться некоторое время после смерти. Частота сокращений в норме составляет 70 ударов в минуту у взрослого человека, у новорожденных 120-140 сокращений. Большой прогресс достигнут в кардиохирургии.

Ключевые слова: сердце, человеческий, удары, кровообращение.

YURAK ABADIY HARAKAT MASHINASIDIR

Annotatsiya: Bazan bizni yuragimizni motor bilan solishtiradilar. Yurak devorchasi uch qavatdan iborat. Yurak o’z hayoti davomida 2.5-3 mld. zarb uradi. U o’lim holatidan keyin ham bir necha vaqt qisqaradi. Normada qisqarish chastotalari kattalarda bir daqiqada 70 zarb, yangi tug’ilgan chaqaloqlarda 120-140 zarb bir daqiqada qisqaradi. Kardioxirurgiyada katta taraqqiyotlarga erishilgan.

Kalit so’zlar: odam yuragi, yurak urishi, qon aylanishi.

INTRODUCTION

The heart is the main organ of the circulatory system. Now it is so obvious thatthe disputes of previous centuries about it’s purpose seem ridiculous. In ancient China they believed that the heart was involved in digestion, in Egypt they were convinced that it was involved in the formation of urine, as well as breast milk, seminal fluid and tears.The ancient Egyptions , Indians, Greeks and Arabs believedthat the heart was the container of the soul. The idea that the heart is a complex machine was not instilled immediately.

MAIN PART

Galen thought that it was nothing more than blacksmith`s fur, and the heart drivesthe internalheat throught the vessels; the English philosopher of the 17th century Thomas Hobbes was no closer to the truth believing that the heart was the spring. What is known about the heart today? Our motor (the heart is often compared with a motor) evolves from a simple tube with thick muscular wall and it contracts in the body of the human embryo in fifth week of fetal life. By the time the baby is bornit is already a full-fledged hollow muscular organ receiving blood from venous trunkspouring into it and chasing it into the arterial system. Cardiac wall consists of three layers: endocardium , meyocardium and pericardium. Pericardium is an external layer(sometimes called a cardical shirt) reduces heart friction when working and protects itfrom external influence. There is a slit-like cavity in the pericardium and it has a fewgrams of liquid-grease . According to

the Gospel it expired of Christ during the execution after one of the guards pierced his chest with a spear.

The purpose of the heart is to ensure the non-stop movement of blood through the vessels. According to scientists the heart makes more than 2.5-3 billion beats in it`s life without ever stopping. CNS of course has an effect on the frequency and strenght of contractions ( is a person is worried, the heart beats more often), but our organ is also enduwed with it`s own unique apparatus- a special node in the wall of the right atrium- pacemaker or rhythm presenter which sets the heart rate and determines the sequence of the heart contractions. From this node the fibers of conductive system transmit electrical impulses to all parts of the heart . In this regard it is appropriate to recall thecase that happened in the first half of the 17th century. The famous Spanish scientist and doctor Andreas Visalius was asked to perform an autopsy of the 7 man who just died. It was necessary to determine the cause of death. What was the surprise and horror of all those present when they saw that the heartwas still beating. At that time was beleived that Andreas Visalius had mistaken a still living person for a corpse. Andreas Visalius also could not answer this question. It became possible after threecenturies. Due to the special structure of the heart it can contract for some time afterdeath . Like a machine the heart gives us the strenght we need to live . It is the heart that is the organ that directly connects us to the possibility of continuing to live.

At rest the heart of an adult produces 70 beats per minute,in the newborns-120-140. Per minute the heart of an dult pumps 4,2 liters of blood in a state of complete rest. And under heavy physical exertion our «perpetum mobile» can overtake 25-30 litres in the same period . But we often perceive the heart not as an organ but something more, as a part of ourselves .The heart shrinks when we are in pain; whentrouble comes.

The heart jumps up with us on good news and «goes into our heels»,when we are suddenly scared of something . But this is only an emotional coloring, often independent of our reaction to this or that event. The trouble is that we are deliberately harming our heart.The harm of smokingis well known.According to American statistics the cause of 25 percent of deaths from IAD (ischemic heart disease) is smoking. Scientists have found that in a person with a long history of thevessels wear out 10-15 minutes earlier. There is unequivocal scientific evidence thettobacco smoking is a major risk factor for myocardial infraction disease- acute disease caused by the development of foci , of necrosis of the heart mus... and manifested by impared cardiac activity.

This condition can also be caused by a strong nervous excitement with abundant food before bedtime, alcohol abuse. «Multum vinum bibere , non diu vivere»- to drink a lot of vine, not to lie for a long time.»- the ancients said. Nowadays the term atherosclerosis (lat)- chronic arterial disease, leading to narrowing of the lumen pf the arteries is often used Great progresshas been made in cardiac surgery and heart defects congenital and acquired like manyother pathologies are cured by means of surgery. Atherosclerosis of brain vesels and hypertension can lead to stroke that means acute circulatory disorder with damage to brain tissue and disturbance of it`s functions.

A number of other heart diseases caused by distruption of normal life style and complications from chronic diseases can be cited as diseases can be cited as «Cessante causa, cessat effectus with the cessation ofthe cause the effect ceases- the Lating saying sounds . They are: cardiac insufficiency,the condition called as tachicardia (lat) , that means dyspnea (dyspnoe lat.), cardiac neurosis -as a resultof psychic traumas , different infections and in toxications; rheumatism- inflammation of the connective tissue with the involvement of the heart and joints as a consequence of diseases such as tonsillitis , pharyngitis, myocarditis, muscular inflammation accompanied by pain in the heart , weakness , fatigue.

Tackling the risk factor woll lead to better health. Strictly following the regimenof work and rest and proper nutrition you can avoid cardiovascular diseases and saygoobye to many diseases . Healthy life style will create a healthy future . «Vivere memento»(lat.)- remember about life.

It is known that cardiovascular system performs a number of functions in the body. Most of them are directed to provide assistance to the other physiological systems. It must interact with each body cell and respond immediately to any changes in order to provide maximum efficiency of functioning of all body systems. Even when we rest cardiovascular system does not stop working to meet the needs of body tissues. The main functions of the cardiovascular system may be divided into five categories.

1. Exchanging
2. Excretory
3. Transport
4. Homeostatic
5. Protective

Cardiovascular system provides delivery of oxygen and nutrients to each cell of the body and removal of carbon dioxide and metabolic end products from it. It transports hormones from endocrine glans to their target receptors. This system maintains body temperature, maintains appropriate fluid levels, preventing dehydration and also helps to prevent infections diseases caused by blood -penetrating microorganisms.

Heart function is rhythmic pumping of blood from veins into arteries i.e

it is constantly moving. Blood pumping is ensured by alternate contraction (systole) and relaxation (diastole) of the myocardium. The fibers of the muscle contract due to electric impulses (excitation process) that generate in the cell membrane. These impulses appear rhythmically in the heart. And now let us speak about acoustic phenomena so called heart sounds.

We can hear heart sound applying an ear or stethoscope to the chest. Each cardiac cycle is normally divided into four tones .With each contraction our ear can hear the first two sounds a longer and lower sound is associated with closing of bicuspid and tricuspid valves. A shorter and higher sound is associated with closing of aorta valve and pulmonary artery.

Between the first and second tones there is a phase of ventricular contraction. In conclusion we can say that our cardiovascular system including the heart, blood vessels and blood performs a lot functions such as: feeding, protection and even slags removal. It must be in contact with each body cell.

During muscular activity the number of requirements for the cardiovascular system is increasing, as is the need to meet them as soon as possible. Based on 70 beats per minute for 70 years 2,575.440.000 beats will be performed. So the heart is of great significance in the human body. But it needs to be protected from the harmful effects of the outside world. The heart device assumes it’s long work, but this does not always happen in practice. The heart is formed in the womb. In our harsh age of electricity and the atom, humanity has not yet been able to get rid of heart diseases completely.

Therefore, it is necessary to deal with prevention of heart diseases. According to clinical data, atherosclerosis of the heart vessels is a chronic pathology that develops with the formation of cholesterol plaques on the walls of coronary arteries. Cholesterol plaques appear due to disturbance of lipid metabolism. Preventive measures should be taken after the disease and also to prevent it occurrence. Here are the main recommendations of doctors:

proper nutrition and diet-exclude fatty food from the diet, more often to include seafood in the menu, to eat often, but little by little;

moderate physical activity- walking, morning gymnastics are useful

body weight control;

positive psycho-emotional environment;

avoid stress and shocks;

cessation of smoking and alcohol abuse.

CONCLUSION

Heart defects are diseases in which one or more heart structures have not been formed during fetal development or deformed after illness. They lead to disruption of the heart and blood circulation. The patient's condition depends on the from and stage of the pathology. It is considered that specific prevention of congenital heart defects has not yet been developed. So doctors believe that it is necessary to avoid all influences that can disrupt the process of laying the heart and main vessels.

It is necessary to carry on screening ultrasound examinations for early detection of heart defects. One more heart disease which is called the most severe form of cardiac ischemia is myocardial infarction. The patient quickly develops a condition that is directly threatening his life. It is known that blood supply to the tissues of the heart muscle is impaired, as a result of which an area of necrosis, i.e. cell death, is quickly formed in it. And again, what needs to be done to prevent this serious illness? The main principles of prevention are the following: cessation of smoking and alcohol

1. abuse

2. gradual increase in physical activity

3. dietary correction

4. control of the state of health and it's indicators

5. positive attitude

6. taking medications prescribed by a doctor

7. application of folk recipe

So, is the heart perpetuum mobile? We can say that it may be not eternal but a long-lasting reliable living engine that can rejoice and support us even in difficult times. The duration of the heart's work depends on the person himself, on his lifestyle, control of nutrition behavior and attitude to his health.

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