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An echocardiogram, or “echo”, is a scan used to look at the heart and nearby blood vessels. It’s a type of ultrasound scan, which means a small probe is used to send out high-frequency sound waves that create echoes when they bounce off different parts of the body. These echoes are picked up by the probe and turned into a moving image that’s displayed on a monitor while the scan is carried out. An echocardiogram may be requested by a heart specialist (cardiologist) or any doctor who thinks you might have a problem with your heart, including your GP. The test will usually be carried out at a hospital or clinic by a cardiologist or a trained specialist called a cardiac physiologist. Although it has a similar name, an echocardiogram isn’t the same as an electrocardiogram (ECG), which is a test used to check your heart’s rhythm and electrical activity. An echocardiogram can help diagnose and monitor certain heart conditions. It checks the structure of the heart and surrounding blood vessels, analysing how blood flows through them, and assessing the pumping chambers of the heart. An echocardiogram can help detect: damage from a heart attack – where the supply of blood to the heart was suddenly blocked heart failure – where the heart fails to pump enough blood around the body at the right pressure congenital heart disease – birth defects that affect the normal workings of the heart problems with the heart valves – problems affecting the valves that control the flow of blood within the heart cardiomyopathy – where the heart walls become thickened or enlarged endocarditis – an infection of the heart valves An echocardiogram can also help your doctors decide on the best treatment for these conditions. There are several different ways an echocardiogram can be carried out, but most people will have what’s known as a transthoracic echocardiogram (TTE). This procedure is outlined below. You won’t usually need to do anything to prepare for the test, unless you’re having a transoesophageal echocardiogram. For a TTE, you’ll be asked to remove any clothing covering your upper half before lying down on a bed. You may be offered a hospital gown to cover yourself during the test. When you’re lying down, several small sticky sensors called electrodes will be attached to your chest. These will be connected to a machine that monitors your heart rhythm during the test. A lubricating gel will be applied to your chest or directly to the ultrasound probe. You’ll be asked to lie on your left side and the probe will be moved across your chest. The probe is attached by a cable to a nearby machine that will display and record the images produced. You won’t hear the sound waves produced by the probe, but you may hear a swishing noise during the scan. This is normal and is just the sound of the bloodflow through your heart being picked up by the probe. The whole procedure will usually take between 15 and 60 minutes, and you’ll normally be able to go home shortly afterwards. There are several other types of echocardiogram that can be carried out. This is where a small probe is passed down the throat into your gullet and stomach. Your throat will be numbed with local anaesthetic spray and you’ll be given a sedative to help you relax. You may need to avoid eating for several hours before this test This is an echocardiogram that’s carried out during or just after a period of exercise on a treadmill or exercise bike. It can also be carried out after you’ve being given an injection of a medication that makes your heart work harder. During a contrast echocardiogram a harmless substance called a contrast agent is injected into your bloodstream before an echocardiogram is carried out. This substance shows up clearly on the scan and can help create a better image of your heart. The type of echocardiogram you’ll have depends on the heart condition being assessed and how detailed the images need to be. For example, a stress echocardiogram may be recommended if your heart problem is triggered by physical activity. The more detailed images produced by a TOE may be more useful in helping plan heart surgery. In some cases, it may be possible for the person carrying out the scan to discuss the results with you soon after it’s finished. However, the images from the scan will usually need to be analysed before the results are sent to the doctor who requested the test. Your doctor will then discuss the results with you during your next appointment. A standard echocardiogram is a simple, painless and safe procedure. There are no side effects from the scan, although the lubricating gel may feel cold and you may experience some minor discomfort when the electrodes are removed from your skin at the end of the test. Unlike some other tests and scans, such as X-rays and computerised tomography (CT) scans, no radiation is used during an echocardiogram. However, there are some risks associated with the less common types of echocardiogram. You may find the TOE procedure uncomfortable and your throat may feel sore for a few hours afterwards. You won’t be able to drive for 24 hours after the test as you may still feel drowsy from the sedative. There’s also a small chance of the probe damaging your throat. During a stress echocardiogram, you may feel sick and dizzy and you may experience some chest pain. There’s also a small chance of the procedure triggering an irregular heartbeat or heart attack, but you’ll be monitored carefully during the test and it will be stopped if there are signs of any problems. Some people have a reaction to the contrast agent used during a contrast echocardiogram. This will often only cause mild symptoms such as itching, but in rare cases a serious allergic reaction can occur. An echocardiogram is used to show possible abnormalities of the heart structure and function that may be the cause for symptoms thought to be related to heart disease. An echocardiogram shows us the structure and function of the heart. It provides information on the heart pumping function and heart size. It shows us information on the heart valves and other structures in the heart. An echocardiogram also shows patterns of blood flow through the heart. What Does An Echocardiogram Show – Who Needs An Echocardiogram? Patients may be referred for an echocardiogram for a variety of different reasons. It may be due to symptoms concerning for heart disease such as shortness of breath, chest pain, palpitations, dizziness and other related symptoms. It may be to investigate a murmur heard on physical exam. It may also be to monitor existing heart conditions such as valve problems or heart failure. What Does An Echocardiogram Show – Heart Pumping and Relaxing Function An echocardiogram gives us accurate information on the pumping function of the heart. The echocardiogram will be used to calculate the ejection fraction of the heart, which is the percentage of blood that the heart pumps out with each beat. Normal ejection fraction is 50-60%. The echocardiogram also provides information on the relaxation of the heart. Heart failure can be caused by both pumping and relaxing abnormalities. Echocardiography will show information on both the left and the right side of the heart. Measurements taken from an echocardiogram can show heart tissue characteristics. What Does An Echocardiogram Show – Patients With Chest Pain In patients with chest pain there are a number of different possible causes, some of which can be assessed by echocardiography. If artery blockages are suspected the echocardiogram may show abnormalities in the walls of the heart supplied by those arteries. These are known as wall motion abnormalities. In cases of pericarditis, which is inflammation of the lining around the heart there may be fluid accumulation around the heart known as a pericardial effusion. What Does An Echocardiogram Show – Heart Valve Function Echocardiograms show structure and function of the 4 valves in the heart. The aortic valve, the mitral valve, the tricuspid valve and the pulmonic valve. They can show abnormalities in valve function such as tight or leaky heart valves. A tight aortic valve is known as aortic stenosis. A leaky aortic valve is known as aortic regurgitation. A tight mitral valve is known as mitral stenosis and a leaky mitral valve is known as mitral regurgitation. Echocardiograms can be used to show the degree of tightening or leakiness of a heart valve and help us to make decisions regarding need for intervention. What Does An Echocardiogram Show – Heart Size Echocardiography is used to provide information on heart size. It can provide accurate dimensions of the chambers of the heart and also the thickness of the heart walls. It can therefore be used to detect heart chamber or wall enlargement known as hypertrophy. Echocardiography will provide information on both the left and right side of the heart. Measuring Heart Chamber Size What Does An Echocardiogram Show – Patterns Of Blood Flow Doppler is a type of echocardiography that can show patterns of blood flow through the heart. Doppler can give us an idea of pressures inside the heart and detect those that may be abnormally high. Color Doppler may be used to examine for leaky or tight heart valves. What Does An Echocardiogram Show – Advanced Analysis Most newer generation echocardiography machines will incorporate 3D acquisition that can render the heart as a 3D image showing life like structure and function. Various characteristics such as heart strain can be examined to provide highly detailed information about the heart tissue function. These features are not typically reported on a standard echocardiogram. What Does An Echocardiogram Show – Guidance Of Procedures Echocardiography can be used to guide certain heart procedures such as the Mitraclip procedure, the TAVR procedure, paravalvular leak repair, mitral valvuloplasty, alcohol septal ablation and many others. In many cases advanced techniques such as 3D transesophageal echocardiography may be required. These techniques can provide real-time 3D lifelike images that can guide procedures remarkably well. What Does An Echocardiogram Show – Surveillance Over Time Many heart disorders will need to be monitored over time to ensure they stay stable and don’t worsen and to assess response to therapy. Echocardiography is a highly reliable way to show changes in heart structure and function over time. 4.76/5 (757) An echocardiogram, also known as an echo, is a scan of the heart. It is similar to ultrasound scanning used in pregnancy because it uses sound waves to build up a picture of your heart. An echo is not the same as an electrocardiogram, also known as an ECG, which is a simple and useful test that records the rhythm, rate and electrical activity of your heart. What does an echocardiogram show? An echo looks at the structures of your heart, such as your heart valves. It also looks at how the blood flows through the main arteries and veins of the heart and gives information on how well your heart is pumping. An echo is often done to diagnose and assess the following conditions: What happens when you have an echocardiogram? You will be given a hospital gown to wear as you will need to remove all clothing from your top half when the echo is done. Your privacy will be maintained as you will be behind curtains or in a hospital clinic room in the outpatients department. With a standard echo, sometimes called a transthoracic echo or TTE, you’ll be asked to lie on a couch or bed. A gel used especially for scanning will be used to help the sound waves reach your heart. It feels cold and sticky, but is otherwise harmless. The healthcare professional (called a sonographer) doing the procedure will move the probe in different areas of your chest around your heart. The probe gives off pulses of high frequency sound waves which pass through your skin to your heart. This may sound like a "swishing" noise as the ultrasound waves "echo" against the structures of your heart, as well as the sound of the blood flow through the chambers of the heart. The probe picks up these reflections and shows them as images on a screen. Different parts of the heart are seen as the probe is moved around on your chest. It varies from person to person and can take from 15 minutes up to an hour. It’s a very common, safe test, and most people find it’s not uncomfortable, although you may feel a bit of pressure as the technician presses the probe onto your chest to obtain the best images. Electrodes (small sticky dots) will normally be attached to your chest to monitor your heart rate and rhythm during the test. In some cases the results of the scan maybe discussed with you in a clinic appointment with your heart doctor after the scan otherwise the results will be sent to your GP. Most people go home after the scan is finished. There are no risks or side effects from having a standard echo. Your doctor will discuss any risks or side effects if you need a different type of echo. Other types of echocardiogram The type of echo that you will have will depend on the condition that the doctor is trying to diagnose and treat. Transoesophageal echocardiogram (TOE) A transoesophageal echocardiography, or TOE, takes detailed pictures of your heart from your oesophagus (the tube that connects your throat to your stomach) which lies behind your heart. This test is used to get closer and more defined images of the heart as it can detect areas of the heart that are not as easy to see with a standard echo. You will be asked to lie on your side and ‘swallow’ a small probe which is mounted at the end of a flexible tube. A local anaesthetic that numbs the area will be sprayed onto the back of your throat and you will be offered a short-acting light sedative to help you relax. The procedure usually takes about 30 minutes. You may need to avoid eating for several hours before this test. The technician will obtain the images they need and remove the tube as soon as the procedure is done. Watch the film below to see Dave's experience of a TOE: An echocardiogram may be done while the heart is beating faster – a stress echo is performed while deliberately increasing the heart rate with either exercise on a treadmill or stationary bike, or with medication given through a vein. This test can help to diagnose coronary heart disease as it shows the coronary arteries in the heart aren’t getting as much oxygen rich blood as they should. Contrast echo To create a better image on a scan, a contrast or dye is injected into your vein. Foetal echocardiogram Foetal echocardiograms are used to help identify heart defects before a child is born. Bubble echo This is sometimes called a bubble study. A bubble echo involves performing an echo in the usual way whilst a small amount of salt water (saline) is injected into your bloodstream, through a vein in your arm. The salt water contains tiny bubbles which show up clearly on the scan pictures, and can be a useful way to identify a hole in the heart. It may be carried out after a stroke or TIA, or after complex heart surgery. The test is quick and painless, and the bubbles are harmless. Heart Helpline & other support Speak to our cardiac nurses by phone, callback, email or online chat on Heart Helpline (Monday to Friday, 9am to 5pm). Contact us to talk to our customer care advisors, find your local BHF shop and for any comments, compliments and complaints you may have. Sign up to our Heart Matters magazine for online information packed with health and lifestyle advice. This booklet describes the special tests that are commonly used to help diagnose heart diseases. Some of the tests are also used to assess the current condition of people who have already been diagnosed with heart disease. Download now An echocardiogram uses sound waves to create pictures of the heart. An echo test offers details on the heart’s structure and function. It can help diagnose various heart problems. What is an echocardiogram? An echocardiogram uses sound waves to make pictures of your heart. The test is also called echocardiography or diagnostic cardiac ultrasound. Some types of echocardiograms: Transthoracic echocardiography: Used to check for heart failure and find the cause of a heart murmur Stress echocardiography: Can identify partial or complete blockage of a heart artery Transesophageal echocardiography: Includes finding the source of a blood vessel blockage or prosthetic valve problem 3D echocardiography: Used to diagnose problems with the mitral valve Fetal echocardiography: Used to look for problems in the heart of an unborn baby Why is it needed? An echo test lets your health care team look at your heart’s structure and check how well your heart works. The test helps your health care team find out: The size and shape of your heart How your heart moves and pumps blood The heart’s pumping strength If the heart valves are working correctly If blood is leaking backwards through your heart valves (regurgitation) If the heart valves are too narrow (stenosis) If a tumor or infectious growth is around your heart valves The test will also will help your health care team find out if you have: Problems with the outer lining of your heart (the pericardium) Problems with the large blood vessels that enter and leave the heart Blood clots in the chambers of your heart Abnormal holes between the chambers of the heart Abnormal heart sounds from damaged heart valves What are the risks? An echo doesn’t hurt and has no side effects. What happens after the echo? Your health care professional will talk with you after looking at your echo pictures and discuss what the pictures show. View a printable sheet: What is an Echocardiogram? (PDF) Last Reviewed: Feb 24, 2025 An echocardiogram is an ultrasound imaging test used to observe the heart. It is also called a cardiac echo. Your healthcare provider may order this test to help diagnose a heart condition. A cardiac echo is considered the best way to see the movement and function of the heart muscle and valves. You may need a cardiac echo if you have heart valve disease, heart rhythm irregularities, or cardiac muscle diseases such as dilated cardiomyopathy or hypertrophic cardiomyopathy. This article explains why an echocardiogram may be used and what kinds of heart problems it can detect. It will also describe in detail how to prepare for the test, what happens during the test, and what the results may mean for you. Illustration by Cindy Chung, Verywell Other terms for an echocardiogram include:Transthoracic echocardiogram (TTE)Cardiac echo Cardiac ultrasound A cardiac echo is used to identify abnormalities in the heart's structure and function. A handheld device sends out sound waves that bounce off your heart and create a moving image of it on a screen. This allows your healthcare provider to look at the anatomy of your heart from many different angles and to observe your heart rhythm. If you have symptoms of fatigue, shortness of breath, or fainting, you may need a cardiac echo. This is especially true if a stethoscope or an electrocardiogram (EKG) (a test that charts the electrical activity of your heart) suggests that you have a structural heart problem. An echocardiogram is an ultrasound that uses a small device called transducer to take images of the heart's functioning and structure. With an EKG, electrodes are placed on the chest to measure the heart's electrical activity, like rhythm and rate. A cardiac echo allows your healthcare provider to watch your heart as it beats so that specific areas of concern can be identified. Some of the heart functions and conditions an echo can detect include: Problems with the heart valves: For example, mitral valve prolapse, a heart valve that is less rigid than it should be, can be detected because the test shows how well your heart's valves are functioning. The velocity, or speed, of blood flow within the heart: A special microphone called a Doppler can be used during the test to measure this. This is helpful in measuring problems with blood flow in conditions such as aortic stenosis. Anatomical defects: Congenital heart conditions such as tetralogy of Fallot and atrial septal defect are conditions that are present from birth in which the heart does not develop properly. Problem with the way the heart pumps: "Ejection fraction" is a term used to describe how strong the heart is and how well it pumps blood. An echo can evaluate how well various cardiac treatments are working in people with conditions such as heart failure. Cardiac arrhythmia: An echo can assess your heartbeat. This may help in determining the exact cause and best treatment if you do have an arrhythmia or irregular heart rhythm. Coronary artery disease (CAD): This type of echocardiogram done while your heart is under stress can help identify narrow or clogged arteries. Pericardium problems: The pericardium is the sac that surrounds the heart. An echocardiogram can identify problems such as inflammation (pericarditis) or fluid (pericardial effusion). Pressure: An echocardiogram can also be used to measure the pressure in your heart, which can help identify pulmonary hypertension, when there is too much pressure in the pulmonary artery. Heart size and structure: This test can evaluate the size of your heart as well as the thickness of the heart walls and other problems that can make it difficult for your heart to pump blood (cardiomyopathy). It can also help identify weak or thickened heart muscles, which are signs of heart failure. Problems with the aorta: The aorta is the large artery that carries blood from your heart to the rest of your body. An echocardiogram can help identify weakness in this artery as well as thickening of the valve flaps and blood clots. Heart attack: Impaired blood supply in the heart and abnormalities in the wall of the heart can indicate a heart attack. Blood clots: Echocardiogram could be used to find blood clots in the heart (thrombosis). Masses: Tumors in the heart are uncommon, but this test could be used to find a mass and help rule out malignancies (cancer). While the echocardiogram provides a lot of information about cardiac anatomy, it does not show the coronary arteries or any blockages in them. Another test called cardiac catheterization is commonly performed if your coronary arteries need to be examined closely. An echocardiogram is considered a safe procedure with no known risks. There are a few different types of echocardiograms. The type that will work best for you depends on a number of factors such as medical conditions you might have and whether or not you can exercise. This is the standard echocardiogram test. It is similar to the ultrasound tests that are used during pregnancy to view a fetus. This test uses high-frequency sound waves to create a picture of your heart. In people with certain conditions such as a thick chest wall or emphysema, it may be difficult to visualize the heart during an echocardiogram. If you have one of these conditions and need an echo, you might need an invasive ultrasound of your heart known as a transesophageal echocardiogram (TEE). With this, a device is placed in the esophagus in order to view the heart. A stress test measures your heart's function while it is under stress. It is done while you are at rest and then repeated while you exercise (usually on a treadmill) to look for changes in the function of the heart muscle when you are exerting yourself. A stress test can also be done using a medication that makes your heart beat faster. A medication stress test is usually only done if you have difficulty exercising. A stress echocardiogram uses sound waves to create a picture of your heart while it is under stress. There are a few different types of stress echocardiograms, including: M-mode: This type produces a simple picture of the heart and is used for obtaining measurements of heart structures. Doppler: This test can measure how blood flows through the structures in your heart. This can help your healthcare provider assess how well your heart is working.2-D: This test can give your healthcare provider a picture of the motion and structures in your heart.3-D: This test creates a picture in three dimensions.Nuclear: Also called a contrast stress test, this test uses a small amount of radioactive dye to create a picture of how blood moves through your arteries. You do not need to do anything special to prepare for an echocardiogram and you do not need to have any screening tests before having one. Here is what you can expect: In general, expect a transthoracic echocardiogram to take about an hour. A transesophageal echo takes between 20 and 40 minutes and a stress echo takes between 45 and 90 minutes. As with all diagnostic tests, arrive at least 15 to 30 minutes in advance so that you can sign in and fill out all necessary forms. Most medical offices will recommend that you have your echo at a cardiac testing center. If you have health insurance, your carrier may require you to go to an approved location. You will need to wear an examination gown for the test itself. Once it is over, you can change back into your clothes. There are no food and drink restrictions before a transthoracic echocardiogram. However, depending on the reason for the test, your doctor may ask you to avoid caffeine for six to 10 hours before the test. This is because caffeine can speed up your heart rate. If you are having a transesophageal echocardiogram you will need to avoid food and water for four to six hours before the test. For a stress echocardiogram, you will need to avoid caffeine and tobacco for 24 hours and stop eating or drinking for four to six hours before the test. Your health insurance may require a pre-authorization for a diagnostic echo. You also may be responsible for a copay. You can check with your health insurance provider or with the cardiac testing center—both should be able to answer your questions about these issues. If you are paying for the test yourself, it is likely to cost you several thousand dollars. This includes facility fees, technical fees, equipment fees, and a professional fee. These costs can range widely and it is highly likely that your healthcare provider and the other healthcare providers taking care of you do not know the cost of the echo. You can ask the facility what the total cost is and for a breakdown of the fees. Bring your referral form (if it wasn't already sent electronically), your insurance card, a form of identification, and a method of payment. A technician or a doctor will perform your echo. Often, a technician does some or all of the test, but a doctor, usually a cardiologist, will look at your heart images while you are having your echo. They may want to adjust the transducer (the handheld device used) to visualize additional views, if necessary. Your own doctor may be present at your echo test, or another cardiologist may be there. You will be asked to change into an examination gown for the test. The test will proceed differently depending on which type you are having. For a transthoracic echo, you will lie on an examination table and a technician will place some gel on your chest. Then they will place a transducer, or a small device shaped like a microphone, on that area. The transducer sends sound waves toward your heart. Like the sonar on a submarine, the waves bounce off the structures of the heart and return to the transducer, where they are recorded. They are then processed by a computer and appear on a screen, providing a visual image of your beating heart. The technician moves the transducer around to visualize your heart from different angles. You may be asked to roll on your side or to hold your breath for a few seconds during the test. Because a transesophageal echo is an invasive test, you may be given a sedative and oxygen during the test. Your throat will be numbed and your provider will insert a flexible tube down your throat. The sound waves that create the picture of your heart are released from a transducer at the end of the tube. A stress echo combines a resting echocardiogram with an echo done while you are exercising on a treadmill. After the test is complete, you may be given a small towel or pad to clean up the gel. Then you can change back into your clothes and leave. Typically, results are not ready right away, because the doctor may want to review the test and look at some images more carefully before preparing a report. You do not have to adjust your activities, and there are no side effects after having an echo. You can drive home after an echocardiogram. The results of your echo will be prepared in a written report by your doctor. The report will describe the heart anatomy, heart movements, and any defects observed during the test. It may take several days to several weeks for you to receive the report. Often, because the results are so detailed, your doctor may schedule an appointment with you to discuss the results and next steps. The report should include: The rate of your heartbeat, with a normal range falling between 60 and 100 beats per minute An evaluation of the size of your heart and whether there is dilation of chambers, which means that your heart is enlarged A description of the pericardium, or the protective tissue around your heart, whether the appearance is normal, and any abnormalities An assessment of the thickness of your heart described in relation to what is expected for your age, size, and gender A conclusion about the function of your ventricles and details about any abnormalities An evaluation of the shape and movement of your heart valves including whether regurgitation (leaking of blood flow) was observed A comment about whether any blood clots were seen in your heart A description of any anatomical or congenital defects Any unexpected findings Your report may also include a comment about the quality of the images. If the images did not come out clearly, that might make the results less reliable. A cardiac echo is used to assess many different conditions. As such, follow-up recommendations are highly variable and depend on the findings. You may eventually need to have another echo if you have a chronic heart condition, but regularly scheduled echocardiogram follow-ups are not typical. In general, follow-up after an echo is focused on the treatment of your heart condition. For example: If the test was used to diagnose a congenital heart condition, the next steps may include surgical repair. If it detected heart failure, medication adjustments may be needed. If it is used for evaluation of an arrhythmia, medication, surgery, or a pacemaker may be needed. In some situations, a TEE may be ordered after echo results are reviewed, particularly if your doctors are concerned that you have a heart problem that was not detected. A TEE looks at the heart by placing an ultrasound device inside your esophagus, instead of outside your chest. There are pros and cons to both tests, and the most significant difference is that TEE is invasive and requires sedation. A TEE may also be used for surgical planning. An echocardiogram uses sound waves to create a picture of your heart. It is used to diagnose a variety of heart conditions, including congenital defects, mitral valve prolapse, and heart failure. Depending on what your healthcare provider is looking for and any physical limitations you may have, you may undergo one of several different types of echocardiogram. These tests are generally done in a cardiac testing center and may take up to 90 minutes, depending on the type of test. After the test, your doctor will write a detailed report of the results. A treatment plan will be put in place depending on the findings. An echocardiogram, or "echo", is a scan used to look at the heart and nearby blood vessels.It's a type of ultrasound scan, which means a small probe is used to send out high-frequency sound waves that create echoes when they bounce off different parts of the body.These echoes are picked up by the probe and turned into a moving image on a monitor while the scan is carried out.An echocardiogram may be requested by a heart specialist (cardiologist) or any doctor who thinks you might have a problem with your heart, including your GP.The test will usually be carried out at a hospital or clinic by a cardiologist, cardiac physiologist, or a trained technician called a sonographer.Although it has a similar name, an echocardiogram is not the same as an electrocardiogram (ECG), which is a test used to check your heart's rhythm and electrical activity. An echocardiogram can help diagnose and monitor certain heart conditions by checking the structure of the heart and surrounding blood vessels, analysing how blood flows through them, and assessing the pumping chambers of the heart.An echocardiogram can help detect:damage from a heart attack – where the supply of blood to the heart was suddenly blockedheart failure – where the heart fails to pump enough blood around the body at the right pressurecongenital heart disease – birth defects that affect the normal workings of the heartproblems with the heart valves – problems affecting the valves that control the flow of blood within the heartcardiomyopathy – where the heart walls become thickened or enlargedendocarditis – an infection in the lining of the heart which damages the heart valvesAn echocardiogram can also help your doctors decide on the best treatment for these conditions. 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You'll be asked to lie on your left side and the probe will be moved across your chest.The probe is attached by a cable to a nearby machine that will display and record the images produced.You will not hear the sound waves produced by the probe, but you may hear a swishing noise during the scan. This is normal and is just the sound of the blood flow through your heart being picked up by the probe.The whole procedure will usually take between 15 and 60 minutes, and you'll normally be able to go home shortly afterwards. This video explains what to expect when having an echocardiogram. There are also several other types of echocardiogram that can be carried out:a transoesophageal echocardiogram (TOE) – where a small probe is passed down the throat into your food pipe (oesophagus) and sometimes into your stomach (your throat will be numbed with local anaesthetic spray and you'll be given a sedative to help you relax); you may need to avoid eating for several hours before this testa stress echocardiogram – a TTE, but carried out during or just after a period of exercise on a treadmill or exercise bike, or after being given an injection of a medication that makes your heart work hardera contrast echocardiogram – where a harmless substance called a contrast agent is injected into your bloodstream before an echocardiogram is carried out; this substance shows up clearly on the scan and can help create a better image of your heartThe type of echocardiogram you will have depends on the heart condition being assessed and how detailed the images need to be.For example, a stress echocardiogram may be recommended if your heart problem is triggered by physical activity, while the more detailed images produced by a TOE may be more useful in helping plan heart surgery. In this video, an expert explains what to expect if you're having a transoesophageal echocardiogram. In some cases, it may be possible for the person carrying out the scan to discuss the results with you soon after it's finished.However, the images from the scan will usually need to be analysed before the results are sent to the doctor who requested the test. Your doctor will then discuss the results with you during your next appointment. A standard echocardiogram is a simple, painless, safe procedure. There are no side effects from the scan, although the lubricating gel may feel cold and you may experience some minor discomfort when the electrodes are removed from your skin at the end of the test.Unlike some other tests and scans, such as X-rays and CT scans, no radiation is used during an echocardiogram. However, there are some risks associated with the less common types of echocardiogram.You may find the TOE procedure uncomfortable and your throat may feel sore for a few hours afterwards. If you have a sedative, you will not be able to drive for 24 hours after the test as you may still feel drowsy from the sedative. There's also a small chance of the probe damaging your throat.During a stress echocardiogram, you may feel sick and dizzy, and you may experience some chest pain. There's also a small chance of the procedure triggering an irregular heartbeat or heart attack, but you'll be monitored carefully during the test and it will be stopped if there are signs of any problems.Some people with certain conditions, or who take certain medicines, cannot have the contrast agent used during a contrast echocardiogram. It can cause side effects, but they're usually mild, such as headache. In rare cases, a serious allergic reaction can occur. Page last reviewed: 28 March 2022 Next review due: 28 March 2025 MeSH Heading Echocardiography Tree Number(s) E01.370.350.130.750 E01.370.350.850.220 E01.370.370.380.220 Unique IDD004452 RDF Unique Identifier Annotationcoordinate with specific heart disease /diag image; note entry term ECHOCARDIOGRAPHY, TRANSTHORACIC; ECHOCARDIOGRAPHY, TRANSESOPHAGEAL is also available Scope NoteUltrasonic recording of the size, motion, and composition of the heart and surrounding tissues. The standard approach is transthoracic. Entry VersionECHOCARDIOGR Entry Term(s) 2-D Echocardiography 2D Echocardiography Contrast Echocardiography Cross-Sectional Echocardiography Echocardiography, 2-D Echocardiography, 2D Echocardiography, Contrast Echocardiography, Cross-Sectional Echocardiography, M-Mode Echocardiography, Transthoracic Echocardiography, Two-Dimensional M-Mode Echocardiography Transthoracic Echocardiography Two-Dimensional Echocardiography Previous Indexing Ultrasonics (1966) Public MeSH Note73 History Note73(67) Date Established 1973/01/01 Date of Entry 1999/01/01 Revision Date 2016/03/17 Diagnosis [E01] Diagnostic Techniques and Procedures [E01.370] Diagnostic Imaging [E01.370.350] Ultrasonography [E01.370.350.850] Echocardiography [E01.370.350.850.220] Echoencephalography [E01.370.350.850.260] Elasticity Imaging Techniques [E01.370.350.850.270] Endosonography [E01.370.350.850.280] Focused Assessment with Sonography for Trauma [E01.370.350.850.423] Microscopy, Acoustic [E01.370.350.850.565] Ultrasonography, Carotid Arteries [E01.370.350.850.708] Ultrasonography, Doppler [E01.370.350.850.850] Ultrasonography, Interventional [E01.370.350.850.855] Ultrasonography, Mammary [E01.370.350.850.860] Ultrasonography, Prenatal [E01.370.350.850.865] An echocardiogram is an ultrasound image of the heart. Echocardiograms can help doctors diagnose a range of heart problems, such as heart failure, blood clots in the heart, and heart valve disease.Doctors use echocardiograms to help diagnose heart problems such as damaged heart tissue, chamber enlargement, stiffening of the heart muscle, blood clots in the heart, fluid around the heart, and damaged or improperly functioning heart valves.Share on PinterestEchocardiography uses ultrasound waves to create a picture of the heart, which is known as an echocardiogram (echo).An echocardiogram can enable a doctor to see:the size and thickness of the heart’s chambershow the heart valves are functioningthe direction of blood flow through the heartany blood clots in the heartareas of damaged or weak cardiac muscle tissueany problems affecting the pericardium (the fluid-filled sac around the heart)Doctors also use echocardiography to evaluate the causes of a stroke.An echocardiogram is a noninvasive and relatively quick procedure that requires minimal preparation.Below, we discuss what to expect before, during, and after an echocardiogram.Before explaining the preparation, it is important to understand the different types of echocardiograms.If a doctor orders a transthoracic echocardiogram, the sonographer applies a gel to the chest and moves the transducer around the chest to obtain different images of the heart. A sonographer is a healthcare professional who specializes in using ultrasound devices to produce images and videos for diagnostic purposes.During the exam, the sonographer may ask the person to change positions or to take or hold a deep breath. They might press the transducer into the chest to better understand the heart.A doctor might order a transesophageal echocardiogram if they want more detailed or clearer images of the heart than those that a transthoracic echocardiogram can produce.During a transesophageal echocardiogram, the person may receive a mild sedative to help relax the muscles in their throat and a local anesthetic to numb the gag reflex.Once the sedative and local anesthetic take effect, a doctor will guide a small transducer on the end of a long tube down the person’s throat and esophagus until it reaches the back of the heart.The sonographer records images of the heart as the doctor moves the transducer around the esophagus. After swallowing the probe, the person should not feel the transducer or the tube in their esophagus. It is also possible that the person will be asleep during the procedure.If a healthcare professional takes the echocardiogram from the outside of the body, the person will not need to prepare.A doctor will recommend that a person avoid eating or drinking for at least 4 hours before a transesophageal echocardiogram. Once the local anesthetic has worn off, a person can resume eating and drinking within 1 to 2 hours.A sonographer will perform a transthoracic (external) echocardiogram. The person undergoing the echocardiogram will remove their clothes from the waist up. They can wear a hospital gown to cover themselves during the exam.The sonographer will then instruct the person to lie on a table, either on their back or on their left side. The sonographer might also inject a saline solution or dye into the person’s veins to make the heart appear more defined on the echocardiogram.Most people can return to their regular activities after having a transthoracic echocardiogram.People who have undergone a transesophageal echocardiogram may need to stay at the hospital or healthcare clinic for a few hours after the exam. They may have a sore throat at first, but it should improve within a few hours to a day.If a person received a sedative before the exam, they should not drive for several hours afterward.Doctors can use echocardiograms to see the size, structure, and activity of various parts of the heart. They can use this exam to diagnose heart problems, determine whether more tests are necessary, decide what their next steps should be, and monitor changes and improvements.Heart attack: The test can help a doctor see areas of the heart muscle that are not pumping as well as they should, which can indicate a heart attack.Blood clots (thrombus) or tumors: According to a 2021 review, an echocardiogram can be an alternative to cardiac magnetic resonance for detecting thrombosis. A 2020 review also notes that an echo is an essential noninvasive tool to check for cardiac masses such as tumors.Aortic aneurysm and aortic dissection: Doctors can use an echocardiogram to screen for a wide, weakened aorta; locate unruptured aortic aneurysms and determine their size; and identify fibrosis or thrombus in the aorta.Heart failure: An echocardiogram can help doctors identify reduced heart function or a stiff heart, both of which signify heart failure.Pulmonary hypertension: The test assesses the heart pressure, which can indicate the presence of pulmonary hypertension, helping doctors determine the next diagnostic steps.Congenital heart disease: The test can identify congenital heart abnormalities in infants and young children, such as septal defects and holes.Heart valve disease: The test looks for abnormalities in heart blood flow as well as leakage, narrowing, infection, and blockage in heart valves.Problems with the pericardium: The test can check for pericarditis (inflammation of the pericardium) or pericardial effusion (a condition in which the pericardium fills with fluid or blood).Heart failure: An echocardiogram can detect weak or stiff and thickened heart muscle, which can be a sign of heart failure.Doctors also often use this test to assess the need for an abnormal electrical test of the heart, called an electrocardiogram (EKG).Additionally, they may use an echocardiogram to monitor how well the heart responds to various treatments, such as heart failure medications, artificial valves, and pacemakers.A doctor will order an echocardiogram if they suspect that someone has heart problems. Signs and symptoms that may indicate a heart condition include:Doctors use Doppler ultrasound to check the flow of blood. This type of ultrasound generates sound waves at specific frequencies and determines how the sound waves bounce off and return to the transducer.Doctors can use color Doppler ultrasound to map the direction and velocity of blood flow in the heart. Blood that flows toward the transducer appears red, while blood that flows away looks blue. Doppler ultrasound can also determine the degree of blockages.The results of a Doppler ultrasound can reveal problems with heart valves or holes in the heart’s walls and help doctors assess how the blood is traveling through the heart. Both transthoracic and transesophageal echocardiograms involve the use of a Doppler.»Learn more about a Doppler ultrasoundA 3D echocardiogram creates detailed 3D images of the heart. Doctors can use 3D echocardiograms to:assess how well the heart valves are working in people who have heart failurediagnose heart problems in infants and childrenplan for surgery that involves the heart valves or structural interventionsevaluate the function of the heart in 3Dsee complex structures within the heartcreate detailed 3D imagesA doctor can order an echocardiogram as part of a stress test. A stress test involves physical exercise, such as walking, jogging on a treadmill, or riding a bike.During the test, the doctor will monitor the person’s heart rate and blood pressure and the electrical activity of their heart.A sonographer will perform a transthoracic echocardiogram before and after the exercise.Doctors use stress tests to diagnose coronary heart disease.A POC echocardiogram is an echocardiogram that a doctor can conduct at a person’s bedside. This test can help a doctor determine the correct diagnosis.A POC echocardiogram can assess how well the left and right ventricles pump the blood with each heartbeat.Doctors can use a fetal echocardiogram to view an unborn baby’s heart. This exam usually takes place at 18 to 22 weeks of pregnancy. Echocardiograms do not use radiation, so they are not harmful to a pregnant person or a baby.After the exam, the sonographer will send the echocardiographic images to the doctor who ordered the test. The doctor will review the images and look for signs of heart problems, such as:damaged heart muscle tissueissues with the pumping function of the heartthick or thin ventricle wallsabnormal chamber sizeimproperly functioning valvesmasses in the heart, such as blood clots or tumorsEchocardiograms are especially helpful in identifying structural problems with the heart. However, they may not be the best procedure for checking the coronary arteries.Blockages can cause changes in the heart’s structure. Doctors can usually detect changes in heart function, weak muscles, or thinner heart walls, which will prompt them to run further tests, such as a coronary angiogram.Echocardiograms also cannot check for conduction disorders or electrical problems of the heart that affect its rhythm, but they can assess the effects of these abnormalities on the heart.People should not confuse an echocardiogram with an EKG, which is another diagnostic test. An EKG measures the electrical impulses, or waves, that travel through cardiac muscle tissue.The electrical activity in the heart causes the heart muscle tissue to contract and relax, which creates the rhythmic heartbeat that people can hear through a stethoscope.A trained technician, nurse, or doctor can take an EKG by placing electrodes on the skin of the chest, arms, or legs. These electrodes record electrical activity and send the information to a computer that converts it into a graph, which a doctor can print.»Learn more about their differences.An echocardiogram has a very low risk of side effects or complications. A transesophageal electrocardiogram may trigger a person’s gag reflex when the sonographer guides the tube down the throat. A person might also have a sore throat after the exam.In very rare cases, a serious complication, such as damage to the throat, vocal cords, or esophagus, can occur as a result of a transesophageal echocardiogram.The use of local anesthetics, sedatives, contrast dyes, or saline during the exam may trigger an allergic reaction in some people. If a person is pregnant, doctors will use contrast dyes only if necessary.Contrast dyes can cause the following side effects:headachesnauseaanxietyproblems with eyesight or hearingallergic reactionsSome people may experience changes in blood pressure or a decrease in oxygen supply to the heart during a stress test. A stress test will occur in a fully equipped medical facility in case a person experiences complications during the exam.Whenever a person receives sedatives, there is a chance that the stomach contents may enter the lungs. To