Cleveland Clinic
HEART ADVISOR™
Advice and information from the world leader in coronary care and research™
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Radiation to the Chest Increases Heart-Disease Risk Later in Life

Here's what you need to watch for if you've undergone this form of cancer treatment.

Most cancer survivors are eager to put the experience behind them and live life to the fullest. That's why heart disease caused by the very treatments that cure cancer can be emotionally devastating.

If you received radiation to the chest, you are at high risk for developing heart disease years—even decades—later. Now there are guidelines to help you and your physician know how to keep tabs on your heart health in order to identify and treat a heart problem early. The guidelines explain what can happen, how you should be screened and, if you develop heart disease, how it should be treated.

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Accidental radiation damage to the heart often occurs so many years later, that the cause is easily missed.

"Don't wait to be diagnosed," says cardiologist Milind Desai, MD, one of three experts from Cleveland Clinic's Center for Radiation Heart Disease who wrote the guidelines. "Radiation-associated heart disease (RAHD) can take different forms that overlap with other heart conditions. However, it's important to recognize it for what it is, because the way it is managed will determine your quality and length of life."

Forms of RAHD

In radiation therapy (also called radiotherapy) beams of radioactive energy are focused on a tumor to destroy it. When the tumor is located in the chest, stray particles of radiation may hit the heart. The higher the dose of radiation and the larger the area being radiated, the greater the risk the heart will be affected.

If you have had radiotherapy for Hodgkin's lymphoma, breast cancer or lung cancer, you should be monitored for RAHD. It is particularly important if you were younger than 50 at the time you were treated, were radiated with cobalt, received a high cumulative dose of radiation, the tumor was in the center or on the left side of your chest, your heart was not shielded, or you had concurrent chemotherapy, particularly with anthracyclines or trastuzumab.

Typically, years or decades pass between radiotherapy and the onset of RAHD. "This makes the connection between cancer treatment and heart disease easy to overlook," says Dr. Desai.

Radiation's Effects on the Heart

Radiation can affect the heart in the following ways:

- Valve leaflets can become progressively thicker and stiffer.
- The sac surrounding the heart (pericardium) can become inflamed, compressing the heart.
- The coronary arteries may become clogged with atherosclerosis.

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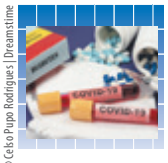

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Heart and Other Diseases Increase Risk of Death from COVID-19

If you have cardiovascular disease, diabetes or lung disease, you are at higher-than-normal risk for a bad outcome from COVID-19 infection and should take every precaution to avoid exposure to the coronavirus. The Centers for Disease Control and Prevention (CDC) was informed of the first laboratory-confirmed case of COVID-19 in the United States on Jan. 22, 2020. From that date to May 30, 1,761,503 cases and 103,700 deaths were reported. The number of men and women affected was similar. In an analysis of these patients in their *Morbidity and Mortality Report* of June 19, the CDC revealed the most common comorbidities were cardiovascular disease (32%), diabetes (30%) and chronic lung disease (18%). Hospitalizations for COVID-19 were six times higher among patients with an underlying condition (45.4%) than those without (7.6%); 8.5% of patients with a comorbidity were admited to an intensive care unit, compared with 1.5% of those without another medical condition. The death rate was most startling at 12 times higher among COVID-19 patients with an underlying condition (19.5%) than in those without (1.6%). The death rate was particularly high among patients ages 80 and older: In this group, 50% of those with comorbidities and 30% of those without succumbed to the virus.

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Recommended Blood Pressure May Not Be Low Enough

A systolic blood pressure below 130 millimeters of mercury (mmHg) is considered normal, but this cap may be too high to protect against cardiovascular disease (CVD). An examination of 1,457 participants in the Multi-Ethnic Study of Atherosclerosis found that CVD risk continued to drop as blood pressures fell as low as 90 mmHg. All patients in the study, published June 10 in *JAMA Cardiology,* were free of CVD and had systolic blood pressures between 90 mmHg and 129 mmHg. Over a mean follow-up period of 14.5 years, some developed CV risk factors, such as high cholesterol, and others suffered a CV event. Those with a systolic pressure of 129 mmHg had 4.5 times the CVD risk of those with a 90 mmHg reading, and those with pressures of 100 to 119 mmHg had three or more times the risk. Additionally, fears that blood pressure readings as low as 90 mmHg might be dangerous proved unfounded.

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Even the Sickest Elderly Benefit from Blood Pressure Medications

The longer you take your blood pressure medication, the lower your risk of death, even though poor health attenuates that risk somewhat. Researchers in Italy looked at more than 1.28 million adults over age 65 and identified those who were taking blood pressure medication in 2011 and 2012. These individuals were followed for seven years, during which time the researchers took note of who continued taking their medication at least 75% of the time and who took it less than 25% of the time. They found that the 255,228 people who died during the study period were more likely to have had other diseases and less likely to take their blood pressure medication. As reported online June 8 in *Hypertension*, the risk-lowering effect of these medications dropped as health worsened, but still offered more protection than discontinuation.

Illustration by Marty Bee

Use Care When Taking Clarithromycin With a Novel Anticoagulant

If you take one of the new direct oral anticoagulants (DOACS) as an alternative to warfarin (Coumadin), you may want to avoid simultaneous use of the antibiotic clarithromycin. Patients taking this antibiotic concurrently with a DOAC had nearly double the risk of 30-day hospital admission for major hemorrhage than those taking azithromycin, researchers reported online June 8 in *JAMA Internal Medicine.* This study suggests the reason is that clarithromycin increases the potency of DOACs by 20% to 100%, while prolonging the time it takes for blood to clot. Despite the low risk of hemorrhage, which occurred in only 134 of the 25,000 patients, the risk can be reduced by avoiding clarithromycin when an alternative antibiotic is acceptable.

Food and Physical Exercise: The Relationship Is Complex

Whether you eat before or after exercising matters to your body, particularly if you have diabetes.

The American Heart Association and American Diabetes Association recommend adults get a minimum of 150 minutes a week of moderate exercise for heart health. Hopefully, you regularly meet this goal by walking, biking or swimming 30 minutes a day five days a week. Even better, you surpass it, particularly if you are trying to lose weight or keep pounds from creeping back onto your waistline.

Did you know that how soon you exercise after a meal, as well as what you eat, affects your glucose levels and influences whether you burn fat? Your physician may not have had the time to explain this to you.

"As physicians, we are happy if patients exercise at all. We usually don't discuss when," says Cleveland Clinic preventive cardiologist Dennis Bruemmer, MD. He was, however, happy to discuss the timing of exercise after meals with us.

Food as Fuel

When we eat, our digestive system breaks down food and extracts the nutrients that our bodies need for various functions. Glucose (sugar) is one of them. Our bodies burn sugar for energy, which lowers the supply of glucose in the blood.

Our pancreas releases a hormone called insulin that enables glucose to enter our muscle cells. Exercise makes these cells more sensitive to insulin, so they take up and utilize glucose more quickly. Exercise lowers the peak glucose level and improves the uptake of blood glucose into muscle.

"This is desirable, since high glucose spikes can damage blood vessels," Dr. Bruemmer explains. "That's why we should be more active after a meal, but that's not typically what we do."

Rethinking Meals

Here in the United States, dinner is typically the largest meal. After dinner, we usually watch television, read or conduct some other sedentary activity, when we should be moving about. Blood glucose levels peak 90 minutes after eating. If we don't use the glucose right away, our body converts it to fat.

This is the reason eating a large meal at night or snacking before bed is a bad idea.

"You don't want sugar floating in your blood at night when you aren't using your muscles," says Dr. Bruemmer. "It would be better to eat a bigger meal at noon, particularly if you are going to be more active in the afternoon."

That being said, most people find it uncomfortable to exercise after eating a big meal, no matter what time of day it is. The solution, says Dr. Bruemmer, is simple. "If you are going to exercise after a meal, have a smaller meal."

If You Have Diabetes

People with type 2 diabetes are advised to maintain glucose levels at 160 milligrams per deciliter (mg/dL) for two hours after a meal.

Researchers advise lowering glucose levels by exercising within 30 minutes after starting a meal. But this advice may not be appropriate for everyone with diabetes, especially those whose bodies do not manage blood sugar well.

"Measure your blood sugar before you start exercising. If it's high—300 mg/dL or more—wait for it to drop, or take a little bit of insulin before you start," Dr. Bruemmer advises. "If it's low—say, below 140 mg/dL and you take insulin, eat about 15 grams of carbohydrate, so your blood-sugar level doesn't drop too low when you exercise."

If you exercise regularly, your body will use insulin more efficiently. This can lower your blood-sugar level for as long as 12 hours after you exercise.

"High blood sugar dramatically increases your risk for heart disease. Regularly maintaining a low blood-sugar level significantly reduces this risk," says Dr. Bruemmer.

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Don't Run on Empty

Some weight-loss programs advise exercising in the morning before you eat. This burns fat, rather than glucose from your breakfast food. Dr. Bruemmer does not advise undertaking strenuous exercise on an empty stomach.

"There is no sugar to feed the muscles, and you can become very tired very fast," he says. "It would be better to have a small meal—maybe an apple, Greek yogurt, a granola bar or a smoothie. Wait an hour; then exercise."

New Guidance for Heart-Disease Prevention in Women

Some risk factors are different than in men; others should be treated differently.

In 2011, the American Heart Association (AHA) released guidelines for preventing heart disease in women. Since that time, so much new information on women's cardiovascular risk has come to light that the American College of Cardiology's Cardiovascular Disease in Women Committee wrote a new set of recommendations. The document, published in May, explains how women respond differently to certain traditional risk factors and treatments and have additional risk factors unique to their sex.

"Cardiovascular disease is preventable 90% of the time," says Leslie Cho, MD, Director of the Women's Cardiovascular Center at Cleveland Clinic and lead author of the guidelines. "Knowing which risk factors women have and how to manage them will help them achieve the best possible outcomes."

TRADITIONAL RISK FACTORS

Hypertension, diabetes and high cholesterol increase the risk of heart disease in both men and women. However, these risk factors affect women in different ways.

*** Hypertension.** Obesity, physical inactivity, high salt intake, diabetes and consumption of more than one alcoholic drink per day are the most common causes of hypertension in women. Obesity was found to pose the most significant risk.

Women tend to experience steeper increases in blood pressure than men, often starting in their 20s.

The AHA recommends an optimal blood pressure of 130/80 milligrams of mercury (mmHg) for both men and women. However, in a large trial, women appeared to have more side effects and less benefit from aggressive blood pressure lowering. However, only 36% of patients in the study were women. "This suggests the optimal blood pressure for women is not known," says Dr. Cho.

Heart-disease prevention in women starts with healthy habits in childhood that are maintained for life. Regular health care with an emphasis on managing risk factors can help you avoid this largely preventable disease

Another important consideration is the type of medication used to lower blood pressure. "Thiazide diuretics may be a good choice in older women, due to their ability to reduce calcium excretion and prevent osteoporosis," she says.

*** Diabetes**

Women are more likely than men to develop type 2 diabetes in childhood, and this translates into living more years with the disease. Diabetes doubles the risk of heart attack, and death from cardiovascular disease is significantly increased in people who develop diabetes before age 40.

Having diabetes significantly reduces the natural cardioprotection that occurs in premenopausal women and greatly increases the risk of heart failure and death from heart disease.

"Given the increased cardiovascular risk, all patients with diabetes should take aggressive measures to control their diabetes, yet studies show women with diabetes continue to be underdiagnosed and undertreated," says Dr. Cho.

*** High Cholesterol**

Studies conducted since 2011 have found statins reduce cardiovascular events and mortality in women and men alike. For primary prevention of cardiovascular disease, adults ages 20 to 75 with LDL-cholesterol levels of 190 mg/dL or higher should use high-intensity statins without risk assessment. Those with type 2 diabetes ages 40 to 75 should use moderate-intensity statins and risk estimator to consider high-intensity statins. Women have other novel risk factors that may be included to further stratify their risk. The medication should be stopped one to two months before attempting pregnancy, or as soon as pregnancy is known. During pregnancy, bile-acid sequestrants may be used instead of statins.

Women tend to report more side effects from statins than men do. Ezetimibe may be considered as an alternative for women who experience statin-induced muscle pain. However, the effectiveness of ezetimibe for primary prevention in middle-aged women is unknown, due to lack of data from clinical trials. Similarly, no clinical trials of PCSK9 inhibitors for primary prevention have been done, but these powerful new cholesterol-lowering drugs seem to be well tolerated by women and men alike.

FORMER CONTROVERSIES

Some risk factors and treatments spawned controvery or confusion.

*** Aspirin.** When used for primary prevention of cardiovascular disease, daily aspirin lowers the risk of vascular events, specificially ischmic strokes in women over age 65, but at an unsafe risk of internal bleeding.

"Most healthy people do not need to take aspirin," says Dr. Cho. "There

may be a few exceptions, but when balanced against bleeding risk, most primary prevention patients are unlikely to benefit if their risk factors are well controlled."

⁎ Stroke Prevention

For unclear reasons, women with atrial fibrillation (A-fib) have a 20% to 40% higher risk of stroke than men. For this reason, female sex was recently incorporated as a risk factor into the algorithm most commonly used to predict risk of stroke from A-fib and determine who should be treated with anticoagulants.

A meta-analysis of studies on the new oral anticoagulants found no significant difference in their safety and efficacy in women compared with warfarin.

⁎ Menopausal Hormone Therapy

Although hormone therapy was once thought to be the fountain of youth, clinical trials have disproven this theory. In fact, studies have found no evidence of cardiovascular benefit and an increased risk of venous thromboembolism with stroke-causing potential.

"There is no role for menopausal hormone therapy in cardiovascular prevention," says Dr. Cho.

WOMEN'S RISK FACTORS

The new guidelines are the first to discuss—and provide treatment recommendations for—disorders that are unique to or likelier to occur in women.

"Some of these conditions occur prior to menopause. However, they may accelerate the development of cardiovascular disease in mid-life or later years," Dr. Cho explains. "If you have any of these unique risk factors, but have not been diagnosed with heart disease or had a baseline cardiac evaluation, I urge you to discuss this need with your doctor."

⁎ Pregnancy-related Disorders

High blood pressure during pregnancy, gestational diabetes, preterm birth, loss of pregnancy and having a baby with a low birth weight can double, triple or quadruple the risk of developing cardiovascular disease, heart failure and valve disease.

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Women who develop hypertension or diabetes during pregnancy, lose a fetus or give birth early are among those at elevated risk of developing heart disease.

"Women with these pregnancy-related disorders should be screened for cardiovascular disease three months after giving birth and counseled on lifestyle choices to reduce their risk," says Dr. Cho.

⁎ Polycystic Ovarian Syndrome

Young women with polycystic ovarian syndrome (PCOS) are prone to developing metabolic syndrome, which accelerates the development of atherosclerosis. These women tend to have irregular or absent menstrual periods, insulin resistance, male characteristics such as facial hair and infertility.

"Menstrual irregularities should be treated, and metformin is recommended for the treatment of insulin resistance," says Dr. Cho. "Women should be monitored every six to 12 months for weight changes, blood pressure and fasting lipid and blood-sugar levels."

⁎ Premature Menopause

Menopause prior to age 40 increases cardiovascular risk, due to the early loss of protective estrogen.

⁎ Autoimmune Diseases

Women are more likely than men to have underlying autoimmune and inflammatory diseases such as systemic lupus erythematosus (SLE) and rheumatoid arthritis (RA), which contribute to increased cardiovascular risk. SLE and RA are associated with accelerated atherosclerosis and microvascular dysfunction.

Ischemic heart disease is the number one cause of death in SLE, and women ages 35 to 44 with SLE are more likely to have a heart attack. The risk of death from cardiovascular disease is 50% higher in RA than in the general population."Eighty percent of patients who have autoimmune diseases are women. They they need aggressive risk factor modification," says Dr. Cho.

⁎ Psychological Issues. A large body of evidence links acute and chronic emotional stress and disorders such as depression to increased risk of cardiovascular disease that is particularly striking in women.

Depression, a recognized risk factor for heart attack and cardiac death, is twice as common in women as in men. In women, the diagnosis of depression doubles the risk of cardiovascular disease; post-traumatic stress syndrome (PTSD) increases the risk by 60%.

"Getting help for these issues can improve a woman's quality of life, as well as her cardiovascular health," says Dr. Cho.

What This Means for You

Heart disease remains the leading killer of women in this country, but being a victim is not inevitable. Keeping the disease at bay requires knowing when you are at increased risk and taking steps to lower it.

In addition to maintaining an ideal body weight, avoiding cigarette smoke, exercising a minimum of 150 minutes a week, and eating a diet high in fruits, vegetables and fiber and low in saturated fat, you may need to address one or more of the risk factors discussed here.

"You are never too old to care about your heart health. Talk with your doctor about the best ways to protect yourself," says Dr. Cho.

Low-Fat Diets Are Obsolete

There are healthier ways to lose weight.

It wasn't very long ago that low-fat diets were promoted as the best and healthiest way to lose weight. Americans were told that eating less fat would reduce their risk of cardiovascular disease, as well as obesity. Millions embraced the concept, hoping to keep their weight in check and stay healthy well into their senior years.

The problem is that low-fat diets don't work. And, while the concept seems to make sense, a low-fat diet isn't necessarily healthy. Here are the reasons why you should avoid eliminating all fats from your diet:

1 Some fats are good for you.

Low-fat diets lump all fats into one category: bad. But not all fats are unhealthy.

Let's be clear: Trans fats and saturated fats are bad. They contribute to cardiovascular disease by raising blood levels of LDL cholesterol. But monounsaturated and polyunsaturated fats are actually protective.

"We know this because research has shown the Mediterranean diet to be very healthy, and 35% of its calories come from healthy fats," says Cleveland Clinic dietitian Julia Zumpano, RD, LD.

The Mediterranean diet has been shown to reduce the risk of heart attack, stroke and death from heart disease by 30%. The diet is rich in extra-virgin olive oil, nuts, seeds and fatty fish—foods that contain heart-healthy fats. It limits full-fat dairy products and red meat (including pork and veal), which are prime sources of saturated fats.

2 Low fat can mean high sugar.

When you remove fat, you have to replace it with something else, or the food is tasteless. In processed foods, this generally means adding sugar, salt or both. You are simply exchanging one bad nutrient for another.

"People who go on a low-fat diet often end up eating too many simple carbohydrates, which can prevent weight loss, lead to diabetes and contribute to inflammation in the arteries that underlies the development of atherosclerosis," Zumpano explains.

"Carbs tend to be naturally low in fat, so refined grains in the form of white breads, pastas, pretzels and crackers, popcorn and fat-free desserts and sweets were the foundation of the low-fat diet. We now know that those foods, which are high in refined carbs and sugar, can lead to weight gain and elevated levels of blood sugar, blood pressure and triglycerides."

3 Low-fat diets don't stand the test of time.

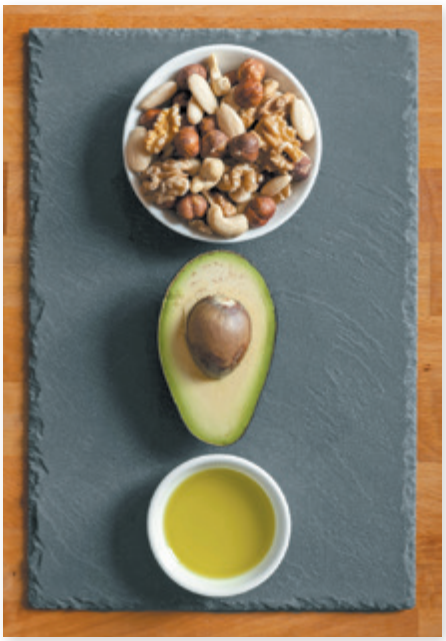
If fear of overindulging in carbs and consuming too few healthy fats weren't enough reasons to pass up a low-fat diet, there one more: It's very hard to maintain over time.

"Fat makes you feel full. Rejecting all fats can leave you hungry, and that's when you reach for bread, pasta or other carbohydrates," says Zumpano.

This doesn't happen with the Mediterranean diet. Because it contains a healthy complement of beneficial fats, along with fiber from whole vegetables and fruits, you feel satisfied.

"The Mediterranean diet provides satiety and excellent nutrition," says Zumpano.

Even on the Mediterranean diet, you are allowed to eat an occasional piece of red meat or creamy, full-fat cheese. "We recommend consuming less than 5% to 7% of total calories in saturated fat," she says. "That's about one 3-ounce serving of meat per week."



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The Mediterranean diet could actually be called a high-fat diet, because 35% of its calories come from fats. But they are heart-healthy fats, such as those found in olive oil, avocados, nuts and fatty fish like salmon. These foods actually lower the risk of death from heart disease.

SATURATED FATS KEEP BAD COMPANY

Saturated fats are easy to spot, because they are generally solid at room temperature. They are most commonly found in fatty cuts of meat and processed meats such as hot dogs, sausage, bacon, salami, etc; egg yolks; full-fat and processed cheeses; cream cheese; poultry skin; whole-milk dairy products; lard; tropical oils (such as coconut and palm oil); fried foods; and fast foods.

In addition to saturated fats, animal products contain a nutrient called choline. In the digestive process, choline is broken down into trimethylamine N-oxide (TMAO). Research pioneered at Cleveland Clinic has shown this metabolite promotes blood clotting and the development of artery-clogging atherosclerosis.

Radiation *... cont from page 1*

- Large sections of the carotid arteries leading to the brain may become diseased.
- The aorta may become hard and brittle.
- Arrhythmias may develop.
- The heart muscle may grow thick and stiff, leading to cardiomyopathy and heart failure.
- The lungs may become diseased, leading to shortness of breath and extreme fatigue. Lung complications can complicate treatment, since they make surgery more risky.

"Outcomes are generally better when these conditions are caught and treated early," says Dr. Desai.

Proper Screening

If you have undergone radiation to the chest at any time in your life, even as a child, it's never too early to start having annual exams to look for signs and symptoms of heart disease.

Ideally, you should have an echocardiogram to assess your heart's structure five years after radiation exposure, if you are at high risk. Otherwise, 10 years after exposure is acceptable. The test should be repeated every five years.

Option: Surgery

Radiation can damage the aorta, ventricles, pericardium, lungs or chest wall, making heart surgery anything but routine.

If you need surgery to repair a complication from RAHD, your surgeon will want you to undergo a battery of tests to better understand the extent of the damage. In addition to cardiac catheterization, these tests may include multidetector cardiac CT, nuclear scintigraphy, cardiac MRI, vascular ultrasonography and pulmonary function testing.

"The results of these tests will provide the information needed to determine the risks associated with surgery and optimal treatment," says Dr. Desai.

Because RAHD raises surgical risk, the guidelines recommend waiting as long as possible to operate and making all necessary repairs in a single operation. "Although long-term outcomes remain less favorable than in patients without RAHD, patients who have not developed significant fibrosis in the heart or lungs may have good long-term outcomes with surgery," says Dr. Desai.

Other Treatments

There is no approved medical treatment for RAHD. However, certain common medications, including statins, angiotensin receptor blockers and angiotensin-converting enzyme inhibitors, may be valuable in managing specific aspects of RAHD. Nevertheless, most patients with symptoms of heart disease require invasive treatment.

Conflicting information on the results of percutaneous coronary intervention (PCI, or angioplasty and stenting) makes it difficult to know when to use this option. "We do know that outcomes may depend on the volume and dose of radiation that was received," says Dr. Desai. "All aspects of PCI, including the type and size of the stent, timing of the procedure and need for long-term antiplatelet therapy, must be individualized."

Experience Matters

The evaluation of patients for appropriate treatment is best done by a multidisciplinary team of specialists who are familiar with the considerations posed by RAHD.

"It is crucial to utilize a comprehensive, multimodality imaging-based screening protocol to identify patients at risk, plan intervention and evaluate treatment response," says Dr. Desai. "The timing of surgery must be based on the complexity of the disease, the patient's comorbidities and technical difficulty of the operation."

The Last Word

Despite these warnings, there is good news: Ongoing advances in radiotherapy have lowered the risk of unintentional damage to the heart. New technologies allow smaller doses of radiation to be given with a high degree of accuracy. Advanced techniques are now used to limit the heart's accidental involvement. Radiation sources that are particularly damaging to the heart are no longer used for tumors in the chest area. These changes have reduced unwanted exposure to the heart and other tissue surrounding a tumor. As a result, fewer cancer patients receiving radiotherapy today may develop RAHD in the future.

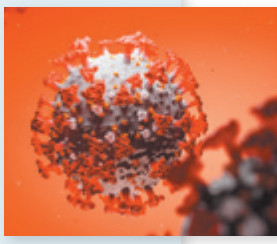
But that's the future, not the past.

"If you received radiation to the chest five or more years ago, you need to be aware that your heart could be at risk," says Dr. Desai. "We encourage you to bring this to the attention of your doctor and make a plan for long-term surveillance."

Looking for Information on COVID-19 and Heart Disease?

News about the impact of COVID-19 on people with heart disease or its risk factors changes so fast that print publications like *Heart Advisor* can't keep up. We suggest you check these websites for up-to-date information you can use:

- https://universityhealthnews.com/coronavirus-center/
- https://health.clevelandclinic.org
- https://consultqd.clevelandclinic.org/topics/covid-19/



The COVID-19 virus

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What is included in a baseline cardiac exam, and when should I have one? I am healthy and in my 30s, but my father had a heart attack in his late 40s and my grandfather in his early 50s.

A cardiac examination involves a total body assessment with emphasis on the heart, lungs, extremities and blood vessels.

The foundation of any cardiac exam is a thorough history to assess for symptoms (e.g., shortness of breath, chest pains, dizziness, loss of energy, palpitations), risk factors (e.g., smoking, high blood pressure, cholesterol or diabetes) and family history of early heart disease. Your doctor will look for clues such as fatty deposits called xanthomas; measure your heart rate, lying and standing blood pressure and breathing rate; check the volume and character of pulses in the neck, arms and legs; assess neck veins; feel (palpate) the chest; listen with a stethoscope (auscultate) for heart sounds and murmurs and signs of fluid or congestion in the lungs; evaluate the abdomen for fluid and aorta size; and assess your extremities for swelling, skin or nail changes. It is not uncommon also to have an electrocardiogram (ECG or EKG) and screening blood tests.

Your doctor also may advise additional blood work and testing, which may include ambulatory ECG monitoring, echocardiography (echo), stress testing with or without echo or nuclear imaging, vascular ultrasound, computed tomography (CT), magnetic resonance imaging (MRI) or cardiac catheterization, depending on what is found.

There is no standard age for a complete cardiac exam; rather, it should be triggered by symptoms and history. Many elements of a cardiac exam can be performed during a routine physical with your primary care physician. However, if you already have heart or vascular problems, worrisome symptoms or a strong family history of heart disease (such as in your case) a more complete exam by a cardiologist with screening tests is reasonable. The American Heart Association recommends a universal heart disease screening that includes measuring vital signs, cholesterol, blood pressure and body weight/waist circumference and discussions of diet, exercise be done at age 20. A fasting blood sugar should be obtained by age 45—earlier, if you are overweight.

My doctor is retiring, and I need to find another cardiologist. I was told I should look for one who is board certified. What does this mean, and how do I find this information?

To treat patients, doctors must graduate from medical school, complete their internship and residency and pass a licensure exam for the state in which they practice. Board certification meets a higher standard than state licensure. It is voluntary, requires completing extensive specialty training and passing additional exams in each specialty. This status signifies that the doctor is proficient, knowledgeable and has all the essential skills needed to deliver excellent care in his/her specialty.

A cardiologist must first be certified in internal medicine and then complete further requirements for cardiovascular disease certification. A board-certified doctor may be within one year or many years of completing training. Long-term maintenance of certification requires regular self-assessments and re-examinations to assure continuing mastery of the field and keeping up with advances in care. Some cardiologists may have certification, not only in general cardiology, but also in subspecialties. If you are seeking a subspecialist, such as in interventional cardiology or electrophysiology, look for these certifications as well.

Surprisingly, not all cardiologists are board certified. It is one way to take an active role in ensuring you are getting the best care.

IN COMING ISSUES

Are all risk factors equally dangerous?

Pumpkins: Don't just carve 'em, eat 'em!

Ways you can save on drug costs.

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