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Healing a damaged heart

Technological advances in diagnosis and treatment are a siren song to patients and doctors looking for a way to “fix” heart disease. But as research deepens our understanding of the condition, it’s becoming clear that sophisticated tests and procedures aren’t always the best solution. In fact, many patients seeking state-of-the-art care are actually subjected to needless expense and risk.

For example, CT coronary angiography is widely touted in direct-to-consumer ads as a way to pinpoint blockages caused by plaque deposits. But the test is hardly risk-free: It carries a hefty radiation dose and can register false-positive results that lead to additional invasive tests and procedures.

Many such patients—and too many heart patients in general—end up undergoing angioplasty to open constricted arteries. That procedure, also called percutaneous coronary

intervention (PCI), can be lifesaving if done within hours of a heart attack, but people not in emergency situations usually have more options. Research shows that initial treatment with more conservative management—diet and exercise plus medications—is a safer way to prolong life, even in many patients with angina (chest pain during exertion). And for patients with severe blockages, heart surgery to bypass the occluded arteries can often provide longer-lasting treatment.

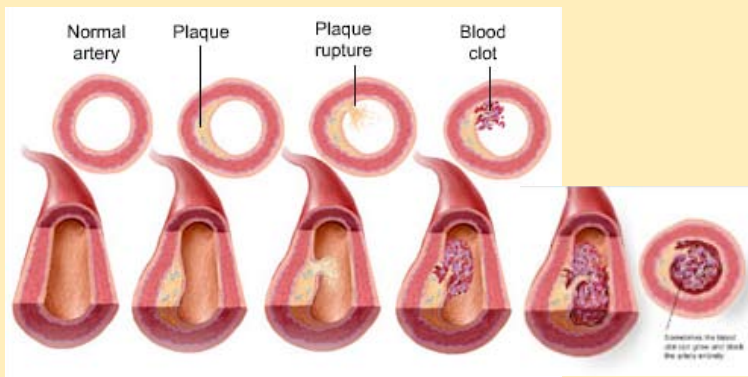
HEART DISEASE a new understanding

One factor fueling excessive tests and procedures is the financial incentive hospitals and doctors have to keep the high-tech gadgets humming. But our experts say that persistent, outdated notions are also to blame.

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Anatomy of a heart attack: not just a plumbing problem

Heart attacks usually occur not when a plaque deposit grows so large that it blocks an artery but when a small, unstable deposit ruptures, triggering a blood clot that fills the artery, depriving the heart of oxygen.



CREDIT

Cover story

Healing a damaged heart •

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“One misperception about PCI and other advances is that they cure without the effort required to do things like lose weight and aggressively manage risk factors,” says William Boden, M.D., chief of cardiovascular medicine at the University of Buffalo Schools of Medicine and Public Health in New York. “The truth is there are no shortcuts.”

Heart disease used to be viewed mainly as a plumbing problem. Using that model, doctors pinpoint blockages using angiography, a procedure that threads a flexible tube from the groin into the coronary arteries and injects dye so that the blockages show up on an X-ray. Then the doctors use PCI to clear the narrowed artery by snaking in a tiny

balloon and inflating it to crush the deposits. In most cases, the cardiologist will also place a cylindrical insert called a stent to keep the vessel open.

Opening a constricted artery can relieve symptoms such as angina and shortness of breath in the short-term, but it won't necessarily prevent heart attacks. That's because diseased arteries are typically dotted with additional deposits too small and numerous to be treated with angioplasty. Researchers now know that most heart attacks occur not when a large deposit blocks an artery but when other factors cause a smaller, less-stable one to rupture, producing a blood clot that blocks an artery.

Yet some interventional cardiologists

still recommend PCI immediately after angiography reveals a blockage, often while the patient is still on the table. Many patients, in a vulnerable position and under the misconception that the procedure will fix the problem, take their doctor's advice. In fact, in an approach referred to as “ad hoc” PCI, patients are asked to sign consent forms for both procedures in advance.

That's a bad idea, according to our consultants. “There's no rush,” Boden says. “In a nonemergency situation, you and your doctor usually have plenty of time to discuss the various options and arrive at the best treatment strategy.”

MEDICAL MANAGEMENT start here

When testing confirms heart disease but shows no imminent threat of heart attack, the first step should be intensive medical therapy plus a long-term com-

The heart tests you need: a common-sense guide

Doctors often skip basic heart tests in favor of higher-tech—and more expensive—approaches. But tests aren't useful if they don't help guide treatment decisions. Here's our advice.

NO SYMPTOMS: no fancy tests

Many people without symptoms of heart disease undergo stress testing, which measures the heart's function while it is stressed by exercise. But that's usually a bad idea, since in low-risk people the test produces a lot of false-positive results that can trigger a cascade of additional unnecessary tests and procedures. The only exceptions: older airline pilots, bus drivers, or others whose job affects public safety, or people who are middle-aged and older with multiple heart risk factors who are just starting to exercise.

It's also pointless to subject people without symptoms to imaging tests of the heart—either electron beam computed tomography (EBCT) or CT angiography. EBCT measures the amount of calcium in the arteries, yielding a calcium score that correlates fairly well with the overall amount of blockage. CT angiography provides that, as well as a detailed three-dimensional image of the heart.

Some fans of the scans say that those results can help determine whether to pursue more aggressive therapy in people with a moderately high risk of heart disease—treating borderline LDL (bad) cholesterol with a statin, for example. But our consultants point out that you can accomplish the same thing with a C-reactive protein test, an inexpensive blood test that measures the level of inflammation within blood vessel walls. Moreover, standard scanners used for CT angiography, which compile

data from 64 “slices,” or images, of the heart can expose you to 200 times as much radiation as a standard chest X-ray.

WITH SYMPTOMS: start with simple tests

When people do have symptoms that suggest heart disease, the first test offered should usually be a treadmill stress test monitored by an electrocardiogram (an ECG or EKG) and one of two additional tests, both of which produce an image of the heart: an echocardiogram (which uses sound waves), or a nuclear test (which uses radioactive material). But some doctors skip those tests and rush to more risky and expensive options.

Increasingly, that includes CT angiography. That test might be appropriate for people with inconclusive stress-test results to see if a more invasive test, standard angiography, is necessary. But CT angiography shouldn't be used alone because it's less accurate at pinpointing blockages and doesn't tell you anything about how the blood flows through arteries or how it is affected by exercise. Indeed, CT angiography usually isn't necessary at all, since the results are often so uncertain that they have to be followed up with standard angiography anyway.

That test, which involves threading a flexible tube from the groin into the coronary arteries, is the gold standard for diagnosing heart disease in people who have had worrisome results on the stress test. Skipping the stress test and going straight to angiography is warranted only for people who are at extremely high risk of having clogged arteries or who have symptoms or underlying conditions that could make stress testing risky—congestive heart failure, for example, or chest pain that occurs even when you are at rest.

mitment to lifestyle changes. People who take that approach are about as likely to be free of angina as those who also underwent PCI, research suggests.

More important, for people with stable coronary disease there's no evidence that adding PCI prevents heart attacks or other coronary events better than drugs and lifestyle changes alone. Moreover, PCI triggers a heart attack in 1 to 2 percent of patients, and adds thousands of dollars to the cost of treatment. So most people with heart disease should try the lifestyle measures for three to six months before resorting to PCI.

THE NEXT STEP
more invasive options

If testing reveals severe blockages, you might need immediate PCI or bypass surgery. Bypass is generally called for when the heart's main artery or three other major arteries are occluded; PCI might be an option if one or two vessels are blocked. Bypass or PCI can also be appropriate if symptoms don't improve with drug therapy.

The stents used in PCI today are usually coated with a cocktail of drugs to help prevent renarrowing. People who get a coated stent must usually take a blood thinner such as clopidogrel (*Plavix* and generic CK) for at least a year and aspirin for life. So anyone who can't tolerate those drugs—because of a history of ulcers, say—might be better off with the older, bare-metal variety.

BYPASS
new options

In the standard bypass operation, the surgeon opens up the chest, reroutes blood through a heart-lung machine, stops the heart, grafts arteries or veins around the blockages, restarts the heart, and then wires the chest back together. Patients generally spend four or five days in the hospital and take one to 3 months to recover completely.

New "off-pump" procedures immobilize just the part of the heart receiving the graft without stopping the heart. Minimally invasive procedures go a

Drugs and supplements for treating heart disease

In addition to eating more healthfully and stepping up physical activity, most people with heart disease will need to take several medications and at least one dietary supplement, as shown in the table below.

For ACE inhibitors, beta-blockers, and statins, we've listed the specific drugs that our experts recommend. For details, including costs, risks, and precautions, go to www.ConsumerReportsHealth.org and click on Best Buy Drugs.

Drug	Purpose
ANGIOTENSION-CONVERTING ENZYME (ACE) INHIBITORS: generic captopril, enalapril, and lisinopril	Lower blood pressure and relax the arteries, making it easier for the heart to pump.
BETA-BLOCKERS: generic atenolol, metoprolol tartrate, nadolol, and propranolol	Prevent angina and reduce blood pressure.
LOW-DOSE ASPIRIN	Thin the blood and prevent clots.
NITROGLYCERIN	Stop angina attacks by relaxing blood vessels.
OMEGA-3 FATTY ACID SUPPLEMENTS: 1 gram daily	Inhibit clotting, lower blood pressure and triglycerides, and help maintain normal heart rhythms.
STATINS: generic lovastatin, generic simvastatin, or atorvastatin (<i>Lipitor</i>)	Lower LDL (bad) cholesterol and perhaps reduce inflammation in the blood vessels.

step further, operating through a three-inch incision and several puncture sites. Blockages in one or two main arteries on the front of the heart might be particularly amenable to those approaches.

One promising technique is a hybrid procedure. A cardiothoracic surgeon performs a minimally invasive bypass on the heart's main artery, then an interventional cardiologist clears blockages in other arteries using PCI.

"These newer procedures may be less invasive and offer a quicker return to routine activity, but we just don't have good long-term data," says Fred Grover, M.D., chairman of the department of surgery at the University of Colorado School of Medicine in Denver. "Results may be best at hospitals where the surgeons specialize in these procedures."

BE CHOOSY
question your doctor

If your doctor recommends either PCI or bypass, ask why lifestyle changes plus drugs aren't sufficient. If the doctor recommends PCI, ask why that's preferable to bypass. And if he or she suggests bypass, ask about PCI. If you're not satisfied with the answers, consider seeking a second opinion.

Also ask about the doctor's skill and

experience. For PCI, look for an interventional cardiologist who does at least 75 of the procedures a year and a hospital that does at least 400 a year.

When choosing a bypass surgeon, there's actually more reliable information to draw on than just how many procedures he or she performs. That's because the Society of Thoracic Surgeons maintains a database that assesses surgeon performance based on national benchmarks. "Many practices are willing to share those results," Grover says. And if a practice can't or won't share that information? "Keep looking," he advises. Ask specifically about these four key measures:

- What percentage of patients are given beta-blockers before surgery and discharged on appropriate medical therapy, including beta-blockers, aspirin, and cholesterol-lowering drugs?
- Do you typically perform grafts using the internal mammary artery, which provides the best long-term results because it resists cholesterol buildup?
- What's the mortality rate for patients in your practice who are similar to me?
- What percentage of your patients experience infections, stroke, or other post-operative complications? ■

