

PERCUTANEOUS TRANSLUMINAL CORONARY ANGIOPLASTY (PTCA)

AHA Scientific Position

Percutaneous transluminal coronary angioplasty is also known as PTCA, coronary artery balloon dilation or balloon angioplasty. It's an established, effective therapy for some patients with coronary artery disease.

About 70-90 percent of these procedures also involve placing a stent. Stents are wire mesh tubes used to prop open arteries after PTCA. (For more about stents, see the entry on Stent Procedure in this Encyclopedia.)

ACC/AHA Guidelines

A joint American College of Cardiology / American Heart Association report strongly recommends that angioplasty should be limited to those institutions that have an experienced cardiovascular surgical team available as backup for all balloon procedures. There is no exception to this recommendation.

PTCA is used to dilate (widen) narrowed arteries. A doctor inserts and advances a catheter with a deflated balloon at its tip into the narrowed part of an artery. Then the balloon is inflated, compressing the plaque and enlarging the inner diameter of the blood vessel so blood can flow more easily. Then the balloon is deflated and the catheter removed.

PTCA is a less traumatic and less expensive alternative to bypass surgery for some patients with coronary artery disease. In about 40 percent of patients who've had PTCA, the dilated segment of the artery narrows again within six months after the procedure. They may require either another PTCA or coronary artery bypass surgery.

Some patients can have complications from angioplasty, but major complications are unusual. A very small percentage of patients need emergency coronary bypass surgery when the procedure fails to open the artery. This is less common now that coronary stents are available to prevent immediate re-narrowing. Stents are being developed that seem able to reduce or delay re-narrowing over time.

A joint American College of Cardiology / American Heart Association task force has established PTCA guidelines.

- The ACC/AHA guidelines discuss
 - which patients should receive the procedure.
 - which institutions should perform it
- The guidelines describe the characteristics of
 - patient selection
 - proper facilities
 - professional qualifications for practicing the procedure
- The report defines a successful angioplasty as one resulting in
 - greater-than-20-percent increase in the diameter of the narrowed vessel
 - the final diameter of the blockage being less than 50 percent
 - the procedure not causing death, acute heart attack or the need for emergency bypass surgery

The report provides specific guidelines for using angioplasty by assigning patients to one of three classifications. The assignments are based on the number and severity of diseased vessels and the presence or absence of symptoms such as chest pain due to reduced blood flow (angina pectoris).

In addition to the lack of a cardiac surgical program within a medical institution, the guidelines cite specific cases in which angioplasty might not be the best choice of therapy. They are...

- patients with no significant obstruction in a vessel
- patients with severe diffuse disease in multiple vessels, where bypass surgery would more completely open the blood vessels
- patients who have more than 50 percent blockage in the left main coronary artery, which is not protected by a fully open bypass graft to other arteries on the heart's left side

Finally, requirements were outlined for training and certification for physicians who plan to perform coronary angioplasty. They should have, in addition to three years of cardiology fellowship training, an additional year of instruction that includes extensive angioplasty experience.