Brachytherapy and Drug-Coated Balloon Therapy

Treatments for in-stent restenosis

This handout explains brachytherapy and drug-coated balloon therapy. It includes how doctors diagnose and evaluate in-stent restenosis at University of Washington Medical Center (UWMC).

What is in-stent restenosis?

A stent is a tube that is placed in an artery that has narrowed. The stent helps keep the artery open.

But, scar tissue can form inside a stent. This blocks or restricts blood flow.

When narrowing first occurred in your heart artery, it was called stenosis. When it occurs after treatment, it is called restenosis.

Too much scar tissue can grow and cause restenosis if:

- Your body has a reaction to the stent material
- There are physical problems with the stent
- Your dual antiplatelet therapy medicines (aspirin and Plavix or another antiplatelet drug) are not working

How do I know if I have in-stent restenosis?

If you have in-stent restenosis, you may feel like you did before your stent was placed. You may have:

- Chest pain or pressure
- Shortness of breath
- Fatigue (feeling very tired)
How is in-stent restenosis diagnosed?
We will use a cardiac catheterization to diagnose in-stent restenosis. This is the same type of procedure you had when your stent was placed.

How is it treated?
Most times, we treat in-stent restenosis by putting in another stent. This is called re-stenting.

But, restenosis can still occur after re-stenting. If it does, your doctor may suggest treatments like brachytherapy or drug-coated balloon therapy.

Brachytherapy
In brachytherapy, the scar tissue inside the stent is cleaned out. Then, a very small amount of radiation is placed inside the stent for a few minutes and then removed. The radiation kills the cells that make the scar tissue. This keeps the scar tissue from growing again.

Drug-coated Balloon Therapy
Drug-coated balloon therapy is a fairly new treatment. Studies show that it works almost as well as stents.

In this treatment, a balloon is used to put a drug inside your artery where there is restenosis. This drug changes the cells in the area, so that the scar tissue will not grow again. The balloon is then removed.

At this time, we use drug-coated balloon therapy only for the larger arteries. These include the right coronary artery, the left main coronary artery, and the circumflex coronary artery (see drawing on page 1).

Are these treatments right for me?
We will need to review your health records to find out if brachytherapy or drug-coated balloon therapy will work for you. We will ask your provider for these test results, or may ask you to have these tests, as needed:

- **Coronary angiogram.** In this test, contrast (X-ray dye) is injected into the blood vessels of your heart. We then take a series of X-rays that show whether you have blocked or restricted blood flow.
- **Nuclear stress test.** This test measures blood flow to your heart when you are at rest and while your heart is working harder, after you exercise or taking a certain medicine.
- **Cardiac viability study.** This test helps us decide which arteries to open, if you have many heart arteries that are blocked.

How can these treatments help?
The goals of brachytherapy and drug-coated balloon therapy are to:

- Prevent restenosis in the treated stent in the future
• Ease your symptoms and improve your quality of life
• Improve your ability to exercise
• Improve your heart function

How well do these therapies work?
Brachytherapy or drug-coated balloon therapy prevent in-stent restenosis from coming back in about 85% of people (85 out of 100 people). If restenosis does come back after one of these therapies, it happens within 1 year after the treatment.

What are my next steps?
Your primary care provider (PCP) or your cardiologist (heart doctor) will refer you to Cardiac Procedures at UWMC. Our Complex Coronary Team will work with your doctors to plan your care and treatment.
Our Complex Coronary Team will review your health records and test results that you or your provider sent us. We will then set up a time for you to meet with a member of our team. This meeting is called a consult.
At your consult, we will talk about your treatment options. We will also explain the risks and benefits of these treatments.

What are the risks of these treatments?
The risks of brachytherapy and drug-coated balloon therapy are like the risks of other heart procedures. They include:
• Bleeding where the doctor accessed the artery in your groin or arm
• Bleeding or damage to a blood vessel at the access site on your skin
• Kidney damage from the contrast
• Small tear in the inner lining of the artery
• Heart attack or stroke
• Death

How do I prepare for my treatment?
• Write down all the medicines you are now taking. Bring this list with you to your clinic visit. We will review them and tell you which ones to take and not take on the day of your treatment.
• At your clinic visit, be sure to ask any questions or share any concerns you have about the treatment.
• If you have family with you from out of town, be sure they arrange to stay overnight in the Seattle area. Our Patient Care Coordinator can help you find options for you and your family.
• **If you are taking warfarin (Coumadin) or another blood-thinning medicine:** Get detailed instructions from our clinic or your anticoagulation clinic about your doses on the day of your treatment.

• **If you are taking diuretics, insulin, or oral diabetes medicine:** Get detailed instructions from one of our team members about if and when to stop taking these medicines.

• Make plans for someone to take care of your children or pets while you are away from home. You will stay 1 night in the hospital after your treatment so that we can monitor you.

• You will not be able to drive for 48 hours after your treatment. Plan for a responsible adult to take you home from the hospital. This person can drive you in a car, or take a bus or taxi with you.

• If you have not received detailed instructions about your treatment or if you have any other questions or concerns, call our Complex Coronary Patient Care Coordinator at **206.598.7126**.

**Night Before Your Treatment**

• Pack an overnight bag.

• *After midnight, do not eat or drink anything.*

• If you need to take medicines, take them with *only* a small sip of water.

**Treatment Day**

**At Home**

• You may take your usual medicines with only small sips of water, unless you have been told otherwise.

• If you use a CPAP machine for sleep apnea or breathing problems, bring it with you to the hospital.

• Bring with you a list of medicines you are now taking.

**At the Hospital**

• Check in at Admitting, on the main level (3rd floor) of the hospital. Admitting is near the lobby, to the right and behind the Information Desk. A staff person will direct you to the Cardiac Procedures Unit.

• After you check in, you will:
  - Change into a hospital gown.
  - Have an *intravenous* (IV) line placed in an arm vein. We will give you fluids and medicines through this IV during and after your treatment.
  - Have an *electrocardiogram* (ECG) and lab tests.
• Nursing staff will then take you to the cardiac catheterization lab. Other nurses and cardiovascular technicians will greet you there.

• To prepare you for your treatment, nurses will clean your wrist or groin with a special soap. They will then cover you with a drape to keep the area sterile. You will receive IV medicines to keep you comfortable.

What can I expect after my treatment?

After your treatment, you will be moved to a room on the 4-Southeast unit. The nurses on this unit have special training in caring for heart patients. You will stay overnight so that our nurses can monitor you. The morning after your treatment, a member of the Complex Coronary Team will examine you. After this, you will be able to leave the hospital.

Medicines

After your treatment, you will most likely:

• Take aspirin to prevent blood clots in the artery that was treated.

• Take a blood-thinning medicine. This may be clopidogrel (Plavix), prasugrel (Effient), or ticagrelor (Brilinta). Your doctor will tell you which one is best for you.

• Resume all of the heart medicines that you were taking before your treatment. Your primary cardiologist will review your medicines at your follow-up visit within 2 to 4 weeks after your treatment.

Follow-up

We will report to your primary cardiologist about your treatment and the outcome. You will need to set up a follow-up visit with your cardiologist within 2 to 4 weeks after your treatment.

Your providers will also advise you to take steps to reduce your risk for heart problems. These include:

• Managing blood sugar (diabetes), lipids (cholesterol), and blood pressure (hypertension)

• Quitting smoking, if you smoke

• Losing weight, if needed, and staying at a healthy weight

• Regular exercise

• Eating healthful foods

• Making sure you are taking the medicines you need, in the best doses for you