

## Balloon Pulmonary Angioplasty

Balloon pulmonary angioplasty (BPA) is a type of treatment for patients with chronic thromboembolic pulmonary hypertension (CTEPH).

*If you have any questions, please ask your physician or nurse.*

### Chronic thromboembolic pulmonary hypertension (CTEPH)

CTEPH occurs when blood clots in the lungs cause high blood pressure in the arteries of the lungs. This condition continues to get worse over time. If this condition is not treated, high blood pressure in the lungs can lead to right heart failure.

#### CTEPH symptoms

Some symptoms of CTEPH include:

- Shortness of breath
- Cough
- Blood in sputum (hemoptysis)
- Fainting (syncope) in the later stages of CTEPH

#### CTEPH risk factors

Certain conditions may put you at risk for developing CTEPH, such as:

- Blood clots at a young age
- Repeated blood clots
- Blood disorders that cause the blood to clot too quickly (hypercoagulopathy)
- Infected pacemakers and ventriculoperitoneal (VP) shunts

#### CTEPH treatments

CTEPH may be treated with the following options:

- Medications (pulmonary vasodilators)
- Surgical removal of the clots (known as pulmonary endarterectomy or PEA)
- Balloon pulmonary angioplasty (BPA)

## **Balloon pulmonary angioplasty (BPA) procedure**

BPA is a minimally invasive procedure that is done in the Cardiac Catheterization Lab (CCL) at Northwestern Memorial Hospital. The goal is to widen the vessel to restore blood flow to the lungs, therefore lowering high blood pressure in the lung. This will prevent the right side of the heart from becoming weaker.

BPA is done by placing thin tubes (catheters) and balloons in the small vessels of the lungs. Once inside the blood vessel, the balloon is inflated to crush the clot and scar tissue to the side of the vessel so that blood flow can be restored.

BPA often requires multiple sessions to be successful. The physician may treat one or multiple segments of the lung with each session. Procedures may be scheduled for every 2 to 4 weeks. Depending on the severity of disease, a patient may need as few as 2 sessions or as many as 8 sessions.

Your physician will discuss your length of stay at the hospital. Some treatment plans may include going home on the same day as the procedure. Other plans may include a possible hospital stay for up to 4 days.

Patients often start to feel improvement after the second procedure.

### **Before the procedure**

The CCL nurse will contact you once you are scheduled for your BPA. During this call, the nurse will explain what will happen on the day of your procedure. The nurse will also review your allergies and medication list. You will be given specific instructions about any changes to your medications that are needed before your procedure.

### **During the procedure**

The procedure is done under sterile conditions in the CCL. You will be given medication through your IV line to help you relax. The area around the puncture site will be cleaned and an anesthetic (numbing medicine) will be injected into the area. The physician will thread a thin tube (catheter) through the vein in the leg, or sometimes the neck, to the lung and inject a contrast dye to see the arteries of the lung. After the arteries are visible, the physician will thread a balloon into the vessel and inflate it to expand the narrowed arteries of the lung. The balloon will widen the artery so that blood flow to the lung is improved.

### **After the procedure**

You will be on bed rest for at least 4 to 6 hours to allow the vein at the puncture site to heal. If an overnight stay is needed, you may be in the cardiac recovery unit or intensive care unit. The nurses will be in often to check your:

- Blood pressure
- Heart rate
- Groin site for bleeding or swelling

Once bedrest is over, the nurses will assist you to sit up and walk.

You may be able to leave the hospital at the end of the day or possibly the next morning. A chest X-ray will be done before you are discharged from the hospital.

## Going home

Before your discharge, we will help you make an appointment for your next session, as needed.

- Appointment date \_\_\_\_\_

### **Medications**

Please review the medications listed on your After Visit Summary provided by the discharging nurse. Please make sure you understand what medications you should be taking after the procedure and how often you should be taking them. Let the nurse know if you have any questions.

If you usually take blood-thinning medication, you may resume the following:

- Blood-thinning medication \_\_\_\_\_

## Care at home

Follow these guidelines to help you recover at home.

### **Fluids**

You should stay hydrated over the next 48 hours unless instructed otherwise. Water helps to clear the “dye” used during the procedure from your body.

### **Activity**

While the wound is healing, bleeding or swelling can occur as a result of stress or strain to the groin and abdominal muscles. Carefully follow these guidelines:

- On the day of discharge, limit your activities.
- Do not drive for the first 24 hours.
- You may shower after 24 hours, but do not take baths for 1 week.
- Climb stairs (as needed) with a slow, steady pace for the first 2 days after the procedure.

You may resume your usual activities the day after discharge, including normal social activities, except:

- No lifting of objects greater than 10 pounds for the next 3 days.
- No strenuous physical exercise (such as tennis, running, swimming, golfing, weightlifting or bicycling) for 1 week.
- No sexual activity for 1 week.

### **Wound care**

After the procedure, a small dressing will be applied to the wound site. You may remove the dressing the day after the procedure. Do not apply a new dressing or Band-Aid®. Avoid using lotions, ointments or powders on or near the wound site for 1 week.

### ***Wound healing***

The healing wound should remain soft and dry. A bruise (black and blue) or a marble-sized lump may be present. Please notify your physician or the CCL physician if any of the following signs appear:

- Redness around the skin wound
- Drainage from the wound
- A lump at the puncture site that enlarges or is larger than a marble
- Pain at the puncture site that makes walking difficult
- Numbness or tingling in the thigh or leg
- Calf tenderness or pain
- Swelling of the ankle or foot
- Increased area of the bruising with discoloration extending into the thigh, over the buttock or into the groin
- Discoloration or coolness of the leg or foot

### ***Oozing/bleeding***

If you notice bleeding from the puncture wound, please do the following:

- Immediately lie flat.
- Apply firm pressure just above the puncture site and hold firm pressure for 15 minutes. You may use a clean cloth or tissue to apply pressure. If possible, have another person apply the pressure.
- After 15 minutes, remove pressure. The wound should be dry and flat, without bleeding. You should continue to lie flat for about 1 hour before getting up and walking. Cover the wound with a Band-Aid®.
- Notify your physician.

**If bleeding persists for more than 15 minutes, or swelling occurs and appears to be increasing, you should be taken to the nearest emergency department for evaluation of the groin site.**

Notify the physician right away if you have any chest pain or shortness of breath. If a problem occurs or if you have any questions, do not hesitate to call the CCL at 312.926.CATH (2284) ext. 3.

### **Contact information**

If you have any questions or would like more information about BPA, please call Northwestern Medicine Bluhm Cardiovascular Institute at 312.664.3278 (312.NM.HEART).