HeartHelp
Keeping You In Rhythm

The Beat

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SPECIAL POINTS OF INTEREST:

- Catheter Based Valve Surgery
- Tips
- Chicken Broth
- Alcohol

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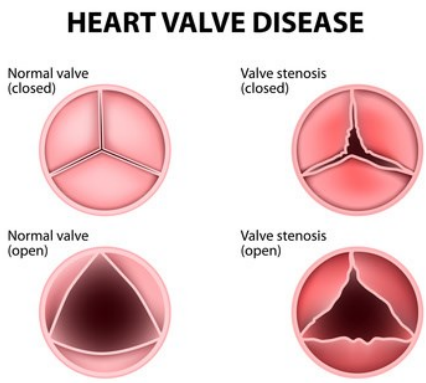
Can a Heart Valve be replaced without Open Heart Surgery?

Can a Heart Valve be replaced or fixed without open heart surgery? Twenty years ago the answer was no. The first aortic valve was replaced with a catheter in 2002 in a gentleman who had severe stenosis of his aortic valve but he was too sick to undergo open heart surgery. Thus the TAVR or transcatheter aortic valve replacement was born. This is an extremely important breakthrough in medicine. In the case of aortic stenosis, about 30-40 percent of patients are not candidates for the traditional surgery to replace the aortic valve. This is usually due to other disease processes they may have that make them too high risk for open heart surgery.

Is this the only valve that has been replaced by catheter? No, currently the mitral valve has been replaced via catheter. This procedure however is still in clinical trials. There are several other mitral valve procedures that can be done by catheter. These procedures involve either enlarging the mitral valve opening for people with mitral stenosis or repairing the mitral valve for people with a leaky mitral valve.



The pulmonic valve has been replaced with a catheter. The pulmonic valve was actually replaced with a catheter before the aortic valve in a human. The first catheter based pulmonic valve replacement occurred in 2000 in a 12 year old boy. Since then, more than 125 individuals have undergone this procedure. While pulmonary valve disease is rare in the adult patient, it is very common in children with congenital heart disease and can also be a problem for adults who had congenital heart disease and had surgery to correct it previously. These are the individuals in whom a transcatheter pulmonary valve replacement may be indicated. The tricuspid valve cannot be left out. Both catheter based tricuspid valve repair and replacement have been completed. However, these devices and procedures are still in the early stages of development. (2,3,4,5,6) Cont...Page 3

Tip of the Month

Diet Tips for Diabetes:

1. Limit table sugar, soda, candies, fruit drinks, cake, jelly, high fructose corn syrup, corn syrup.
2. Watch out for these hidden sugars: maltose, fructose, glucose, dextrose, and sucrose.
3. Eat fish such as salmon, trout, herring, and mackerel twice a week.
4. Eat fat-free or 1 percent dairy products.
5. Eat deeply colored fruits and vegetables such as spinach and berries. (8).

Recipe from "Breaking the Salt Habit" by Erik Williams. (1).

Chicken Broth

Ingredients:

- **2 Gallons + 1 1\2 cups Water,** divided
- **4 Carrots,** peeled and roughly chopped
- **4 Celery Stalks,** including leaves, roughly chopped
- **3 Garlic Cloves,** peeled and crushed
- **1 Large Onion,** roughly chopped
- **2 Bay Leaves**
- **8-10 Whole Peppercorns**
- **5-6 Fresh Thyme Sprigs**
- **10 Sprigs Fresh Parsley,** with sterns
- **1 Whole Chicken,** cut into 9 pieces

Directions:

1. In a large stock pot, pour in 2 gallons of water and combine remaining ingredients and bring to a boil.
2. Simmer for 2 hours then pour remaining 1 1/2 cups of water in pot. Skim off any fat from the top and continue to simmer for another 1-1 1\2 hours.
3. Remove chicken and let cool.
4. Strain broth into a clean storage container.
5. Let cool overnight in a refrigerator and skim fat off before use.
6. Remove meat from bones and reserve for later use.

Nutrition Info

Yields 14 servings
1 Serving = 1 cup

Calories: 20
Total Fat: 5g
Sat Fat: 5g
Cholesterol: 6mg
Potassium: 0mg
Carbohydrates: 1g
Protein: 0g
Fiber: 0g
Sugar: 1g
Sodium: 60mg

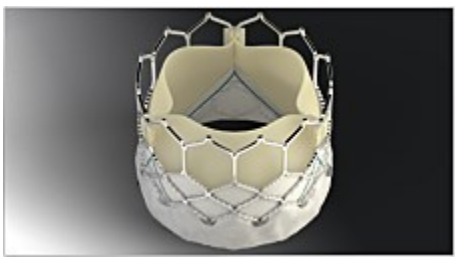
Quote of the Month: "What you do today can improve all of your tomorrows." Ralph Marston

Did you Know?

Did you know that alcohol is not necessarily good for your heart? A recent study that was published in the Journal of the American College of Cardiology showed that alcohol abuse may increase the risk of certain heart problems such as atrial fibrillation, heart failure, and heart attacks. It is well known that high blood pressure, smoking, diabetes, and obesity are not good for the heart. Many people have heart problems because of these above listed issues. However, alcohol is a lesser known evil. This study showed that alcohol increased the risk of atrial fibrillation two fold. It increased the risk of a heart attack 1.4 fold and the risk of heart failure 2.3 fold. This increased risk with alcohol abuse was present even in people that were otherwise healthy.

This is important because alcohol is the most commonly used drug in the United States. Alcohol in excess has long been known to cause bad things such as cirrhosis, accidents, and some cancers (just to name a few). What is not known and what this study did not look at is what amount of alcohol is safe for the heart, if any. With that said, not drinking alcohol is probably the safest. However, if alcohol is going to be consumed, do so in moderation. According to the American Heart Association, this should be no more than 1 or 2 drinks per day for a man, and no more than 1 a day for a woman. One drink is defined as a 12 oz. beer, 4 oz. of wine, 1.5 oz. of 80 proof spirits, and 1 oz. of 100 proof spirits. (7).

So how is a valve replaced with a catheter? That depends on what valve is being worked on. Let's start with the most common which is the aortic valve. There are several approaches to take with the aortic valve. The femoral artery (in the groin) may be used. If this approach is taken, no incision is necessary. However the other approach is either thru a large blood vessel in the chest or thru the bottom of the heart. In these cases, a small incision may need to be made in the chest. The mitral valve procedures have similar access approaches. The pulmonic and tricuspid valves are easier to get to with a catheter because they are on the right side of the heart and not the left. They can be accessed via the femoral vein in the groin. Basically the valve is loaded onto a catheter. Depending on which approach is taken, the valve is advanced to the native valve. The valve is similar to a stent that is placed in the arteries. Some are self expanding and some are expanded with a balloon. Once the valve is placed and expanded, the native valve is pushed aside. Sizing of the valve is vital to the success of the procedure. Afterward, the catheters are removed and incisions are sutured if needed.



This is an example is one of the valves used for transcatheter aortic valve replacement. This particular valve is called the Edwards Sapien 3 transcatheter heart valve. The inner layer is made of bovine pericardial tissue. The white layer is called the skirt and is designed to prevent leaking around the valve.

Image retrieved online at http://www.edwards.com/eu/products/transcatheter valves/Pages/thvhome.aspx

To sum up, this article hopefully provides a small overview of the expanding field known as transcatheter valve surgery. Each of these procedures has its own set of benefits, complications, and future directions. It is amazing that not only are these procedures being done, they seem to be improving every day. While many individuals still need and should have traditional valve replacement with a surgical approach, these new techniques have provided a new lease on life for many individuals who were unable to undergo traditional surgery. (2,3,4,5,6).