MENDING DAMAGED VALVES

Advances in valvular repair and replacement are helping Providence’s sickest patients

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Options expand for treating valve disease

In 2011, Providence Valve Center became one of the first sites in the country – and the only one in Oregon – to offer the Sapien transcatheter aortic valve for patients too fragile for traditional open-heart surgery.

Part of Providence Heart and Vascular Institute, the center continues to explore advances in valve repair. This issue focuses on three of them: the next-generation Sapien implant, a promising device for treating mitral valve regurgitation and valve-sparing root surgery.

Transcatheter heart valve 2.0

Robert Hodson, M.D., FACC, FCSAI
Medical director
Providence Valve Center

Soon after successfully implanting the new Sapien transcatheter aortic heart valve for patients too sick for open-heart surgery, Providence Heart and Vascular Institute began implanting the next generation of the device.

Providence is participating in PARTNER II, a clinical trial that aims to expand the indications for Sapien nonsurgical valve replacement for patients with severe aortic stenosis, half of whom cannot be treated surgically. Transcatheter aortic valve replacement has shown a 20 percent decrease in all-cause mortality compared with standard medical treatment.

The valve team has closely monitored the clinical trial results for the first PARTNER trial, particularly cohort B, which studies the inoperable patient with severe aortic stenosis. The results have been extremely favorable, with clear reductions in mortality at a high level of statistical significance, and with acceptably low complication rates and costs.
PARTNER II will test a new Sapien valve, modified for greater durability, as well as a new catheter delivery system with narrower sheaths to reduce the risk of damage to femoral arteries during implantation. If effective, this new design could broaden the treatment to even more patients, including those with severe peripheral vascular disease.

Designed and manufactured by Edwards Lifesciences Corp., the Sapien valve is made of cow tissue and polyester, and supported with a stainless steel mesh frame. Unlike mechanical valves, tissue valves do not require ongoing anticoagulation therapy.

To learn more, call clinical research coordinator Angela Redd at 503-216-2170.

Mitral repair without open surgery

Ethan C. Korngold, M.D.
Medical director
Cardiovascular research

Until recently, options have been limited for high-risk patients with mitral regurgitation, particularly those with low ejection fractions. In the past few years, however, new technologies have emerged that allow for catheter-based repair of this common form of valvular heart disease.

One such device is the MitraClip mitral valve repair system to treat moderate to severe functional mitral regurgitation in symptomatic subjects for whom mitral valve surgery is too risky. This includes patients with heart failure and impaired heart function with ejection fractions as low as 20 percent.

The MitraClip is a mechanical device that is percutaneously implanted via femoral venous access with transesophageal echocardiographic guidance. There is no need to arrest the heart or perform cardiopulmonary bypass.

The device grasps and coapts the mitral valve leaflets, resulting in fixed approximation of the mitral leaflets throughout the cardiac cycle. This results in a dual-orifice mitral valve with reduced mitral regurgitation.

An early clinical trial comparing the MitraClip to traditional, open surgical repair found that 78 percent of patients in the device arm were free from surgery at two years with similar clinical benefit compared to surgery. Although percutaneous repair was less effective at reducing MR than conventional surgery, the procedure was associated with superior safety and similar improvements in clinical outcomes.

Providence Valve Center has the expertise to offer this new technology when it becomes available, and patients undergoing such therapy would be managed aggressively by heart failure specialists within Providence Heart and Vascular Institute. > > > > >
Replace the root, spare the valve

Eric Kirker, M.D.
Cardiovascular surgeon
Providence Heart Clinic-
Cardiovascular Surgery

Prosthetic valves have become increasingly advanced, improving the lives of many patients who otherwise may not have survived. Yet when it comes to flow characteristics, resistance to infection, durability and avoiding the need for anticoagulants, there is still no rival for the native aortic valve.

Many patients have healthy leaflet tissue suspended in an unhealthy architecture. A diseased root – whether from Marfan syndrome, Ehlers-Danlos syndrome or an idiopathic cause – can result in healthy leaflets that are out of position. This lack of a normal layout results in a leaking, dysfunctional valve.

These patients may be good candidates for valve-sparing aortic root replacement. The procedure consists of resecting the entire aortic root down to the leaflets, resizing the aortic annulus, reimplanting the native valve leaflets into a graft and sewing them back in so that they once again function as a competent valve.

In the hands of an experienced surgeon, this procedure can be safe and effective. To be eligible for the surgery, patients must be between the ages of 20 and 69, have non-calcified leaflets, and have both bicuspid and tricuspid valves that are not contraindicated.

At Providence Portland Medical Center, valve-sparing aortic root replacement has resulted in short hospital stays (average of six days), low transfusion rates (average 17 percent, including emergent operations), no mortalities and little aortic insufficiency on postoperative echocardiography.

These patients have successfully avoided the trappings of anticoagulation and have gone back to lives as active members of society. They can confidently look forward to a sustained recovery with a valve that has better flow than anything on the market – the one they were born with.

Providence Valve Center

Our team involves a nurse coordinator, a cardiologist, an interventional cardiologist and, if needed, a cardiothoracic surgeon.

After consultation with the referring physician, this team of experts reviews every case and recommends the best course of treatment.

We offer a full spectrum of treatment options, including:

Valve disease
- Transcatheter aortic valve replacement (commercial and investigational, or IDE)
- Aortic and mitral balloon valvuloplasty
- Prosthetic paravalvular repair
- Percutaneous mitral valve repair (IDE)

Heart defects
- Atrial septal defect/patent foramen ovale closures
- Percutaneous occlusions of left atrial appendage as an alternative to anticoagulation (IDE)

To learn more, call 503-216-0790.
Lung cancer is the No. 1 malignancy-related killer in America, responsible for more deaths each year than breast, prostate and colon cancers combined. Symptoms usually appear when the disease is advanced; in fact, only about one in four patients presents early enough for successful surgical resection.

As with colonoscopy or mammography screening, the overall death rate of this disease could be lowered if these tumors were detected at an early stage when intervention can bring a cure.

In the past, lung cancer screening using standard chest films showed little benefit. The advent of improved computed tomography imaging, however, now allows detection of early primary tumors, and with limited exposure to radiation.

The National Lung Screening Trial, a randomized study of more than 53,000 patients at 33 centers, compared high-risk patients screened with low-dose CT versus standard chest X-ray. As reported in the New England Journal of Medicine, CT screening reduced lung cancer-specific mortality by 20 percent.

Further, new minimally invasive techniques (navigational bronchoscopy, thoracoscopic and robotic surgery, and stereotactic body radiation therapy) at centers focusing on dedicated thoracic surgery and oncology have led to improved outcomes for patients with lung cancer. The safety, quality of life and recovery for these patients have been dramatically enhanced, and treatment options are now being extended to those once thought to be at too high a risk for treatment.

Who should be screened?
The American Association for Thoracic Surgery and the International Association for the Study of Lung Cancer offer these guidelines:

- Annual screening should begin at age 55 for smokers and former smokers (within the previous 15 years) with a 30-pack-a-year history of smoking. Annual screening may continue to age 79. The peak incidence of lung cancer is 70 years.
- Low-dose computed tomography is the screening technology of choice; a chest X-ray alone should not be used.
- Younger patients with a 20-pack-a-year smoking history should be screened if they have an additional risk factor that produces a 5 percent risk of developing a lung cancer over the next five years.
- After surgical resection, patients should receive a baseline CT scan at six months followed by CT surveillance at least once a year. This is due to the possibility of recurrence and the increased risk for a second primary malignancy.

In cases of an indeterminate or positive scan, the patient should be cared for by a multidisciplinary team (thoracic surgeons, radiologists, pulmonologists and oncologists) to ensure appropriate intervention and treatment. Providence Health & Services-Oregon is implementing a multidisciplinary lung cancer screening program statewide.

Providence providers are encouraged to submit cases or imaging questions to the Providence Multidisciplinary Thoracic Oncology Conference. To learn more, call 503-215-2300 or email jonathan.daniel@providence.org.
Quick Tip
Treating panic disorder
Cognitive behavior therapy may be the best treatment over time. Because CBT gives the patient tools to manage the panic, up to 70 percent maintain full remission from the disorder.

William Merkel, Ph.D., clinical psychologist
Providence Portland Internal Medicine Residency Program’s e-learning series

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Christopher Van Tilburg, M.D.
Providence Hood River Occupational and Travel Medicine Clinic

Clinical focus
Occupational health and travel medicine; emergency physician, Providence Mountain Emergency Services

Outside the clinic
Member of Crag Rats Search and Rescue; author of 10 books, most recently “Mountain Rescue Doctor: Wilderness Medicine in the Extremes of Nature”; editor of Wilderness Medicine magazine

What part of mountain medicine do they not teach in med school?
“Patient assessment and treatment on a mountain is impossible to study in school. You have to be there to learn how to resuscitate a patient in a snowstorm with 40 mph wind, sub-zero temps and darkness falling.”

Of your search for three missing climbers in the 2006 tragedy, what memory lingers most?
“I’m still amazed that people attempt Mount Hood in poor weather and snow conditions.”

What’s the most common injury on Mount Hood?
“Climbers get hit from falling rocks, fall on steep, icy slopes, get lost in storms and get hypothermia. It’s a big, dangerous peak.”

What’s your most memorable rescue?
“We were up Eagle Creek on a ledge alongside Lower Punch Bowl. My teammates threw down a rope, and a cascade of boulders and rocks nearly hit us. I thought, ‘No way can we get up the cliff safely.’ We ended up calling for a floating stretcher.

“Another time, we went out for two fathers and their sons – the youngest was 3 years old – in Warren Creek Canyon. We found them at 3 a.m., and hiked them out by dawn.”

Online Learning
You can earn CME credit by watching selected Providence medical grand rounds online.

Breast Cancer: What’s New in Risk and Prevention
Alison Conlin, M.D., MPH
Oncologist, Providence Cancer Center

To view this or another webcast, go to www.eventbuilder.com/providence/cme and follow the instructions, or call 503-215-6088.

Providence Portland Medical Center designates this enduring material educational activity for a maximum of 1 AMA PRA Category 1 Credit™.
Eastern Washington telestroke network slated
Providence Health & Services recently was awarded a four-year, $1 million federal grant to expand Providence’s successful telestroke network from Oregon into eastern Washington and to develop a collaborative clinical registry.

Stroke neurologist joins Providence
Archit Bhatt, M.D., joins Providence Stroke Center from Spectrum Health in Grand Rapids, Mich. He is board certified in internal medicine, neurology, vascular neurology and neurosonology.

Providence joins American Joint Replacement Registry
Providence Orthopedic Institute is participating in a national database that stores comprehensive information about joint-replacement procedures. The privacy-protected registry allows participating hospitals to share information about artificial joint performance, and physician and patient experiences.

Mike Donahue shares Providence stories
The popular Oregon journalist is hosting a video series for Providence Health & Services in Oregon. The vignettes profile medical advancements, tales of compassionate care and tips on living well. Find them at www.providence.org/oregon.

Providence shares cancer insights in China
Bernie Fox, Ph.D., chief of the Laboratory of Molecular and Tumor Immunology at Providence Cancer Center, delivered the keynote speech at the Chinese Society of Clinical Oncology’s 15th Annual Meeting in September.

Dr. Fox described a new approach to cancer prognosis – the “immunoscore” – that focuses on the body’s immune response to the tumor instead of the tumor itself.

Providence’s Bernie Fox, Ph.D. (third from right) shared new developments in immunology at a conference in China.

When your patients need advanced care, Providence makes it easy for you and your staff to find the appropriate referral resources.

- **Brain and Spine Institute**
  - 503-216-1055

- **Cancer Center**
  - Portland area: 503-215-6014
  - Medford: 541-732-7000

- **Children’s Services**
  - 503-216-4400

- **Heart and Vascular Institute**
  - 503-216-2088

- **Orthopedic Institute**
  - 503-893-7401

- **Women and Children’s Program**
  - 503-574-6595

- **Transfer Center**
  - (emergency services)
    - Statewide: 888-777-9599
    - Portland area: 503-216-PROV (7768)

- **Resource Line**
  - (general information)
  - 503-574-6595

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