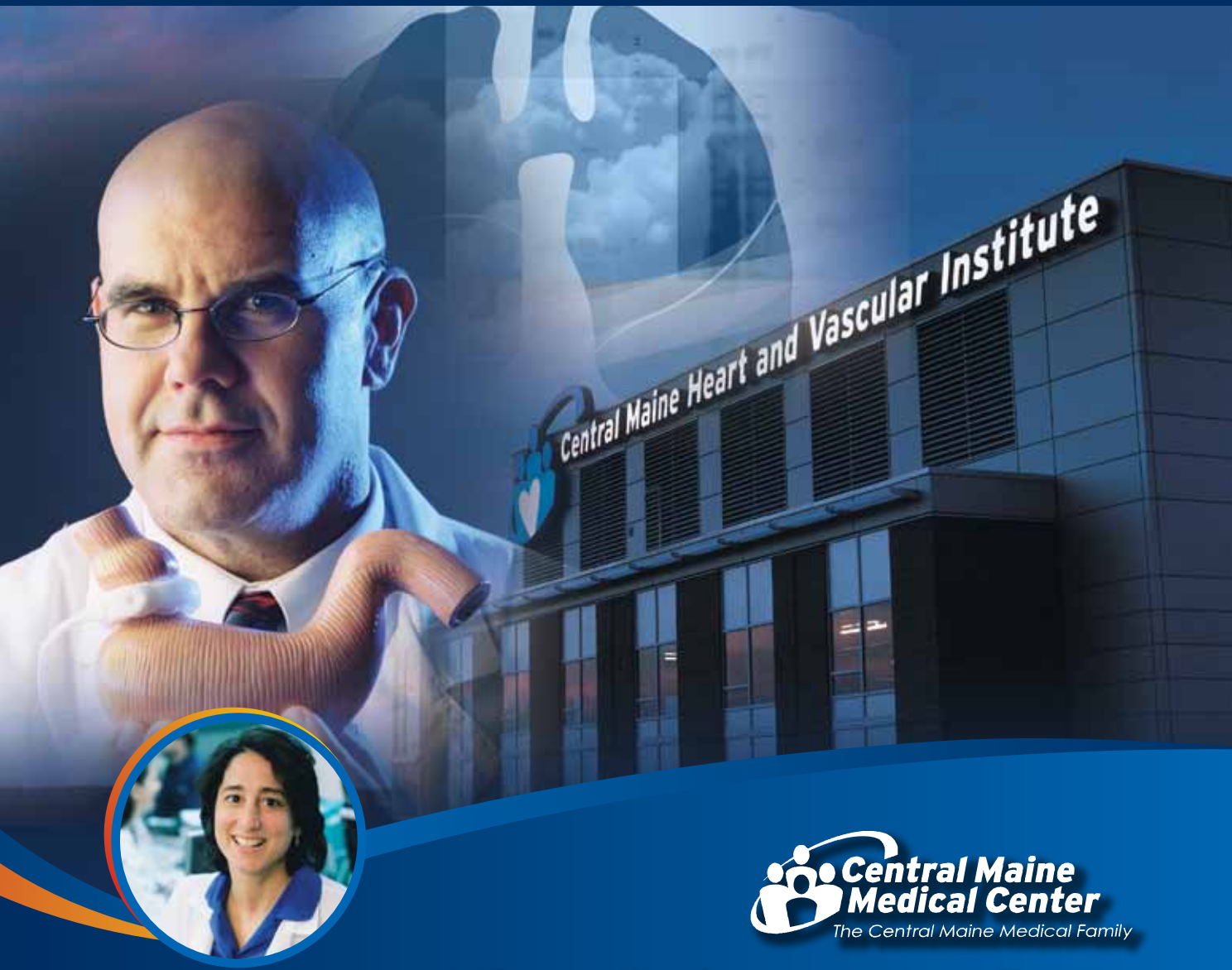

Central Maine Medical Center
The Central Maine Medical Family

Physician Update

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CMMC joins Early Lung Cancer Action Program screening study

Hundreds of smokers and former smokers reached out to Central Maine Medical Center recently after hearing about the hospital's participation in the International Early Lung Cancer Action Program (I-ELCAP), a study of the effectiveness of CT scans in the early detection of lung cancer.

Following stories by WMTW-TV, Maine Public Radio and the Lewiston Sun Journal about the I-ELCAP initiative, smokers and former smokers called, emailed and even visited the hospital seeking more information about the study, which seeks to determine if CT scans can help physicians better diagnose lung cancer, one of the country's deadliest and most difficult to detect diseases.

Cardiothoracic surgeon Carmine Frumiento, M.D., who was instrumental in getting the study in place at CMMC and serves as principal investigator for the project, and CMMC radiologist Susan Schraft, M.D., met with the media in late November to discuss the importance of the study. While they hoped to stir some interest amongst potential participants, they probably didn't anticipate the reaction that followed.

Shortly after the news stories aired on TV and radio the switchboard at CMMC was overwhelmed with calls from smokers and former smokers interested in learning more. The inquiries continued for several days, peaking again following a Sun Journal article.

As one of some 55 hospitals worldwide participating in the study, CMMC began performing CT scans on smokers and former smokers about a year ago. Volunteers for the study must be over 40, have a history of moderate to heavy smoking, and not have active symptoms of lung disease. To date, about 105 people have been scanned, but recent interest in the project suggests a lot more participants can be expected. CMMC's goal is to introduce 1,000 people into the study.

One of the people tested so far is Ted Ireland, a 68-year-old retiree from Poland Spring who can be seen welcoming visitors to CMMC in his role as a volunteer greeter. "Well, I used to be heavy smoker," Mr. Ireland told Maine Public Radio's Josie Huang. "I quit 30 years ago. I was a two-pack-a-day smoker."

When Mr. Ireland learned he could get a CT scan at no charge, he jumped at the opportunity. "A lot of people are afraid to go, they say they are afraid of what they might find. But I just want to find out how much damage I did. This tells you how much damage I did do to my lungs," he explained.

Only one volunteer for the study has been diagnosed with lung cancer, and is presently being treated. Twenty other study participants are getting some type of follow-up care, including Mr. Ireland. The CT scan can detect other possible problems, and in Mr. Ireland's case suggested he has chronic obstructive pulmonary disease (COPD) – albeit a "mild case".

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"It found a couple of nodules and a couple of cysts, but they said it was benign so everything was fine. So I'm very pleased to hear that. That was good–good news," Mr. Ireland said.

Mr. Ireland will have a follow-up scan in about a year's time, also at no charge.

Dr. Frumiento first discussed the I-ELCAP study publicly about a year ago in an article he wrote for Physician Practice. At that time, he revealed that in 2006 new diagnoses of lung cancer surpassed the number of new diagnoses of breast cancer for the first time in the history of Central Maine Medical Center's (CMMC) Comprehensive Cancer Program.

"As with most cancers early diagnosis and treatment is key to increasing likelihood of cure and with an overall mortality of 95 percent – this is even more true with lung cancer. Unfortunately, patients with early stage lung cancers usually show no symptoms so most lung cancer are diagnosed at more advanced stages which makes cure difficult. While survival rates for most other cancers have improved over the past several decades, those for lung cancer have not," he wrote.

He cited "a landmark article" published in the New England Journal of Medicine in 2006 that reported "10 year results in over 31,000 patients considered to be at high risk for lung cancer. They demonstrated an overall cure rate for all patients diagnosed by screening of 80 percent, and for those patients who were Stage I at time of diagnosis the cure rate was 92 percent. 85 percent of the patients who were screened and diagnosed with lung cancer were Stage I at the time of diagnosis. This compares to an overall 95 percent mortality in patients diagnosed after symptoms arise (i.e. not being screened). Based on this data and our own anecdotal experience that our patients that have the best outcomes from lung cancer treatment have been those in whom the cancer was found incidental in imaging work up for other unrelated ailments, we became very interested in this research."

With the support of John Bennett, M.D., from the CMMC Medical Imaging Department, Evan Ramser, D.O., now part of the Central Maine Critical Care group, and Michael Eng, M.D., from the CMMC Department of Pathology, Dr. Frumiento worked with CMMC's management team to apply for inclusion in the I-ELCAP study. CMMC is the only hospital in Northern New England participating in the research effort.

Smokers and former smokers accepted into the study receive a non-contrast CT scan of the chest at no charge. The scan takes 10 to 20 minutes and requires no injections or oral or topical medications. Scan results are sent to the participant as well as his or her primary care physician. If abnormalities are found, a further diagnostic workup is recommended. If no abnormalities are found on the initial CT scan, each participant receives a follow-up CT scan of the chest in about 12 months at no charge. If this follow-up scan is negative, no further scanning is required.

For more information about the I-ELCAP study at Central Maine Medical Center, call CMMC's clinical research coordinator at 207-795-5654.

Surgeon Carmine Frumiento, M.D., talks with MPR's Josie Huang.

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Central Maine Bariatric Surgery named Bariatric Surgery Center of Excellence

The American Society for Metabolic and Bariatric Surgery (ASMBS) has identified the bariatric surgery program at CMMC as having consistently demonstrated favorable patient outcomes. The ASMBS's Bariatric Surgery Center of Excellence designation followed a series of on-site inspections of the Lewiston-based program.

"Morbid obesity, and the inherent health risks it presents, is a problem demanding a response from the nation's health-care providers. At Central Maine Bariatric Surgery we are working to greatly improve the health of the patients we serve while simultaneously implementing a systematic approach to improving quality," said bariatric surgeon Jamie Loggins, M.D. "We believe that the ASMBS Bariatric Surgery Centers of Excellence program will help us make our service even better."

Dr. Loggins said the ASMBS designation will expand the availability of bariatric surgery services to appropriate Medicare patients. Medicare only covers bariatric surgery at ASMBS-approved facilities.

To earn Bariatric Surgery Center of Excellence designation, Central Maine Bariatric Surgery underwent a series of site inspections involving all aspects of its surgical processes, including an examination of health outcome data. Centers receiving the Bariatric Surgery Center of Excellence designation agree to continue to share information regarding clinical pathways, protocols and outcomes.

According to a report released in 2007 by the Agency for Healthcare Research and Quality, the number of bariatric surgeries has grown from 16,000 procedures in 1992 to 170,000 in 2005. With clinical evidence showing that the most experienced and best-run bariatric surgery programs have the lowest rates of complications, the ASMBS Bariatric Surgery Centers of Excellence program was created to recognize bariatric surgery centers that perform well and to help surgeons and hospitals continue to improve the quality and safety of care provided.

Bariatric Surgery Centers of Excellence must comply with rigorous standards established by Surgical Review Corporation (SRC), an organization dedicated to pursuing surgical excellence. Candidates for ASMBS approval, including both physicians and facilities, must meet the stringent demands set forth by SRC for ASMBS.

The Centers for Disease Control and Prevention (CDC) reports that 66 percent of all U.S. adults are overweight or obese. Morbid obesity is closely correlated with a number of serious conditions that severely undermine the health of overweight patients, including heart disease, high blood pressure and diabetes.

Bariatric surgery can help obese patients manage these conditions. Surgeons with ASMBS Bariatric Surgery Center of Excellence designation practice top quality care, better ensuring effectiveness of the procedure with each patient.

Central Maine Bariatric Surgery serves patients from offices at 10 High Street, Suite 105, in Lewiston. The office can be reached at 207-795-5710.

Bicuspid Aortic Valve: Clinical Considerations

By Louis Russo, M.D.

The bicuspid aortic valve (BAV) is the most common congenital cardiac defect, occurring in 1 percent to 2 percent of the population and more often than all other cardiac defects combined.

Males with BAV outnumber females by a factor of four. The clinical presentations vary widely – a neonate with congestive heart failure; a youth with an asymptomatic murmur; an aortic dissection in a 35-year-old man; or an elderly woman with infective endocarditis. In terms of raw data, the BAV is likely associated with the greatest overall morbidity and mortality due to congenital cardiac abnormalities. BAV is associated with significant coexisting conditions requiring clinical consideration.

The formation of the aortic valve takes place early embryologically as a result of complex developmental processes. Associated molecular and biochemical relationships are affected simultaneously and may lead to the broad phenotypic expressions seen. BAV occurs when there is abnormal cusp formation during valve genesis – adjacent cusps fuse forming a single aberrant cusp. The new larger leaflet is smaller than the combination of two normal leaflets and this may provide further evidence that the process is complex and not just a unique abnormal developmental event. Phenotypes seen are unicuspid, bicuspid, tricuspid (normal), and even quadricuspid valves. Valve function may be normal, restricted (stenotic), or incompetent (regurgitant). There may even be mitral valve insufficiency due to associated myxomatous changes

Familial tendencies exist with BAV. The pattern of inheritance is considered autosomal dominant with reduced penetrance. Family members may be affected in different ways: some may be prone to aortic aneurysm development while possessing a normal aortic valve; there may be skip generations affected. Thus, an echocardiogram of first degree relatives with BAV is often recommended. While there is no genetic defect for BAV, the role of fibrillin-1 is being elucidated. Specifically, the gene for the protein is normal, yet the transcriptional components may be defective. It has been suggested that this mechanism also plays a key role in the development of other congenital cardiac defects. In addition to transcriptional abnormalities, enzymes that degrade aortic media matrix components weaken and reduce support within the wall of the aorta. These matrix metalloproteases (MMPs) have been shown to have increased activity in BAV.

BAV is highly associated with other congenital abnormalities such as coarctation and patent ductus arteriosis. It as also associated with other degenerative conditions such as hiatal hernias, renal and liver cysts, and certain disorders of the eye. Serious complications occur in one third of patients with a BAV and the vast majority will require some type of intervention over a lifetime.

Valvular complications consist of stenosis, regurgitation, and infective endocarditis. An aortic valve replacement is required in 80 percent of BAV patients and at a much

younger age than patients with the characteristic degenerative aortic stenosis of a normal trileaflet valve. Patients with BAV should receive prophylactic antibiotic coverage before all invasive procedures to prevent endocarditis.

Aortic media degeneration, dilation, aneurysm, and dissection are commonly found with BAV. The increase risk for dissection is nine times the normal event rate and 7 percent to 13 percent of all dissections occur with a BAV present. More than half will have aortic dilation in the presence of a normally functioning valve, an important precursor to further complications. Twenty percent of patients will have aneurysms somewhere within the vascular tree, yet the aortic root and ascending aorta are the areas most commonly affected. While valve function and coexisting aortic pathology may be of varying severity, young patients with BAV and valvular insufficiency suffer the highest risk of aneurysm, dissection, and infective endocarditis and should be followed closely. All patients with BAV continue to require surveillance after valve replacement due to the propensity for aortic complications, both in the short and long terms.

Diagnostic evaluation is usually based on echocardiography, CT scan, and MRI. Unfortunately, there are no tests available to predict risk of failure in the valve or the aorta. Medical management consists of control of hypertension with beta blockers (target of 105 to 110 systolic), close follow up, and promoting positive lifestyle modifications: good nutrition, exercise (no power lifting!), and tobacco cessation. When CHF is present, adding diuretics, digoxin, and ACE inhibitors may be helpful. Observation is appropriate with mild to moderate BAV stenosis or insufficiency, mild aortic dilation, and normal left ventricular size and function. Surgery is considered when more severe valvular dysfunction is noted, the aorta is more dilated, and the left ventricle enlarges or develops reduced function. The threshold to replace the aorta and/or root is lowered in the presence of a BAV – 4 to 5cm versus 5 to 6cm. There is also a role for valve sparing surgery in the proper circumstances.

BAV is a common defect associated with important clinical consequences even with a normally functioning valve and lifelong observation is required. Future medical therapy may ultimately be directed at MMP inhibition or gene/protein modification. At this time, surgery plays an important role in primary management of BAV and associated conditions.

For further information, contact Dr. Russo at 207-795-8260.

Louis Russo, M.D., is a cardiothoracic surgeon who practices in association with Central Maine Cardiovascular Surgery (CMCS) in Lewiston, Maine. CMCS is a Central Maine Medical Group healthcare practice.