

HEART & VASCULAR LINE

Accurate, Prompt Diagnosis of Syncope is Critical

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Quarterly Update
For Doctors About
Advancements at the
Guerrieri Heart &
Vascular Institute

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Fainting is something many people have experienced or will experience on rare occasions over a lifetime. However, when the underlying cause for fainting is syncope, the spells are likely to be more frequent. Identifying the condition as syncope, distinguishing it from fainting due to low blood sugar, and diagnosing which of four categories it falls under are of utmost importance. Of the four categories—cardiac, neurologic, metabolic and vasomotor—cardiac syncope can lead to cardiac arrest.

Emmanuel Nsah, MD, a cardiologist and Medical Director of electrophysiology at the Guerrieri Heart & Vascular Institute at Peninsula Regional Medical Center, says that this particular form of syncope requires careful and immediate attention. "When the underlying causes are of the cardiac variety, whether from obstructive cardiac lesions or, more commonly, arrhythmias, the possible consequences mandate that physicians adopt a very aggressive stance in pinpointing and diagnosing these conditions."

Of the two variants of arrhythmia, bradycardia, (a slow heart rhythm) are typically treated with an implanted pacemaker. The other iterations of cardiac-rooted syncope are two variants of tachycardia (a fast heart rhythm): ventricular and supraventricular tachycardia. Of these, the former is far more likely to cause cardiac arrest. Ventricular tachycardia most often presents in patients with some form of heart disease, whether known previously or undiscovered. (The condition may also exist undetected in younger people with congenital heart defects or inherited heart



Donna Bowen, RN, conducts a tilt table test which is helpful in determining the causes of syncope.

condition.) Following an electrophysiology study, treatment options may include medication, an implantable cardioverter defibrillator, or cardiac catheter ablation.

Fortunately, says Dr. Nsah, the variants of syncope afflicting most patients are less life threatening. These encompass syncope in the categories of neurologic, metabolic and vasomotor. Vasomotor syncope occurs in two variants—orthostatic hypotension and vasovagal syncope; the latter of these is far more common and accounts for the majority of syncope episodes. Neurologic and metabolic syncope occur less frequently.

Dr. Nsah describes vasovagal syncope as a misfiring of signals between the vasomotor center in the brain and the heart. "The misfire typically occurs as the result of a stimulus of some kind. The



Dr. Emmanuel Nsah with the Guerrieri Heart & Vascular Institute team in the EP laboratory

stimuli can vary among dozens of different scenarios, but the common thread is that the stimulus triggers a reaction in the vasomotor center that dilates blood vessels in the legs allowing blood to pool the lower extremities.” The pooling of blood in the legs causes blood pressure to drop and insufficient oxygen to the brain, resulting in

fainting. “If a patient is lying prone as the result of fainting,” Dr. Nsah continued, “gravity and physics restore the flow of blood to the brain and the patient regains consciousness.”

Diagnosing this brand of syncope usually entails a physical examination in which blood pressure and heart are monitored while the patient is lying down and standing. Another test is the tilt test, wherein BP and heart rate—and consciousness—are monitored as the patient, while safely strapped to a board, is tilted between horizontal and upright positions.

Treatment for vasovagal syncope may include medication, modifying diet to increase salt intake, and increasing the intake of fluids. “The more benign variant of syncope is not difficult to treat and with treatment it will reduce or even prevent continued episodes of fainting,” says Dr. Nsah. “More important is to identify the cause or causes of fainting, not simply to attribute episodes to anxiety attacks or confuse the symptoms with low blood sugar or seizures. The stakes in some forms of syncope are too high.”

A cardiac consultation should be sought in cases of syncope, particularly recurrent syncope.

Cardiovascular/Pulmonary Rehab Program has Region-wide Reputation for Excellence

Whether in the immediate aftermath of a heart attack, interventional procedure, following open heart surgery, or for someone whose risk factors places them at risk for cardiovascular disease, patients in this region are fortunate that their continuum of care can involve the largest, most comprehensive Cardiovascular/Pulmonary Rehabilitation program in the Mid-Atlantic region. That characterization comes from Jeanne E. Ruff, MS, ACSM RCEP, FAAVPR, Director, Cardiovascular/Pulmonary Rehabilitation and

Preventive Cardiology, at the Guerrieri Heart and Vascular Institute. As someone with a national/international profile in the field of Cardiovascular/Pulmonary Rehabilitation, a published author and featured speaker, Ms. Ruff is in a position to know.

The Cardiac Rehabilitation portion of the program owes part of its robust nature to a comprehensive model as outlined by the American Association of Cardiovascular & Pulmonary Rehabilitation (AACVPR) and the American Heart Association (AHA). The core components of Cardiac Rehabilitation and Secondary Prevention, as the model is known, formalizes the structure of rehabilitation programs and provides evidence-based recognition of the role rehabilitation plays in improving clinical outcomes.

Ms. Ruff attributes the Medical Center’s success with the program to the emphatic support of physicians, including specialists in cardiology, internal medicine, pulmonology and cardiothoracic surgery. “Recognition of the program’s value as an integral part of treatment is universal,” she says, “and that helps account for its stature as a leading program among any found in surrounding states.”

Group participation in cooldown exercises in the Phase III Maintenance and Phase IV Adult Fitness Programs.





The core components model specified by AHA and AACVPR states that “exercise training alone [is] not considered cardiac rehabilitation” and that certified programs should feature a “multifaceted and multidisciplinary approach to overall cardiovascular risk reduction.” This comprehensive approach, according to Ms. Ruff and the core components guidelines, must include “baseline patient assessment, nutritional counseling, risk factor management (lipids, blood pressure, weight, diabetes mellitus, and smoking), psychosocial interventions, and physical activity counseling and exercise training.” In addition to following these core components, the Cardiac Rehabilitation Program is also nationally certified by AACVPR.

The scope and reach of the program is amplified by its early and widespread application and availability to patients. Ms. Ruff says that rehabilitation can and does begin during an inpatient stay arising from a heart attack or cardiac surgery; this is referred to as Phase I. The rehabilitation regimen at this stage is carefully prescribed by a patient’s physicians, and the Cardiac Rehabilitation team comprised of nurses, exercise physiologists and respiratory therapists.



Phase II transitions from inpatient to the outpatient setting; this is the true conditioning phase which includes telemetry monitoring, and Phase III becomes an ongoing maintenance effort. Phase IV is an adult fitness program designed for individuals at risk for disease or what could be referred to as the prevention program.



Anthony Frey, MD, is a cardiologist and is the Medical Director of Cardiac Rehabilitation. He cites the widespread support for the program to the fact that patients are tracked and monitored as they move through the phases. “We have evidence-based records of improved outcomes from cardiac rehabilitation. And, the fact the patients are monitored provides an early warning system for changes in condition or risk factors.”

Pulmonary Rehabilitation is also provided through this department. Similar program requirements seen in Cardiac Rehabilitation are also required in a pulmonary rehabilitation program which makes this a natural service for diversification. An important element in the Pulmonary Rehabilitation program’s success is Medicare reimbursement. Certification by AACVPR ensures that the Pulmonary Rehabilitation Program meets Medicare guidelines thereby allowing the programs services to be available to a broader patient population. Dr. Rodney Layton is a pulmonologist and medical director of the Pulmonary Rehabilitation Program. He points to recent practice guidelines for the management of COPD that “call for the referral of moderately or severely impaired patients to pulmonary rehabilitation. Without Medicare reimbursement this care would be out of reach for many patients since many facilities don’t offer the service due to a lack of coverage. Patients in this region are fortunate that we can offer it.” For more information or to make a referral call 410-543-7026.

1. Kim Metzger, RN, checks a patient's workload and tolerance for the exercise intensity while in Phase II Cardiac Rehabilitation


2. Sheila Ramsay, MS, leads participants in warm-up and stretching exercises

3. Carol Franz, MS, facilitates weight training for a Phase III Maintenance Program participant at the Berlin, MD site

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The Peninsula Access Center (PAC) assists physicians in arranging timely referrals to the Guerrieri Heart & Vascular Institute. By calling 1-866-614-4PAC(4722) or 410-543-4PAC(4722) you can refer your patient to a cardiologist, cardio-thoracic or vascular surgeon and begin the seamless process of care.

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Robotic Surgery Creates New Opportunities, Questions for Coronary Bypass Procedures

Although da Vinci robotic technology has essentially redefined minimally invasive surgery for lobectomies, prostatectomies, and some gynecologic oncology procedures, in the arena of heart surgery, specifically bypass procedures, da Vinci's utility is still evolving.

Currently, da Vinci has begun to supplant both open and VATS (video assisted thoracoscopic surgery) for such procedures as mitral valve repair, epicardial pacing lead placement, biopsies, and others. For coronary artery bypass procedures, robotic surgery's role, in the near term at least, depends on the number of arteries in need of bypass grafting.

James Todd, MD, a cardio-thoracic surgeon at Peninsula Regional Medical Center describes the choices surgeons can balance. "Depending on age, co-morbidities and the extent of blockage in the coronary arteries, surgeons can choose among minimally invasive procedures or conventional open procedures with the large sternotomy incision. Those choices are largely determined by the blockage present in the right and/or left coronary arteries or in three or all four arteries." With enhancements in techniques used by anesthesiologists and perfusionists, the number of bypass surgeries employing heart-lung systems, or "on-pump," has shrunk to less than a quarter of all such procedures.

"In cases where blockage to three or four arteries mandates surgical revascularization," says Dr. Todd, "there is no substitute for open surgery. It works well and despite the risks to older or sicker patients, enhancements in techniques and skills mitigate those risks to some degree."

The advent of da Vinci now presents surgeons with other possibilities in cases involving blockages to the right and left descending arteries, and where cardiologists determine that blockages to other vessels may be resolved by stenting. Surgeons have for some time employed MIDCAB (minimally invasive direct coronary artery bypass) to graft the left internal mammary artery to the left descending artery. (Arterial vessels are more durable than veins and mammary arteries are usually relatively clear of blockage.) This procedure is performed by means of a thoracotomy, an incision far smaller



Drs. James Todd and Kurt Wehberg with the da Vinci surgical system robot

than a midline sternotomy.

Until da Vinci, however, grafting both left and right mammary arteries to the respective coronary arteries was problematic, at best, employing the MIDCAB technique. Instead, surgeons have used OPCAB (off-pump coronary artery bypass grafting), which necessitates the invasiveness of the sternotomy.

By virtue of its capability to reach minute spaces through small multiple incisions, as well as greatly enhancing a surgeon's visual acuity, da Vinci creates the opportunity to graft both mammary vessels with a procedure far less invasive than even a thoracotomy.

"When you envision the capability to conduct the revascularization of four coronary arteries by endoscopic means, two through robotic surgery and two through angioplasty, it's intriguing," says Dr. Todd. "These are patients who might have spent months in recovery from the invasiveness of the open procedures versus patients who might be up and about in three or four days."

With respect to bypass surgery, Dr. Todd describes the evolutionary nature of da Vinci this way: "Do you migrate to a minimally invasive robotic procedure that takes much longer in the OR from one that's worked well for 30 years and accommodates greater numbers of patients? The issues of logistics and accessibility have to be measured against the benefits of faster recovery and less theoretical risk.

"These factors have a way of resolving themselves over time in a much broader context. No doubt da Vinci and bypass surgery will converge in the not-too-distant future."