



UNIVERSITY OF MARYLAND ROUNDS

CLINICAL AND RESEARCH UPDATES FROM *THE UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE*
AND *THE UNIVERSITY OF MARYLAND MEDICAL CENTER*

NEW AORTIC CENTER – A MAGNET FOR TOUGHEST CASES

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While complex aortic diseases have been treated for many years at the University of Maryland Medical Center, the opening of the Center for Aortic Diseases adds a new cohesiveness to existing multidisciplinary teamwork, hybrid surgical techniques and advanced technology that will continue to draw the toughest cases from around the region.

Officially opened on July 1, the Center for Aortic Diseases incorporates the skills and technologies of heart and vascular specialties to offer streamlined

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KEY POINTS:

- New University of Maryland Center for Aortic Diseases opened July 1, under the leadership of Drs. Robert Crawford, Wallace Johnson and Teng Lee
- Critical Care Resuscitation Unit (CCRU) guarantees immediate access to UMMC for emergent cases
- Hybrid operating rooms allow ability to combine open and endovascular procedures
- Neuromonitoring during surgery helps avoid catastrophic complications to the brain and spinal cord
- Major research trials center on device to repair aortic dissection, traumatic aortic ruptures, and antibiotic to decrease growth of abdominal aortic aneurysms



NEW AORTIC CENTER – A MAGNET FOR TOUGHEST CASES | CONT'D FROM P1

“one-stop shopping” to often-fragile aortic disease patients, says cardiac surgeon Teng Lee, M.D., co-director of the Center for Aortic Diseases and assistant professor of surgery at the University of Maryland School of Medicine. Vascular surgeon Robert Crawford, M.D., also serves as co-director. Instead of various specialists seeing patients in different locations, the center includes a multidisciplinary clinic to facilitate coordinated care by physicians.

“There’s almost an epidemic of aortic disease in this region,” explains Dr. Lee. “Hypertension is the real reason behind the high numbers of aortic disease,” adds cardiologist Wallace Johnson, M.D., medical director of the Center and assistant professor of medicine. He continues, “Much of our work will be focused on preventive care as well as management of patients. With the increased use of CT scans, more aortic disease is found now than in the past. If we can catch it early, we can treat it.”

Another crucial aspect of the new center is its link to the Critical Care Resuscitation Unit (CCRU), which has been developed to enhance the medical center’s capacity to accept the most critically ill adult patients. “The Aortic Center is a great resource for the community and immediate access to its services for patients with life-threatening aortic disease is crucial,” explains Lewis Robinson, M.D., Director, Critical Care Resuscitation Unit.

He adds, “This Center is a prime example of why the medical center must have greater capacity to accept critically ill adult patients from other facilities. The CCRU is a novel approach that ensures bed capacity issues are no longer a barrier. Critically ill patients with aortic disease will have life-saving care at the medical center.”

COMPREHENSIVE TREATMENTS

A wide variety of specialists staff the Center for Aortic Diseases, including those in cardiology, cardiac surgery, vascular surgery, internal medicine, critical care, imaging and anesthesia.



DRS. TENG LEE AND ROBERT CRAWFORD serve as co-directors for the new Aortic Center.

Just as vast is the list of conditions treated here, such as aortic aneurysms, aortic dissections, aortic valve disease, connective tissue disorders such as Marfan syndrome, and hypertension related to aneurysm or dissection.

Treatments and services cover the spectrum from genetic and aortic disease screenings to long-term medical management, hypertension management and cardiovascular follow-up. “Cardiogenetics availability extends our understanding of the disease etiology and process and allows thoughtful, directed family screening,” explains Stacy Fisher, M.D., assistant professor of medicine and pediatrics. Among the surgical approaches are open and/or endovascular procedures — which for diagnostic and/or interventional purposes can be performed simultaneously in the center’s three “hybrid” operating rooms — along with percutaneous and transcatheter valve therapies or minimally invasive surgery.

“We do the most advanced therapies of any center in this region,” says Dr. Lee, who is certified in performing complex arch repairs with combined endovascular and open technology. In addition, he also serves as lead surgeon for the transcatheter heart valve program. “The other unique thing about us is that we’re one of only a few centers on the East coast that do neuromonitoring during procedures ... to avert problems or complications.”

NEUROMONITORING AVOIDS COMPLICATIONS

Neuromonitoring involves the use of electroencephalograms (EEGs) and motor and sensory evoked potentials to monitor the brain and spinal cord during thoracic and abdominal aortic surgeries. “With neuromonitoring, we can lower the incidence of stroke and paraplegia,” he explains. Unlike at most other hospitals, Dr. Lee does antegrade brain perfusion during Type A dissection repair to decrease stroke risk.





“IT’S VERY DIFFICULT FOR PRACTITIONERS IN THE COMMUNITY TO SPEND SO MANY RESOURCES ON ONE PATIENT. WE HAVE THAT CAPABILITY — WE’RE BUILT FOR THIS.”

- ROBERT CRAWFORD, M.D.

The center’s hybrid ORs also house advanced on-table CT scanners to confirm exact blood vessel location during procedures. “There are only between 100 and 200 of these machines in the country, and our center has five of them,” Dr. Lee says. “Because of this accuracy, we can treat sicker patients because we can decrease the amount of contrast used, so even patients with kidney disease can benefit.”

This comprehensive level of offerings draws patients from a five-state radius and brings referring physicians peace of mind, according to Dr. Crawford, an assistant professor in the Division of Vascular Surgery.

“It’s very difficult for practitioners in the community to spend so many resources on one patient. We have that capability — we’re built for this,” Dr. Crawford says. “There is no pressure to see more and more people, so if I have to spend more time with one patient, I can do that. Because of the complexity of aortic diseases, there’s a commitment to the patient that’s unique and can only be provided at a place like this with all of our resources.”

INNOVATIVE RESEARCH

Complementing the Aortic Center’s aggressive clinical efforts are a host of high-profile clinical trials and research initiatives that allow physicians to expand their knowledge of aortic disease. UMMC is the only center in the Baltimore-D.C. area, and one of only about 30 in the country, included in the STABLE II trial to treat patients with aortic dissection with the newest dissection-specific stent device, Dr. Crawford says. Another major study funded by the National Institutes of Health is analyzing the antibiotic doxycycline as a medication to potentially decrease the growth rate of abdominal aortic aneurysms.

“It’s the only trial of its nature using a pharmaceutical agent for the treatment of aortic disease, and all 30 national centers chosen for this are leaders in aortic disease,” he adds.

Adding to the Aortic Center’s accolades is UMMC’s distinction as one of 35 centers in the world participating in the International Registry of Acute Aortic Dissections (IRAD). “Established in 1996, IRAD is a consortium of research centers that are evaluating the current management and outcomes of acute aortic dissection, and information derived from the registry will aid in patient diagnosis and treatment,” explains Dr. Lee, who is also the principal investigator at University of Maryland.

“We are used to complicated patients as that’s the nature of the game here,” Dr. Crawford says. “Rarely do patients see only one set of eyes. When you come to the University of Maryland, you’re going to get multiple physician perspectives. Plus we have the infrastructure, the ICUs, crucial care nursing care, the latest technology in the OR, access to these research devices ... all the newest and latest.”



To refer a patient for consultation to the Center for Aortic Diseases, please call **1-800-373-4111**. For an urgent transfer, please call University of Maryland ExpressCare at **410-328-1234**.

ROUNDING OUT CARE AND RESEARCH

CHEMO ROBOT AT CANCER CENTER



The University of Maryland Marlene and Stewart Greenebaum Cancer Center has a new member on its team: the Apoteca chemotherapy robot. This new technology is streamlining patient care by allowing the oncology pharmacy staff to more effectively and safely prepare chemotherapy doses for cancer patients.

The chemotherapy robot is designed to automate the time-consuming process of mixing highly potent drugs, providing increased precision, sterility and safety. It also reduces turnaround time, since the robot is capable of preparing up to 12 doses per hour, three times that of a human pharmacist or technician. On average, 80 to 90 doses of chemotherapy are being prepared each day in the Cancer Center.

The robot has built-in quality control mechanisms, such as bar-coding and weighing, that provide increased accuracy. It precisely performs calculations that are required for dosing and double-checks the measurements while recording them automatically and consistently. The robot positively identifies drugs, which eliminates the chance for incorrect drugs or wrong container errors. The robot’s completely

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NEW eCARE PROGRAM OFFERS VIRTUAL SAFETY NET TO RURAL HOSPITALS



When an elderly woman began developing confounding symptoms late one night in a rural

Maryland hospital, it was someone many miles away who first noticed she was having a heart attack. Sitting in Baltimore surrounded by technology, an intensivist from the University of Maryland Medical Center was able to zero in on the diagnosis using sophisticated equipment that remotely monitored subtle trends in the patient's vital signs. The physician then quickly worked together with staff from the smaller hospital to address the woman's worsening condition.

This recent scenario is just one of the benefits of the new UMMS eCare system, which launched on April 30 and serves six rural Maryland hospitals. Also known as the tele-ICU, the telemedicine technology allows intensivists and critical care RNs from a central operations room (or COR) at the University of Maryland to oversee patient care in ICUs and emergency departments during night and weekend hours, providing a virtual safety net for these smaller facilities.

The system uses cutting-edge cameras in patient rooms along with information such as patients' vital signs and laboratory and pharmaceutical data, picking up even slight changes in their physical condition during off-peak hours when onsite staffing is reduced. An "eLert" button in each patient room also allows ICU staff to request eCare assistance.

"This trend is exploding across the country," says Marc T. Zubrow, M.D., vice president of telemedicine and medical director of eCare. "We're the 54th site to go up with a tele-ICU,

and greater than 12% of ICU beds across the country are under such a program, so it really is coming on strong."

The eCare initiative here is the brainchild of Glenn Robbins, M.D., senior vice president and UMMS chief medical officer, who retired June 30. Dr. Robbins began investigating the logistics of such a program years ago and was "clearly a visionary motivator," says Dr. Zubrow, an associate professor of medicine. All six rural hospitals under the UMMS eCare umbrella represent a microcosm of the United States, where the concentration of intensivists in small towns is low, he says, and training critical care nurses — which tend to have a high turnover rate — is expensive and challenging.

LEVERAGING TECHNOLOGY

Included in the new eCare program are Atlantic General Hospital in Berlin; Calvert Memorial Hospital in Prince Frederick; Peninsula Regional Medical Center in Salisbury; MedStar St. Mary's Hospital in Leonardtown; Meritus Medical System in Hagerstown; and Union Hospital in Elkton. Each local hospital adheres to certain minimum requirements, including having a physician in-house for procedural emergencies during tele-ICU hours, Dr. Zubrow says. On the UMMS side, one eCare physician is available for every 100 to 120 patients along with one eCare RN for every 30 patients.

"One of the keys to making this work is the IT integration," Dr. Zubrow explains. "When I'm sitting in the COR, I see all the patients' X-rays, I see all their vital signs, their rhythm strips, every bit of information I would have if I were in that hospital, but sitting in a remote center.



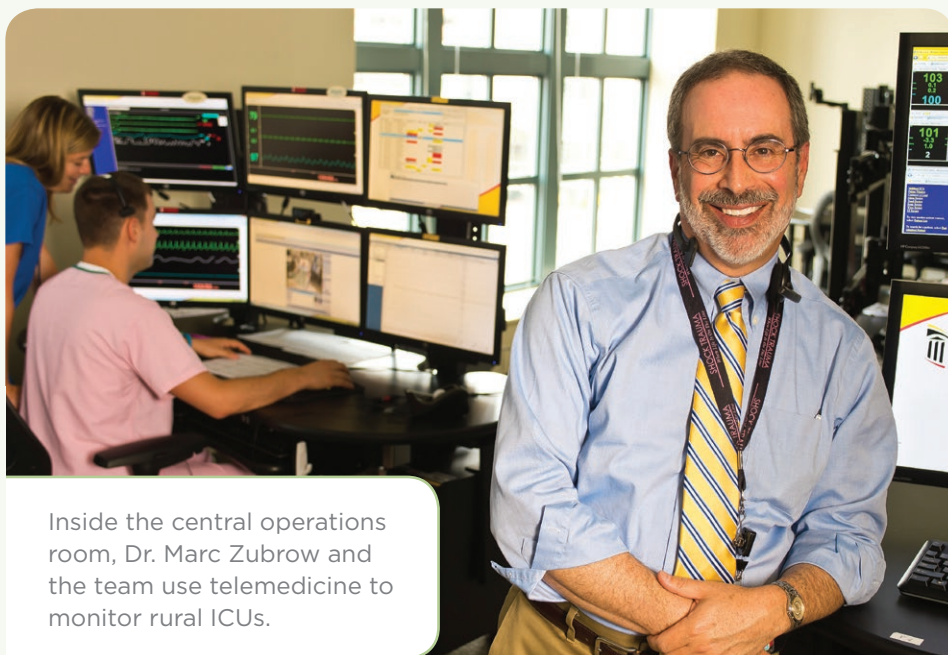
KEY POINTS:

- University of Maryland Medical System launched eCare (also called tele-ICU) program on April 30
- Six rural Maryland hospitals are currently under the eCare umbrella
- Tele-ICU incorporates latest technology to monitor patients at rural hospitals remotely from University of Maryland
- Computers detect patient trends in vital signs to alert onsite staff to diagnosis and treatment
- Future applications of the technology may include specialty services such as stroke care, dermatology, psychiatry and more

"The computer will sense patient trends faster than I will as a clinician. If there's a 10% increase in heart rate, it will send an electrical signal saying, look at this patient," he adds. "It may be nothing, but it gets a set of human eyes looking at that patient's overall picture. The perception out there is that we're hitting home runs all night, saving lives left and right, but most of the time we're fixing little things so they don't become big things."

THE LOCAL IMPACT

At Atlantic General Hospital in Berlin — about 140 miles from the University of Maryland — being part of the tele-ICU helps keep on-call intensivists "fresher" for work during daytime hours,



Inside the central operations room, Dr. Marc Zubrow and the team use telemedicine to monitor rural ICUs.

providing improved care for patients by appropriately managing their vital signs, according to Atif Zeeshan, M.D., director of the ICU and sleep lab there.

“Some statistics say that tele-ICU programs help with morbidity and mortality,” Dr. Zeeshan says. “I think most hospitals are realizing that, with the complexity of patients, you do need an intensivist’s presence during the night as well. This is the best alternative you can have.”

Before Atlantic General became part of eCare, Dr. Zeeshan would often be buzzed every 15 or 30 minutes when he was on-call during the night. “It was very hard to function the next day,” he says, noting his 24-hour shifts. “eCare makes my day much easier. It helps us manage all the things that are major in nature and can be done remotely. So it’s a big safety net.”

Dr. Zubrow says local communities and their residents appreciate having access to the tele-ICU. “They want to have the confidence that their local hospital can take care of them locally,” he adds. “We have found that families absolutely love it.”

POSITIONED FOR THE FUTURE

UMMS hopes to someday leverage the eCare technology for other applications in addition to the tele-ICU, Dr. Zubrow says. First up will be providing tele-ICU services to hospitals along Maryland’s eastern shore, which includes rural, underserved areas. After that, Zubrow envisions potentially using the technology to provide other services, including those in psychiatry, stroke, dermatology, wound care, pediatrics, trauma, ob/gyn, long-term acute care and subacute care.

“One hospital may not have neurology, and we can provide them with tele-stroke services,” Dr. Zubrow says. “Or with a dermatologist, for example. I think this out-of-the-box thinking positions the University of Maryland to take that next step in providing more complete supportive care to the local community without it being necessary for people to drive to Baltimore to get these specialty health services.” +

ROUNDING OUT CARE

| CONT’D FROM P3

sterile environment provides improved safety by reducing the chance of drug contamination and protecting pharmacists and technicians from possible exposure to chemotherapy drugs.

SEAL OF APPROVAL FOR PEDIATRIC ECHOCARDIOGRAPHY

The University of Maryland Children’s Heart Program has been granted a three-year term of accreditation in Pediatric Thoracic Echocardiography by the International Accreditation Commission (IAC). “The IAC sets standards to ensure high-quality patient care in echocardiography. Our accreditation means that our laboratory meets these standards and that there will be ongoing review of the quality of our care by our own institution and by the IAC,” explains pediatric cardiologist Alicia Chaves, M.D., an assistant professor of pediatrics. Congenital heart defects remain the most common birth defect, making echocardiography a very valuable diagnostic tool in utero as well as in children.

To make an appointment with the Children’s Heart Program, please call **410-328-4FIT (4348)** or **1-800-373-4111**.

GLOBAL STUDY PINPOINTS MAIN CAUSES OF CHILDHOOD DIARRHEAL DISEASES

An international study published in *The Lancet* provides the clearest picture yet of the impact and most common causes of diarrheal diseases, the second leading killer of young children globally, after pneumonia.

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KNEE CARTILAGE TRANSPLANTS HELP PATIENTS REGAIN MOBILITY

It's safe to say that most people never give a thought to the cartilage in their knees — which does much of the work of the knee joint — until something goes wrong and normal activities are painful or impossible. But for those who don't yet need or desire artificial knee joint replacement, the University of Maryland offers several versions of cartilage transplant therapy — including a

brand-new procedure — that can help these individuals move as they once did and regain their previous lifestyle.

The human body's own intact cartilage is still the optimal material for lining knee joints, but car accidents, falls, and sports- and work-related injuries can destroy some or most of the articular cartilage in knees. To replace this missing or damaged material, cartilage transplants using either patient or cadaver cells can be the next best thing.

"Commonly these patients have been told they don't have options, that they'll eventually need a knee replacement and will just have to deal with the pain until they're older," says R. Frank Henn, M.D., an assistant professor of orthopaedics at the University of Maryland School of Medicine and a team physician for the University of Maryland Terrapins. "When they get to me they're disheartened and then encouraged simply because we have options for them. I have to prep their expectations for the road to recovery — it's usually a year before they get back to athletic-type activities — but when they get back to that, they're a different person and their family gets their loved one back."

GOLD STANDARD PROCEDURE

In use for more than 20 years, autologous chondrocyte implantation (ACI) remains the gold standard of knee cartilage transplant procedure. The two-stage therapy involves arthroscopically removing a small piece of normal cartilage tissue from a lesser load-bearing area of the joint and growing those cells in vitro over six to eight weeks from a few hundred thousand to 30 to 40 million. The treatment, known by the trade name Carticel, later re-implants the cells under a patch, where they grow to fill



FRANK HENN, M.D., is involved in ongoing research on cartilage transplantation and restoration.

the "pothole" defect in the cartilage, Dr. Henn explains.

"The advantage is that it's autologous tissue," he says. "It takes time to grow — about 12 to 18 months — to get back to the point where it has an impact on the patient's activities. But it's appealing to use the patient's own cells to do that. All other transplants use donor tissue."

DONOR TISSUE 'IMMUNOPRIVILEGED'

While the remaining options to transplant knee cartilage all involve donor cells, a huge benefit is that such tissue is "immunoprivileged" with no lymphatic or blood vessels, so it's isolated from the immune system and unable to cause rejection, Dr. Henn says. These cartilage replacement procedures use cadaver tissue — as is the case with many organ and tissue transplants — but immunosuppressive drugs are typically required to



KEY POINTS:

- University of Maryland Orthopaedics and Sports Medicine offers several kinds of cartilage transplant therapy for patients with missing or damaged cartilage to help restore full mobility
- Gold standard procedure is autologous chondrocyte implantation (ACI), which uses the patient's own cells
- Donor tissue from cadavers is safe from rejection since it's unconnected to the immune system
- Osteochondral grafts transplant bone and cartilage tissue into patients with more extensive bone and cartilage damage
- DeNovo NT procedure uses juvenile donor cells with great growth potential
- Cartiform procedure, which pokes tiny holes in mature donor cartilage, originates in Columbia, Md.



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prevent rejection in other types of transplants.

“We’re always concerned about disease transmission with donor cells, but fortunately it’s more theoretical now and donors are tested first,” Dr. Henn says.

One well-established donor transplant option is known as a fresh osteochondral graft, in which both bone and cartilage are transplanted. Optimal patients for this procedure have more extensive bone and cartilage damage, and the donor bone melds into the “host” bone after this single-stage surgery.

“There’s no initial procedure needed to harvest tissue from cartilage,” Dr. Henn says. “And it’s cheaper than ACI from a societal standpoint. But one of the downsides is that graft availability is limited. We need healthy, normal cartilage, and donors have to be young and healthy. We have to wait for donors to become available for many of these patients.”

NEW ADVANCES

Two new advances in knee cartilage transplantation involve the transfer of only cadaver

cartilage tissue. The first, which has been available for the last several years, is called DeNovo NT and uses live juvenile donor cartilage that is cut into small pieces and implanted into the defect in the patient’s cartilage with a fibrin glue that seals the cartilage in place. Because juvenile cartilage is obtained from young donors, the cells are numerous and have great healing potential, Dr. Henn says.

Only recently available, the newest knee cartilage transplant option is known as Cartiform and originates from Osiris Therapeutics in Columbia, Md. Instead of trimming cartilage into small pieces and waiting for it to grow, Cartiform uses mature cartilage and pokes tiny holes throughout, like a mesh, that allow the host tissue to grow into it, Dr. Henn says. Like DeNovo NT, it is also affixed to the patient’s bone and cartilage using a fibrin glue.

“This product and approach holds a lot of promise,” he says. “It seems to solve the problem of getting mature cartilage tissue alone to heal to the bone.” +

ROUNDING OUT CARE

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The Global Enteric Multicenter Study (GEMS) is the largest study ever conducted on diarrheal diseases in developing countries, enrolling more than 20,000 children from seven sites across Asia and Africa.

GEMS, coordinated by the University of Maryland School of Medicine’s Center for Vaccine Development, confirmed rotavirus — for which a vaccine already exists — as the leading cause of diarrheal diseases among infants and identified other top causes for which additional research is urgently needed. GEMS found that approximately one in five children under the age of 2 suffer from moderate-to-severe diarrhea (MSD) each year, which increased children’s risk of death 8.5-fold and led to stunted growth over a two-month follow-up period.

“Until now, comprehensive data on the burden of diarrheal diseases in Asia and sub-Saharan Africa has been limited,” says Myron M. Levine, M.D., D.T.P.H., founding director of the Center for Vaccine Development, and GEMS principal investigator. “By filling critical gaps in knowledge, we hope GEMS will help countries across these two highest-burden regions focus their efforts to improve child health.”

Despite many causes, GEMS found that targeting just four pathogens could prevent the majority of MSD cases. Expanding access to vaccines for rotavirus could save hundreds of thousands of lives. Likewise, GEMS data suggests that accelerating research on vaccines, treatments and diagnostics for the three other leading pathogens — Shigella, Cryptosporidium and ST-EPEC, a type of E. coli — could have a similar impact. Prior to GEMS, Cryptosporidium was not considered a major cause of diarrheal disease and as a result there is currently little research on this pathogen underway.

This study was funded by the Bill and Melinda Gates Foundation. +



Appointments with Dr. Henn or any other University of Maryland orthopaedist can be made by calling **410-448-6400**. UM Orthopaedics has several outpatient locations, including sites in Baltimore, Timonium, Columbia, College Park and at University of Maryland Rehabilitation and Orthopaedics Institute, formerly known as Kernan Orthopaedics and Rehabilitation Hospital.

NOVEL RESEARCH PITS GENERIC VS. BRAND DRUGS FOR EPILEPSY

What's the difference between a brand-name medication and a generic version? For epilepsy patients — whose ability to control seizures is at stake — University of Maryland investigators are attempting to pinpoint the answer in novel, FDA-funded research that may eventually change government requirements for generic drugs.

In a competitive grant process, the University of Maryland's School of Medicine and School of Pharmacy were jointly awarded \$1.1 million to study the bioequivalence of a specific anti-epileptic generic, lamotrigine, to the brand-name Lamictal. The collaborative process, headed by Tricia Ting, M.D., associate professor of neurology and director of investigational trials in epilepsy, and James Polli, Ph.D.,

professor and Ralph F. Shangraw/Noxell endowed chair in industrial pharmacy and pharmaceuticals, should yield results this fall.

Anti-epileptic drugs control seizures in up to 80% of those with the neurological condition, and 11 brand-name versions — for which 150 FDA-approved generic forms exist — are currently on the market. But the FDA has received much anecdotal evidence that, for epilepsy patients, generics and brand-name drugs are not necessarily interchangeable, with the use of generics leading to adverse events, including less seizure control.

"This is a very of-the-moment issue related to the fitness of generic drugs, particularly as they relate to epilepsy, but our research might have broader implications for other diseases. The idea is to find an objective measure ...

to show there might be some basis for what patients are reporting," Dr. Ting explains. "This has evolved over just the past several years, as more medications for epilepsy have come off patent and been released for generic substitution. For patients with epilepsy, nothing threatens their well-being more than the possibility of losing seizure control, or the side effects of medications. Our goal for our patients as physicians is no seizures or side effects."

REAL WORLD COMPARISON

It took more than a year to fully design the four-period, fully replicated crossover study, which analyzes the bioequivalence of Lamictal and

KEY POINTS:

TRICIA TING, M.D.,
director of
investigational
trials in epilepsy,
partners with
James Polli,
Ph.D., to research
the potential
differences among
brand name and
generic epilepsy
drugs.



- FDA awarded the University of Maryland \$1.1 million in competitive grant funding to study the bioequivalence of brand-name and generic anti-epileptic drug products
- Research may impact government standards for generic drugs for epilepsy and other health conditions
- Novel study design enrolls epilepsy patients instead of healthy volunteers

- Results may be available this fall
- The National Association of Epilepsy Centers (NAEC) recently designated the University of Maryland Epilepsy Center as a 2013 Level 4 Center for its professional expertise and facilities

lamotrigine since this generic is of great interest to the public, including neurologists and epilepsy patients. Both products are being studied twice over — in a randomized and blinded brand-to-generic comparison. More than 30 patients are enrolled, each of whom takes the brand-name and generic versions for separate two-week periods followed by a 12-hour blood draw to show the absorption of medicine in their systems.

To avoid the so-called “nocebo effect” — experiencing adverse effects based on expectation alone — all capsules are covered with a uniform capsule shell so that patients do not know whether they are taking the brand or generic drug. Blood test results will offer an objective assessment of any disparity between the generic and name-brand anti-epileptic drugs.

“Some epilepsy patients report problems with switching drug formulations, so we’re trying to see if this problem is due to a significant difference between blood levels achieved on brand and generic products,” Dr. Ting says. “If there is, it may compel the federal government to change the standards that ensure the equivalence of generic and brand-name anti-epileptic drug formulations.”

Dr. Polli adds, “The issue of bioequivalence has already been established in healthy volunteers, but are they reliable for this question? In essence, that’s what the neurology community asked. A lot of patients

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- TRICIA TING, M.D.

are interested in this study because they want to know the answer.”

Depending on the results, the current FDA standards for anti-epileptic generic drug products may be tightened, allowing for less variability, Dr. Ting notes, and the study design may arguably become a prototype for evaluating future generic drug products.

A CUT ABOVE

This study protocol was only possible, Drs. Polli and Ting say, because of the University of Maryland’s ability to facilitate an interdisciplinary collaboration. Another pivotal element in the 12-hour blood draws necessary to the

research is the presence of the General Clinical Research Center (GCRC), which provides nursing support and the facilities for inpatient and outpatient data collection and patient care.

“We can offer these new approaches for drug evaluation that incorporate clinical and pharmacological specialties,” says Dr. Ting. “We wouldn’t otherwise be able to do this with only one discipline. It’s hard to design and execute without close collaboration.”

The research kudos tie into the Epilepsy Center’s recent recognition by the National Association of Epilepsy Centers (NAEC) as a Level 4 epilepsy center, considered to have the professional expertise and facilities to provide the highest level of medical and surgical evaluation and treatment for patients with complex epilepsy.

“As an Epilepsy Center, we have quite a large region from which individuals come for specialized care, and many are very willing and excited to participate in this study to help us get information that will ultimately benefit epilepsy patients in general,” Dr. Ting says. “It’s really out of selflessness that they agreed to do this.” +



The Maryland Epilepsy Center can be reached at **410-328-6266**.



NEW LEADERS WITHIN UNIVERSITY OF MARYLAND



Bennie H. Jeng, M.D., M.S., a leading expert in cornea and external disease, has been appointed Chair of the University of Maryland School of Medicine's

Department of Ophthalmology and Visual Sciences. Dr. Jeng is a distinguished National Institutes of Health-funded physician-scientist, accomplished in both world-class patient care and outstanding biomedical research.

Dr. Jeng joins the University of Maryland from the University of California, San Francisco (UCSF) where he worked as a professor of ophthalmology and co-director of the Cornea Service. He also served as chief of the Department of Ophthalmology at the San Francisco General Hospital, and was the director of the Francis I. Proctor Foundation/UCSF Cornea Fellowship Program.

Dr. Jeng completed his undergraduate work at Washington University in St. Louis and then earned his medical degree from the Perelman School of Medicine at the University of Pennsylvania. Following an internship at the Cleveland Clinic, he completed his ophthalmology residency training at the Cole Eye Institute of the Cleveland Clinic, where he served as chief resident in his last year. He then did his fellowship training in cornea, external diseases, refractive surgery and uveitis at the Francis I. Proctor Foundation/UCSF. Upon completion of his fellowship, he returned to the Cleveland Clinic to serve on the faculty, during which time he established a busy medical and surgical cornea practice. During his time at the Cleveland Clinic and UCSF, Dr. Jeng obtained a K12 grant from the National Institutes of Health to fund his research in treating severe ocular surface diseases. He also currently has R01 funding through the U.S. Food & Drug Administration to

study a novel compound in healing persistent epithelial defects.

Dr. Jeng is a physician-scientist who has published more than 60 peer-reviewed manuscripts and 15 book chapters. He has delivered more than 100 invited lectures in the U.S. and around the world. He also serves on the editorial boards of both JAMA Ophthalmology and Eye. Dr. Jeng has been an active member on numerous committees for the American Academy of Ophthalmology, and currently serves on the cornea subcommittee of the Annual Meeting Program Committee, as well as the Ophthalmic News and Education (ONE) Network committee. He is a member of the Medical Advisory Board and the Research Committee for the Eye Bank Association of America, and has served on various committees for the Association for Research in Vision and Ophthalmology.

Dr. Jeng can be reached at
410-328-5929. +

UPCOMING CME ACTIVITIES

Offered by the University of Maryland School of Medicine.

❖ 2013 INSTITUTE FOR HUMAN VIROLOGY (IHV) CASE CONFERENCE MONTHLY SERIES

January through December

❖ 2ND INTERNATIONAL CONFERENCE ON FETAL GROWTH

Sept. 19-21

❖ FUNDAMENTALS OF CRITICAL CARE SUPPORT

Sept. 26-27

❖ 18TH ANNUAL CONFERENCE ON ADVANCING SCHOOL MENTAL HEALTH

Oct. 3-5

❖ 11TH ANNUAL BREAST CANCER CONFERENCE

Oct. 4

❖ EXCELLENCE IN END OF LIFE CARE

Nov. 7

❖ LEADING-EDGE ECHOCARDIOGRAPHY INTERVENTIONAL PROCEDURES FOR ACUTE CARE AND TRAUMA PHYSICIANS

Nov. 15

Most events will be held on the University of Maryland Baltimore campus. For details and registration information, please visit:
<https://cmetracker.net/UMD/Catalog>

These activities have been approved for *AMA PRA Category 1 Credit™* and are sponsored by the University of Maryland School of Medicine. The University of Maryland School of Medicine is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

RECELLULARIZATION: THE FUTURE OF LIVER TRANSPLANTATION

Patients with heart failure have heart pumps and ventricular assist devices that allow their hearts to keep beating. Patients with kidney failure have dialysis to clean the toxins from their blood. Diabetics have insulin to correct the under performance of their pancreas. But there are no options other than transplantation for patients with liver failure, and unfortunately more people are in need of liver transplants than there are donor organs available.

John LaMattina, M.D., assistant professor and director of the University of Maryland Medical Center's living donor liver transplant program, is committed to finding new options for patients with end-stage liver disease. His first step was to work with colleagues in the Division of Transplantation to establish the largest adult living donor liver transplant program in the state of Maryland, which enables close friends or relatives to donate part of their liver to their sick loved one after a thorough examination and extensive physical evaluation. This living donor surgery is designed to help transplant patients earlier in their liver failure so that they recover more quickly and do not become sicker while awaiting a deceased donor organ.

In addition to his clinical solutions for maximizing available livers, Dr. LaMattina fosters a passion for basic science research, which culminated during his training years in a fellowship in Dr. David Sachs' Transplant Biology Research Center at Massachusetts General Hospital in Boston where he studied transplant immunology and tolerance of transplanted tissue.



DR. JOHN LAMATTINA'S research focuses on the possibility of patients becoming their own donors for new livers.

Now with a lab of his own, Dr. LaMattina uses a large animal pre-clinical model to investigate the possibility of stripping native cells from cadaver porcine livers, leaving only the translucent scaffolding of the liver, and recellularizing them with stem cells from a human recipient. If perfected, this procedure could eliminate deaths caused by the shortage of livers available for transplantation. The science is complex, but the concept is fairly simple, like gutting the inside of a home and rebuilding the floor plan.

BECOMING DONOR AND RECIPIENT

Imagine if patients could become both their own donor and recipient. It would look something like this: patient donates his/her own healthy stem cells. Physician-scientists inject stem cells into a porcine liver scaffold where cells multiply over a few weeks until they have filled the scaffold and regenerated a full liver. Surgeons would transplant that newly recellularized liver into the donor-recipient.

The risk of rejection would be almost non-existent since the cells came from the recipient's own body. And the wait time to transplant would be weeks instead of months, requiring just a few weeks to harvest stem cells and recellularize a liver scaffold.

Livers could be customized per recipient when advance notice allows. For patients with acute liver failure, recellularization is not an option. Ideally, surgeons would be able to pull from porcine scaffolds that have been recellularized with human stem cells of various blood types — like selecting a unit of blood during a transfusion.

Research is in the early stages, but Dr. LaMattina believes he will see significant advancements in the next five to 10 years with increased funding and research support.

You can easily reach the liver transplant team by downloading an iPhone® app at umm.edu/LiverApp or scan this QR code.



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