A study authored by a group of UI researchers, published in the July 15 issue of *The Journal of Neuroscience*, examined Sudden Unexpected Death in Epilepsy (SUDEP).

The results of that study lead to intriguing new questions, and inform continued examination into human brain function.

The researchers found that seizures spreading to the amygdala can lead to cessation of breathing. Electrically stimulating the amygdala reproduced the effect – without the patient’s knowledge – even when they were wide awake.

George Richerson, MD, PhD, Professor and Chairman of Neurology, and Professor of Molecular Physiology and Biophysics, and Neurosurgery at the UI Carver College of Medicine, an author on the paper, said, “These findings provide an explanation for why SUDEP occurs after seizures, because patients would stop breathing but be completely unaware that their blood oxygen levels are progressively dropping to fatally low levels.”

Formally defined as a cause of death just 20 years ago, SUDEP is a significant threat to people with epilepsy. The most common cause of death in people with refractory epilepsy, SUDEP takes the lives of about six people each day in the U.S.

“Neurosurgeons today have extraordinary tools to take this research further,” said Brian Dlouhy, MD, Assistant Professor of Neurosurgery at UI Carver College of Medicine and lead author of the study. Continued research will have a significant impact on SUDEP, with promising implications for other fatal causes of apnea. The amygdala may play a role in Sudden Infant Death Syndrome, for example.”

“What we want to do now is understand other areas of the brain – to create a map of the brain and find out where else seizures spread that may cause apnea,” said Dr. Dlouhy. “We’re really excited about the research. Dr. (John) Wemmie in Psychiatry is doing things no one else in the world is doing, and Dr. (Matthew) Howard’s work in advanced imaging at the brain stem level is exceptional.”

Dr. Dlouhy emphasized the teamwork involved in this continuing study. “People really support each other, which is the same thing I see all over this university,” he said. “In typical Iowa style, it’s a very collaborative effort.”

**George Richerson, MD, PhD**
Roy J. Carver Chair and DIO, Department of Neurology
Professor of Neurology, Neurosurgery, and Molecular Physiology and Biophysics

**Brian Dlouhy, MD**
Assistant Professor of Neurosurgery

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**Other University of Iowa researchers involved in the study are Brian Gehlbach, MD; Collin Kreple, MD, PhD; Hiroto Kawasaki, MD; Hiroyuki Oya, MD; Colin Buzza, MD; Mark Granner, MD; Michael Welsh, MD; Matthew Howard, MD; and John Wemmie, MD, PhD. Dlouhy, Welsh, Howard, Wemmie, and Richerson are all principal investigators affiliated with the Pappajohn Biomedical Institute.**
Why UI for Epilepsy Care?

The Iowa Comprehensive Epilepsy Program (ICEP) has been designated by the National Association of Epilepsy Centers as a Level 4 Epilepsy Center, the highest designation available to hospitals in the U.S. It is the only Level 4 facility in Iowa. The disease is a top cause of maternal death worldwide: every minute of every day, a mother or baby dies from preeclampsia.

The multi-disciplinary ICEP care team focuses on the diagnosis, education, and treatment of patients with epilepsy, non-epileptic seizures, undiagnosed paroxysmal events, and undesirable side effects of anti-epileptic medication. Specialized epilepsy care throughout life is central to the philosophy of ICEP.

Services include:
- Adult and Pediatric Outpatient Clinics
- SUDEP research, screening and treatment
- EEG Laboratory
- Epilepsy Monitoring Unit
- Neuroradiology and functional neuroimaging
- MRI of the brain with a specialized seizure protocol
- Functional neuroimaging tests including PET and SPECT
- Epilepsy surgery
- Vagus nerve stimulator

Preeclampsia: UI Researchers Focus on Early Detection, Prevention and Treatment

Preeclampsia, a cardiovascular disorder that generally occurs late in pregnancy, affects at least 5 to 7 percent of all pregnancies — about 500,000 annually in the U.S., and 4,000 here in Iowa. The disease is a top cause of maternal death worldwide: every minute of every day, a mother or baby dies from preeclampsia.

UI researchers have determined that maternal plasma copeptin is an indication of preeclampsia that can be detected as soon as six weeks into pregnancy. Early detection is significant since preeclampsia symptoms – like headache, blurred vision, and swelling – are easily missed, and delayed diagnosis leads to high mortality rates.

The UI research team now studies preeclampsia with two main goals: a reliable early predictor of the disease, and development of effective prevention or an early cure.

Since copeptin presents in the urine as well as the blood, it is foreseeable that a typical drugstore pregnancy test could be modified to detect it. A woman could discover that she will need specialized care for preeclampsia at the same time she finds out she is pregnant.

The only current cure for preeclampsia is delivery of the baby. Early intervention or cure could reduce the need for premature delivery. And since preeclampsia increases the lifelong risk of metabolic disease, stroke, diabetes, and more for both mother and child, discovery of a cure would have an extraordinary impact beyond prenatal care.

“Preeclampsia has been grossly understudied,” said Dr. Santillan.
“Preeclampsia has been pigeonholed as a women’s issue, and a pregnancy issue, but it’s really programming the future health of all human beings – it doesn’t matter if the baby is a girl or boy.”

Dr. Santillan and Justin Grobe, PhD, FAHA, Assistant Professor of Pharmacology, filed a patent application for the diagnostic portion of the team’s discovery in 2014, just 18 months after the inception of the study. Access to samples from the Maternal Fetal Tissue bank, part of the University of Iowa Women’s Health Tissue Repository, was crucial to their success.

“Research is so collaborative here,” said Dr. Santillan. “There is significant support for young investigators, great mentors, and important facilities. ‘That’s what makes this sort of discovery feasible.’

In April, 2015, the American Heart Association (AHA) awarded UI researchers a four-year, $3.7 million grant to participate in the AHA’s Strategically Focused Network on Hypertension, with a focus on preeclampsia. The AHA grant was the first major external award given to the Center for Hypertension Research, which is under the direction of Curt Sigmund, PhD, FAHA, Professor and Chair of Pharmacology.

The UI preeclampsia research team includes Drs. Santillan and Grobe; Gary Pierce, PhD, Assistant Professor of Health and Human Physiology; center director Curt Sigmund; and Donna Santillan, PhD, Research Assistant Professor of Obstetrics and Gynecology.

Innovative Alternative to Anticoagulation in Atrial Fibrillation

Innovative Alternative to Anticoagulation in Atrial Fibrillation

The indications for the WATCHMAN™ device are fairly direct,” said Phillip Horwitz, MD, Director of the UI Heart and Vascular Center. “They are non-valvular atrial fibrillation, an increased risk for stroke and systemic embolism, and an appropriate rationale to seek a non-pharmacologic alternative to Warfarin.”

WATCHMAN™ implantation at UI Heart and Vascular Center will be a collaborative effort between the Division of Interventional Cardiology under the direction of Dr. Horwitz, and Division of Electrophysiology under Dr. Michael Giudici, the Director of the UI Electrophysiology Program. UI will be one of only 30-40 sites in the U.S. that will offer implanting the treatment option, and the only site in Iowa.

For more information about patient selection and evaluation for the WATCHMAN™ device for stroke prevention, call 319-384-6245.
Cardiovascular Genetics Program

The UI Cardiovascular Genetics Program was established in response to the growing body of knowledge regarding genetics and cardiovascular disease. It is a consultative service providing clinical evaluation, genetic testing, and management recommendations for the provider, patient, and family.

Comprehensive services are tailored to the phenotype, and include a full array of diagnostic testing as well as consultation with a genetic cardiologist and genetic counselor, as well as access to clinical trials. Services include coordination with neurology and pediatric cardiology as needed.

Outpatient services include clinics specializing in disorders such as:

- Hypertrophic or dilated cardiomyopathy, and arrhythmogenic right ventricular cardiomyopathy
- Inherited arrhythmias such as channelopathies, LQTS, SQTS, CPVT, and Brugada Syndrome
- Neuromuscular disorders such as Becker and Duchenne muscular and myotonic dystrophy
- Connective tissue disorder such as Marfan’s and Ehlers-Danlos
- Familial Dyslipedemias

Located in the Heart and Vascular Center 4th floor RCP, the program accepts referrals at (319) 356-3030, or by emailing Dr. Ferhaan Ahmad, ferhaan.ahmad@uiowa.edu.

UIP Clinical Recognition and Awards Program

Patient Satisfaction and Service Excellence

**VERONIKA KOLDER, MD**
Clinical Assistant Professor of Obstetrics and Gynecology

Given to an individual or team in recognition of outstanding patient satisfaction. Metrics can include Press Ganey Total Score, most improved score and/or other patient feedback.

Clinician of the Year

**ABBIE HARDY-FAIRBANKS, MD**
Clinical Assistant Professor of Obstetrics and Gynecology

Awarded to the clinician who most embodies those aspects of a truly great patient service provider, including technical skill, humanism to patients and families, collaboration with colleagues, and advocacy.

Innovations in Clinical Care

**LESBIAN, GAY, BISEXUAL, TRANSGENDER, QUEER, AND QUESTIONING CLINIC (LGBTQ)**
Kate Imberez, MD; Nicole Nisly, MD; Michelle Miller, PharmD; Nancy Dole, RN; Mara Luna, Medical Assistant; Claudia McKinn, Nursing Assistant

Given to an individual or team for implementation of an innovative new program or process which improves service to patients.

Excellence in Clinical Care

**DEPARTMENT OF INTERNAL MEDICINE QUALITY AND SAFETY GROUP**
Karl Thomas, MD; Aparna Kamath, MD; Melinda Johnson, MD; Mary Joins, MD; Krista Johnson, MD; Michele Fang, MD; Ethan Kuperman, MD

Awarded to an individual or team in recognition of outstanding quality of care provided to patients. Recipients will have demonstrated excellence in reportable measures of quality, benchmarked patient outcomes, or improvements in internally measured outcomes.

Excellence in Quality

**DEPARTMENT OF INTERNAL MEDICINE QUALITY AND SAFETY GROUP**
Karl Thomas, MD; Aparna Kamath, MD; Melinda Johnson, MD; Mary Joins, MD; Krista Johnson, MD; Michele Fang, MD; Ethan Kuperman, MD

Awarded to an individual or team in recognition of outstanding quality of care provided to patients. Recipients will have demonstrated excellence in reportable measures of quality, benchmarked patient outcomes, or improvements in internally measured outcomes.

Best Consulting Provider

**MILENA GERZKA, MD, PHD**
Clinical Assistant Professor of Internal Medicine

Awarded to an individual in recognition of his or her outstanding consulting or specialized services to inpatients and ambulatory patients.

Excellence in our Workplace

**ANIL MARIAN, MD**
Clinical Associate Professor of Anesthesia

Awarded to a medical director whose leadership and innovation demonstrably improves the “practice life” and satisfaction of providers in the delivery of clinical care.

Cardiovascular Genetics Program