University Hospitals
Neurological Institute

University Hospitals Neurological Institute
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University Hospitals Neurological Institute
University Hospitals Neurological Institute is Northeast Ohio's first designated institute for the comprehensive care of patients with diseases affecting the nervous system. It has fourteen Centers of Expertise that bring together some of the country's foremost experts in neurology, neurosurgery, neuroradiology, neurooncology, neuro-ophthalmology, neurotology, neuropathology, neuro-psychology and related specialties. Under the direction of Warren Selman, MD, and Anthony Furlan, MD, and Associate Directors Robert Ronis, MD, MPH, and Robert Tarr, MD; the Neurological Institute at University Hospitals offers the latest in innovative technology for the diagnosis and treatment of all neurological conditions and diseases.

Medical experts devise appropriate combinations of clinical skills and advanced technologies to better provide individualized care for pediatric, adult, and elderly patients. The Institute's team is committed to expanding and integrating translational research into clinical practice and offers patients direct and rapid access to leading-edge treatment alternatives.

University Hospitals
Neurological Institute

Innovation and Technology

NEW ERA IN CLINICAL NEUROSCIENCES

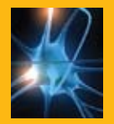
UH NEUROLOGICAL INSTITUTE

NEW PROGRAMS

Magnetoencephalography Program (MEG)

University Hospitals will establish a Magnetoencephalography Laboratory at the main campus in Fall of 2008. MEG measures the minute magnetic signals emitted by neurons as an expression of their activation. A sophisticated computer program then maps the origin of these magnetic signals directly on the MRI of the patient ("source imaging"). This process permits precise localization of the neurons activated by external stimuli like photic stimulation, auditory stimulation and somatosensory stimulation. Neurosurgeon can then use this information to identify eloquent areas of the brain which if damaged during surgery could produce significant surgical complications.

Besides, in patients with epileptic seizures, MEG can identify and precisely localize ("epileptic") neurons that are characterized by overactivity even when the patient is not having seizures ("interictal period"). This information provided by MEG together with other presurgical tests can then be used by the neurosurgeon to define precisely the area of brain that has to be removed to render the patient seizure free. In this way MEG can make significant contributions to provide a more precise localization of the epileptic focus, essential prerequisite for successful epilepsy surgery.



Adult Epilepsy Monitoring Unit

The Epilepsy Center of the Neurological Institute is in the process of expanding its epilepsy monitoring facilities from 5 to 11 beds. In Summer 2008 we will open a new 6 bed EMU dedicated exclusively to adult patients. With the opening of the adult EMU, the current 5 bed EMU located at Rainbow and Children's Hospital will care for children with epilepsy symptoms.

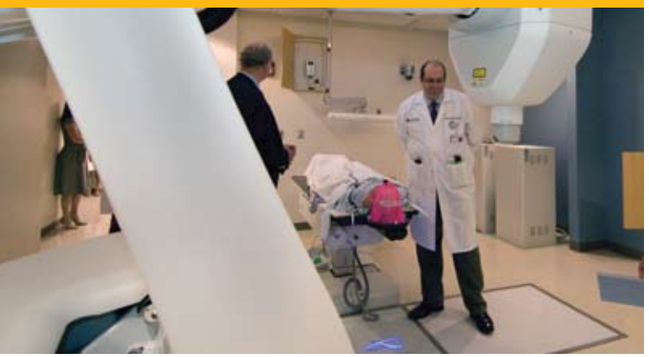
The main objective of the EMUs is around the clock 24/7 EEG/video monitoring. Patients with epilepsy or other paroxysmal disorders of unknown etiology are hospitalized and continuous EEG (Electroencephalography) and video recordings are performed for an average of 5 days. During the hospitalization antiepileptic medications are usually either decreased or completely withdrawn in an attempt to facilitate the occurrence of seizures. Highly specialized physicians with extensive training in EEG/video monitoring ("epileptologists") analyze the EEG/video information collected during the hospitalization. This information, together with complementary clinical tests, is then used to establish a precise diagnosis of the type of seizures the patient is suffering from. The results of the EEG/video monitoring are also an essential component of the presurgical evaluation of patients with epilepsy who are candidates for surgical treatment.

The opening of the new EMU, which will more than double University Hospitals' EEG/video monitoring facilities, will be the backbone of the new expanded epilepsy surgery program and will offer new treatment options to the most complex epileptic patients with medically intractable seizures.

NEW RESEARCH

New Brain Tumor Vaccine

Researchers in the Neurological Institute and Ireland Cancer Center at University Hospitals Case Medical Center are in late-stage trials for an experimental vaccine for the treatment of glioblastoma (GBM), the most aggressive form of brain cancer. Leading this study is neurosurgeon Dr. Andrew E. Sloan. The new vaccine — CDX-110 — attempts to marshal the power of the patients' own immune system to fight against remnants of the tumor which typically remain in the brain following surgery and radiation treatment. So far, the vaccine has been use to treat about 70 patients with virtually no side-effects. Currently 12 patients are enrolled at UH, the only site in Ohio to have opened the study and one of 20 national sites. Normally, vaccines are used to prevent disease, but in this case, the vaccine is used to jump-start an immune response against an existing tumor. Another advantage of vaccine compared to other experimental treatments is that there are few side-effects to vaccines.



CASE WESTERN RESERVE UNIVERSITY
SCHOOL OF MEDICINE

University Hospitals is a primary teaching affiliate of Case Western Reserve University School of Medicine

INNOVATIVE TECHNOLOGY

Stereotactic Radiosurgery: Gamma Knife & CyberKnife

University Hospitals (UH) Neurological Institute, in conjunction with University Hospitals Ireland Cancer Center, has the only program in the region offering Gamma Knife for brain tumors and CyberKnife — the next generation in radiosurgery.

The Gamma Knife is the most accurate form of stereotactic radiosurgery for the brain. It focuses numerous beams of gamma radiation directly on a small targeted area, thus sparing the healthy surrounding brain tissue.

CyberKnife delivers stereotactic radiosurgery treatment to tumors and lesions previously considered inaccessible with surgery or radiation.

CyberKnife technology uses an image-guided system with pinpoint accuracy. A multijointed robotic arm delivers radiation from more than 1,200 angles. Focused beams of radiation converge on the tumor while exposure to surrounding healthy tissue is minimized. This painless, noninvasive technology gives patients new hope for treatment of tumors and lesions of the neck and spine previously diagnosed as untreatable or inoperable.

Diaphragmatic Stimulation and Pacing Device for ALS Patients

Our nationally known ALS Program takes an interdisciplinary approach to the diagnosis and management of ALS. Specialists from the Neuromuscular Center, pulmonary medicine, speech pathology and nutrition participate actively.

The promising new treatment of diaphragmatic stimulation and pacing is an integral part of the management of respiratory failure in people with ALS. Dr. Ray Onders pioneered the implantable neuro-stimulator device in spinal cord patients and used it to successfully treat the late actor Christopher Reeve in March 2003. The UHCMC team began using the device in March 2005 in ALS patients and recently completed a successful pilot trial. In an expanded FDA-approved study, 17 ALS patients have received the device to-date, in addition to some 33 others. This device helps patients breathe and speak more normally, and it helps stave off respiratory complications during the progression of ALS.

Deep Brain Stimulation for Patients with Tourette Syndrome

A first-of-its-kind study in the UH Neurological Institute may change the lives of adults worldwide who suffer from Tourette syndrome, the debilitating condition that produces uncontrolled motor and vocal tics. Through the use of deep brain stimulation (DBS) — a treatment already employed for some patients with Parkinson's disease and other tremor-inducing conditions — Case Medical Center neurologists and neurosurgeons were able to produce a marked reduction in repetitive motor movements and vocalizations in three of five subjects. And all but one patient reported a significant improvement in quality of life. A larger clinical trial is planned to determine the efficacy of DBS in Tourette patients for whom traditional medical therapy has failed to alleviate symptoms.

Epilepsy Surgery Options

Advances in presurgical diagnostic techniques now offer surgical therapeutic options to a significantly larger percentage of epileptic patients with medicall intractable seizures. Seizures often can be eliminated or significantly reduced in intensity and frequency with epilepsy surgery.

Specialized MRI epilepsy-specific imaging protocols using 4 Tesla MRI, which can detect lesions that were formerly hidden. Stereo-Electroencephalography (sEEG), a new invasive presurgical evaluation technique, that offers unprecedented diagnostic precision for localization of epileptic foci. Precise non-invasive localization of epileptic foci by source imaging of the electric or magnetic signal directly on the MRI of the epileptic patient. Mapping of seizure onset zones and adjacent eloquent cortex with scalp EEG and implantation of subdural grids, subdural strips or depth electrodes.

UH offers the following highly specialized presurgical diagnostic techniques:

- temporal lobe resections
- extratemporal lobe resections
- lesionectomies
- corpus callosum sections
- selective amygdalo-hippocampectomies
- multiple subpial transactions
- multiple hippocampal transactions
- hemispherectomies
- vagal nerve stimulations

EXPERTS IN NEUROSCIENCES

Stroke & Neurocritical Care
University Hospitals Neurological Institute offers the highest quality medical and surgical expertise and the latest in innovative technology for the diagnosis and treatment of all neurological conditions and diseases. It is Northeast Ohio's first designated institute for the comprehensive care of patients with diseases affecting the nervous system.

Anthony Furlan, MD

Dr. Anthony Furlan joined UH in January, 2008 as the Co-Director of the Neurological Institute and Chairman of the Department of Neurology. Dr. Furlan is an international authority on stroke and was instrumental in developing the field of interventional stroke therapy in which patients with acute strokes are treated with clot dissolving drugs that can help restore circulation to the brain.

Michael DeGeorgia, MD

Dr. Michael DeGeorgia joined UH in December, 2007. He is the Maxeen Stone and John A. Flower Professor of Neurology and Director of the Reinberger Neuroscience Intensive Care Unit at University Hospitals Case Medical Center in Cleveland, Ohio. This leader in neurocritical care is the Director of the Neuroscience Critical Care Center.

Cathy Sila, MD

Dr. Cathy Sila joined UH in March, 2008 as the Director of the Stroke and Cerebrovascular Center. She also holds the rank of Professor of Neurology at Case Western Reserve University School of Medicine. Dr. Sila joins UH with a wealth of experience in stroke prevention, research and acute stroke therapy.