A comprehensive resource for patient services and referral information

Message from Leadership

Pull-out UCLA Neuroscience Reference Guide

A comprehensive resource for patient services and referral information

Reducing the Number of Inoperable Tumors
New therapies offer patients hope for normal life

Movement Disorders
New therapies offer patients hope for normal life

Immunotherapy for Brain Cancer
New treatments may add years to patients’ lives

Cover: Mathematical tensor maps of tumor growth
Primary malignant brain tumors are too often viewed as untreatable or not worthy of investigational therapies designed to improve the care of brain tumor patients, according to a leading UCLA medical oncologist and neurosurgeon who specialize in the treatment of these patients.

In fact, says Timothy Cloughesy, M.D., assistant professor of neurology and co-director of UCLA's Comprehensive Brain Tumor Program, experimental drugs that target pathways involved in brain tumors are helping to define treatment approaches that are more promising than conventional surgery, radiation therapy and chemotherapy. In addition, says Linda Liau, M.D., Ph.D., assistant professor of neurosurgery, state-of-the-art surgical equipment and techniques have reduced the number of inoperable patients by enabling neurosurgeons to safely resect tumors in areas of the brain that control motor and language functions.

“A lot of providers feel that these are terminal patients, so they will use the conventional tools that are available, and if there is a recurrence after the initial treatment, they will pull away and not try anything else,” says Dr. Cloughesy. Although new chemotherapy drugs and more focused radiation approaches have had some benefits, he notes, for the most part the conventional therapies remain woefully inadequate for these patients, failing to lead to any significant long-term stabilization of the tumor. “We strongly believe that in order for us to move forward, it can’t be with more surgery, radiation and chemotherapy,” Dr. Cloughesy asserts. “We need to move into a completely new area.”

That new area is represented by the emergence of molecular therapies that block pathways activated in the brain tumor cell. More than half a dozen are currently being studied in clinical trials at UCLA, which gains access to the drugs through its membership in the North American Brain Tumor Consortium, a group of nine institutions that test the therapies as part of the National Cancer Institute's Cancer Therapies Evaluation Program. (UCLA also has the nation’s only clinical trial of an immunotherapy brain tumor treatment, using a patient’s tumor antigens and antigen-presenting cells as a vaccine.)

“Some patients are showing good responses to these drugs, and others aren’t,” says Dr. Cloughesy. By evaluating brain tumor tissues and correlating them with the molecular therapies to which they respond, Dr. Cloughesy and colleagues hope eventually to be able to determine in advance which patients would be most likely to benefit from which therapies. Up to now, he notes, brain tumors' biology has been extremely difficult to predict. “We want to be able not only to identify ahead of time those who do well with a particular treatment, but also to understand why two tumors that look the same are reacting so differently,” Dr. Cloughesy explains. Combination approaches—single agents with radiation or chemotherapy—are also on the horizon.

Regardless of whether patients are to have their surgery at UCLA, Dr. Cloughesy encourages community physicians to refer any malignant brain tumor patient who might be eligible for one of UCLA's clinical trials, since growing and storing the patients' cell lines at the time of surgery provides crucial information that will help to define the best course of treatment for individual patients.

“This is a disease for which we don’t have good answers yet,” he says. “Everyone who comes in needs to be evaluated for new therapies, and to be carefully monitored so that we learn from what is going on with our patients when we treat them.”

Surgery in eloquent functional areas of the brain has been made possible by new navigational equipment available at major
centers such as UCLA. The neuro-
navigational unit at UCLA assists
neurosurgeons in mapping the tumor based
on a pre-operative magnetic resonance
imaging scan. Information from that scan
is loaded into a computer, which generates
a three-dimensional image of the patient’s
brain. In the operating room, where tiny
cameras aimed at the patient’s head are
attached to a computer showing the MR
image, the surgeon can maneuver a sterile
pointer inside the patient’s brain and see
on the screen where he or she can go.
This approach has been used at UCLA
for several years, and continues to become
more effective as it is refined, Dr. Liau says.

For surgeries involving tumors in speech
areas of the brain, Dr. Liau works with a
team that includes an anesthesiologist
skilled at waking patients during the
surgery, and a neurocognitive expert who
tests the patients once they are awake.
“You don’t always know where the speech
areas are in a brain tumor patient, because
the tumor moves things around,” Dr. Liau
explains. Brain mapping is done both pre-
operatively and in the operating room,
where the portions of the brain controlling
motor, sensory and language functions
are detected via electrical stimulation.
Stimulating various areas of the brain as
patients are talking, for example, enables
the team to determine which portions are
involved in language so that the surgeon
knows what can safely be removed.

An intra-operative MRI machine
provides further clarity in localizing the
tumor. “As you start to take out the tumor,
the brain matter shifts to fill the empty
space,” Dr. Liau says. By obtaining scans of
patients during the surgery, she is able to
get updated images to ensure that as much
of the cancer is removed as is possible,
even as the brain’s morphology changes.

Dr. Liau notes that patients with benign
as well as malignant brain tumors located
in difficult-to-access areas of the brain can
benefit from these advances. Functional
MRI scanning, a relatively non-invasive
procedure, has become a valuable
assessment tool to help determine whether
such a tumor is operable.

His patient is a 29 year-old male who presented
to medical attention following a focal motor
seizure involving the left arm and leg.
A MRI scan of the brain showed a
right posterior frontal tumor most
prominent on the T2-weighted MR
images (Fig. 1).

Patient was taken to the UCLA
1.5T Siemens Sonata iMRI operating
suite, where a right fronto-parietal
craniotomy was done for resection
of the tumor.

A pre-operative planning MRI scan
was performed just prior to tumor
resection (Fig. 3A). Intra-operative
functional motor mapping was
performed, which revealed that
the tumor was between primary motor and
sensory areas. Surgical resection was
carried out with intra-operative motor
stimulation and somatosensory evoked
potential (SSEP) mapping. Frozen
section diagnosis revealed a low-grade
astrocytoma, for which gross total
surgical resection could potentially
spare this young patient from having
to undergo adjuvant radiation and
chemotherapy.

An intra-operative MRI towards the
end of the resection procedure revealed
some residual tumor (Fig. 3B) at the
depths of the resection cavity, which
could not be identified without intra-
operative MRI. Therefore, further
resection was pursued based on the
intra-operative iMRI findings. A final
post-operative MRI scan at the end of
the case revealed no residual tumor
(Fig. 3C).

Patient did well post-operatively
with no new neurological deficits.
He is now doing well 18 months after
surgery, with no evidence of residual
or recurrent tumor on serial follow-up
MRI scans.
Recent breakthroughs in the medical and neurosurgical treatments for various Movement Disorders have resulted in revolutionary and exciting therapies that may improve the quality of lives of many patients suffering from these often disabling neurological disorders.

Characterized clinically by either abnormally increased motor activity (tremors and tics, for example) or abnormally decreased motor function (as in the slow, rigid movements of people with Parkinson’s disease), neurological movement disorders afflict millions of people. Within the last decade, researchers have gained a much better understanding of the origins and evolution of these often-debilitating conditions, prompting the development of many new treatment options that can reduce or eliminate symptoms and thereby significantly improve the lives of the vast majority of patients with movement disorders.

“It’s important for physicians to recognize that these are treatable conditions,” says Zeba Vanek, M.D., assistant professor of neurology and director of the UCLA Spasticity Clinic and Botulinum Toxin Clinic for the UCLA Movement Disorders and Parkinson’s Disease Program. “A primary care physician whose patient starts to shake a little should not dismiss it as merely something that occurs because of age. Treating these patients can make a huge difference in their everyday function and quality of life.

“Fifteen to twenty years ago,” Dr. Vanek adds, “it was often the case that the neurologist sub-specializing in movement disorders could make a diagnosis but then not offer anything substantial in terms of treatment. Now, there are many effective treatment options, both medical and surgical.”

Neurologists and internists most commonly encounter movement disorders when patients complain of tremors, the cause often stemming from one of two diagnoses. Essential tremor affects an estimated 5 to 10 million people in the United States. Usually a slowly progressive, inherited disorder, it is characterized by involuntary shaking of a body part or parts. Most typically, the hands but also potentially the legs, trunk, head and voice are affected. Another slowly progressive condition that causes tremors is Parkinson’s disease, which affects an estimated 750,000 U.S. residents. Caused by the degeneration of the cells in the brain’s substantia nigra, Parkinson’s disease is associated with slowed movements, tremor, rigidity, and postural instability. Symptoms often begin in an extremity on one side, most commonly with a hand tremor.

Compared to just a few years ago, a much larger armamentarium of medical and surgical options are now available to treat both Essential tremor and Parkinson’s disease, notes Dr. Vanek. Until recently, the anti-convulsant primidone and the beta...
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— Dr. Zeba Vanek

blocker propranolol were the only options for Essential tremor; now, Dr. Vanek says, not only has the number of medications increased, but treatment with botulinum toxin injections can help to relax overactive muscle(s) by blocking the release of the neurotransmitter acetylcholine. (Botulinum toxin is also effective in the treatment of other movement disorders, including dystonia and spasticity.) For patients with Parkinson’s disease, long-term use of levodopa, the drug long considered the “gold standard,” is associated with dyskinesia. But, recently introduced classes of agents—including dopamine agonists and COMT-inhibitors—have been shown to improve many of the symptoms associated with Parkinson’s disease.

For both Parkinson’s disease and Essential tremor, Dr. Vanek continues, most notable new treatments include advanced surgical options for appropriately selected candidates. The newest surgical technique, Deep-brain Stimulation, involves implanting a pacemaker under the collarbone. Using neuroimaging and neurophysiology techniques, a wire connects the pacemaker to tiny electrodes that are implanted in specific parts of the brain—in the case of Essential tremor the target is the thalamus; and, for Parkinson’s disease, the target is often the subthalamic nucleus. When electrically evoked by an external magnet, the pacemaker sends signals to the brain that can dramatically reduce the tremors.

Many patients with Essential tremor and some with Parkinson’s disease are candidates for Deep-brain simulation. Typically, the aim is to find the right balance between medications and surgery. “It’s clear that the implant technique often enables the patient to decrease the amount of medications needed,” says Antonio DeSalles, M.D., the UCLA neurosurgeon who performs these procedures.

For those with Parkinson’s disease, the stimulators offer an advantage—unlike pallidotomy, the brain is left intact. With pallidotomy, a lesion must be made that ends up destroying a small part of the brain,” notes Dr. DeSalles. The stimulator approach also produces good results in dystonia (where the pallidome is the target) and has recently been used to relieve tremors in multiple sclerosis patients. “Many more patients can benefit from this technique than many physicians currently realize.”

Besides existing treatments that manage some of the symptoms of neurological movement disorders, many new promising agents have been tested both in the laboratory and in humans that may actually slow the progression of the disorder, as well. These new medical and surgical techniques look optimistic in improving the quality of life for many of our patients, notes Dr. Vanek.

### UCLA Movement Disorders and Parkinson’s Disease Program

At the UCLA Movement Disorders and Parkinson’s Disease Program, a multidisciplinary team of specialists treats patients who are afflicted with movement disorders of many types. These include:

- **Dystonia:** an abnormal involuntary contraction of a group of muscles
- **Spasticity:** a condition characterized by tightness and weakness in part of the body, often a result central nervous system damage
- **Tardive dyskinesia:** a disorder characterized by involuntary dance-like movements afflicting patients who have been exposed to certain medications
- **Tourette’s syndrome:** most commonly affects children and adolescents and can manifest both in the form of severe motor and vocal tics or, more subtly, with psychiatric symptoms
- **Restless leg syndrome:** Estimated to affect as many as 12 million people nationwide, leg cramping and discomfort usually when lying down at night. Restless leg has been described only recently and remains under-recognized and under-treated.
Immunotherapy Provides New Hope for Brain Cancer Patients

Brain cancer affects more than 17,000 Americans each year and is almost 100 percent fatal. “Without any treatment, patients with the most aggressive gliomas usually do not live longer than nine months,” notes Linda Liau, M.D., Ph.D., a UCLA neurosurgeon and immunologist. “Even with surgery, radiation and chemotherapy, patients usually live only for as long as two years.”

So Dr. Liau and her UCLA colleagues are pursuing effective alternatives for individuals who would otherwise have none.

At the heart of the emerging arsenal is the concept of vaccine therapy. “One reason brain cancer is so difficult to successfully treat is that there are cells we don’t see,” Dr. Liau explains. Whether because of their location or their fuzzy, infiltrative nature, it’s rare that tumors can be removed in their entirety. Obviously, the brain can’t be irradiated to the extent of less vital organs. And the effectiveness of chemotherapy is limited by the blood-brain barrier. “The nice thing about immunotherapy is that the immune system has its own homing device,” says Dr. Liau. “It can find bacteria or viruses—and, we hope, tumors—where other modalities can’t.”

Dr. Liau recently concluded a Phase I clinical trial on one vaccine approach, which takes the antigen-presenting cells from the patient’s tumor, grows them in the lab and re-injects them as a way to induce an immune response against the remaining tumor cells. Dr. Liau’s research team has shown that these cells are able to detect proteins on abnormal cells and prompt the body’s T-cells to action. The Phase I trial, focusing on safety, enrolled 12 patients with malignant gliomas, the most deadly type of cancerous brain tumor. Survival for patients with newly diagnosed malignant gliomas averages about 15 months; half of the patients enrolled in the trial have survived beyond two years, with no unexpected side effects. Dr. Liau has submitted a grant application to begin a Phase II trial that will focus more rigorously on the vaccine’s efficacy.

The vaccine treatment recently drew national attention when the NBC-TV news program Dateline followed a patient who enrolled in Dr. Liau’s clinical trial. The segment also highlighted a team approach that enabled Dr. Liau to operate on the patient despite the fact that her tumor was located near vital speech areas of the brain. That approach, which involves anesthesiologists, neurophysiologists and a psycholinguist, employs functional mapping of the brain both before and during surgery to...
determine which areas can be safely removed. The patient is awakened during the surgery and asked questions as various parts of the brain are stimulated, a strategy designed to determine which areas of that patient’s brain are critical for speech and cognition. Last year the UCLA team had 12 cases in which surgery was performed on the patients with otherwise inoperable tumors using functional brain mapping while patients were awake. Language function returned in all but two, and in those cases subsequent tumor progression, not the surgery itself, was to blame.

Dr. Liau also continues to pursue new vaccine therapy approaches in the laboratory, including one that recently rendered dramatic results in an animal model. Rather than taking the patient’s own cells, the vaccine uses genetically modified bacteria as a vehicle to bring antigens to the attention of the immune system. Each tumor produces several antigens that may be recognized by the immune system. Although the immune system can identify and attack bacteria, viruses and tumors, it doesn’t recognize all brain tumor antigens. When the immune system fails to detect these antigens, it can mistake the cancer cells for normal cells and ignore them. Dr. Liau’s study partnered tumor antigens with a common form of bacteria, Listeria monocytogenes, engineered to be harmless. “The immune system already is primed to fight bacteria,” Dr. Liau explains. “By using a specially engineered bacteria to transport the antigens, we drew the immune system’s attention to the bacteria. In doing so, we also drew its attention to the tumor antigens. And with its attention focused on the antigens, the immune system learned to recognize and attack the cancer cells that produced those antigens.” In laboratory rats, the vaccine prevented brain tumor formation in every case, while rats that did not receive the vaccine developed aggressive tumors.

Using an attenuated bacteria as opposed to the patient’s own cells offers scientists and clinicians the advantage of being able to produce unlimited quantities, Dr. Liau explains. At the same time, because it is a genetically engineered bacteria, there are more safety concerns to overcome before it can be tested in humans. Dr. Liau’s team is now working to develop a form of the Listeria bacteria that is safe for human testing.

Because every brain tumor produces different kinds of antigens, it’s impossible to know up front which ones should be incorporated into a vaccine. But Dr. Liau notes that vaccine therapy may stimulate the immune system to remain on the warpath even after the immune system has hunted down cancer cells that produce the antigens present in a particular vaccine.

“With all of these approaches we're trying to push the envelope, taking things to the next step,” she says. “For patients who, a few years ago, would have been told there was nothing that could be done for them, we’re offering treatments that, while not necessarily a cure, can give them two or three good years more than they would have had.

“We desperately need treatment options for inoperable brain tumors and for the cancer cells that get left behind when we can’t surgically remove an entire tumor,” she adds. “I suspect that the body’s immune system is more intelligent than anything we could configure to recognize foreign cells or agents, and more effective than traditional treatments at leaving healthy cells alone.”

“...brain cancer is so difficult to successfully treat is that there are cells we don’t see. Whether because of their location or their fuzzy, infiltrative nature, it’s rare that tumors can be removed in their entirety.” --Dr. Linda Liau

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FURTHER READING


Catania MG, Johnson MW, Liau LM, Kremen TJ, devilis JS, and Vinters HV.


Clinical Neuroscience at the David Geffen School of Medicine at UCLA strives to bring advancements in neurology and neurosurgery from the research laboratories to patients’ bedsides and into the operating room. For over four decades, these programs have gained international recognition for innovation and progress in understanding the mechanisms of and treatment for a wide range of neurological and neurosurgical disorders. Again this year, US News and World Report ranked the Neuroscience program at UCLA among the top ten in the nation.

Long recognized as world leaders in the quest to understand, treat, and eradicate disorders of the nervous system, the dedicated efforts of more than 100 faculty with international expertise in neurology and neurosurgery continue to advance our knowledge in programs such as epilepsy surgery, traumatic brain injury, skull-based surgery, neurovascular surgery, neurodegenerative disorders, brain imaging, multiple sclerosis, dementia, and movement disorders.

In 2002, the UCLA Department of Neurology was ranked number one in the nation (out of 72 medical school departments) in funding from the National Institutes of Health (NIH). The Division of Neurosurgery currently leads one of the largest and most prestigious residency training programs in the country, offering 18 resident positions. Neurosurgery is the busiest surgical service at UCLA, and conducts more NIH-funded research in major program areas than virtually any other neurosurgical department in the world. Committed to research and education, Neuroscience at UCLA provides a stimulating academic environment in which learning continuously prosers.

In this inaugural issue of UCLA Clinical Neurosciences Update, we highlight programs that demonstrate the integration of both neurological and neurosurgical teams to enhance patient care and increase our understanding of disorders affecting large numbers of patients worldwide. This issue will feature the following:

- Applying emerging molecular therapies to block brain tumor cell pathways.
- New medical and surgical treatments bring relief to movement disorder patients.
- Vaccine therapy as a means to reduce and eradicate brain tumor cells.
- Case report of treating patients with a low-grade glioma.

In future issues, we will focus on additional programs, research highlights, clinical innovations and advances in patient care. We intend this newsletter as a new forum to communicate the breakthroughs, insights, and unique capabilities of clinical neuroscience at UCLA. Ever dedicated to improving our understanding and treatment of patients with disorders of the nervous system and sharing these advancements with the Southern California community we serve, we look forward to your comments and feedback.

Sincerely,

Neil Martin, M.D. John Mazziotta, M.D., Ph.D.,
Chair, Division of Neurosurgery Chair, Department of Neurology

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**UCLA Neurological Services**

**John Mazziotta, M.D., Chair, Department of Neurology**

UCLA Neurological Services offers comprehensive consultative services, diagnosis, treatment, and medical, pre-surgical, and post-surgical management of adult and geriatric outpatients with neurological disorders. Physicians are available for consultation, second-opinion and treatment.

Patient Referral Information and Appointment Scheduling:

(310) 794-1195

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**Neurological Services Programs**

The Ataxia and Neurogenetics Program specializes in hereditary and acquired disorders of the spinocerebellar and other motor pathways. Disorders include Friedreich's ataxia, olivopontocerebellar atrophy, Joseph's disease, and Huntington's chorea. Psychosocial intervention, family counseling, nutrition, rehabilitation services, and genetic counseling are intrinsic elements of the program.

The Botulinum Toxin Clinic (Neurolysis Clinic) offers treatment with Botulinum toxins for various movement disorders, spasticity, headaches and other pain syndromes.

The Comprehensive Headache Program evaluates, diagnoses, and treats migraine and other headache syndromes. The program offers pharmacologic as well as non-pharmacologic treatment. Physicians participating in the program are available for urgent consultations with referring physicians.

The Focal-type Dementias Clinic evaluates and treats patients with frontotemporal dementia (FTD) and other focal dementia syndromes, including Pick's disease, progressive aphasia, semantic dementia, progressive perceptual disorders, posterior cortical atrophy, progressive frontal lobe syndromes, corticobasal ganglionic degeneration, and progressive supranuclear gaze palsy. The patient's previous evaluations and referral records are required prior to the clinic visit.

The General Neurology Program consists of a core of general neurologists who provide continuity of care and consultations for chronic disorders such as headache, neck pain, back pain, multiple sclerosis, stroke, head trauma, Guillain-Barre syndrome, vascular disease, and peripheral neuropathies and seizure disorders. In addition, post-traumatic epilepsy management, and evaluation of acute head injury patients with symptoms of possible seizure activity is also addressed.

The Kagan Alzheimer's Disease Treatment Program at UCLA offers eligible subjects free screening evaluations for symptoms of Alzheimer's disease. Qualified patients may receive free experimental medication therapy, supervised care, and management in the use of the latest approved therapies for memory loss.

At the UCLA Memory Disorders Clinic, a multidisciplinary team of physicians and nurses uses a combination of evaluative techniques to diagnose patients with memory...
disorders. The team’s consensus diagnosis of the patient’s memory disorder determines the appropriate treatment plan. Once diagnosed, eligible patients may enter a UCLA clinical trial or treatment with an approved therapy.

The Movement Disorders Program offers treatment for a variety of motor abnormalities including Parkinson’s disease and related syndromes, tremors, dystonia, Tourette’s syndrome, spasticity and Huntington’s chorea. Our multidisciplinary comprehensive program consists of specialists in adult and pediatric movement disorders.

The Multiple Sclerosis Research and Treatment Program offers consultative diagnostic service and therapy recommendations to patients and their referring physicians. Patients are usually evaluated once or twice and then returned to their physicians for implementation of the recommendations.

The Neuro-cognitive Evaluation Service helps clarify diagnoses, prognoses, and treatment for patients with suspected or known neurological involvement. Referrals are made for appropriate intervention.

The Neuro-oncology Program provides consultations and, when appropriate, primary care to patients suffering from neuro-oncologic diseases, such as primary malignant brain tumors, primary malignant spinal cord tumors, metastatic brain tumors, carcinomatous meningitis, epidural spinal cord compression, paraneoplastic disorders, and neurologic complications of cancer and its treatment.

The Neuro-otology Program specializes in the diagnosis and treatment of disorders of the inner ear and eye movement control, with particular attention paid to the causes of dizziness, tinnitus, and imbalance.

The Neurointensive Care is a multidisciplinary program for treating acute brain and spinal cord injuries, stroke, and neurovascular illness.

The Brain Injury Clinic offers consultation services for patients with concussion or more severe brain injuries.

The Neurorehabilitation inpatient and outpatient services embraces an interdisciplinary team approach to patient care, comprising the physician’s evaluation in concert, when appropriate, with physical therapy, occupational therapy, speech rehabilitation, nursing, neuropsychology, and social work assessment. The team assesses functional problems and disabilities related to mobility, self-care, and cognition.

The Neuromuscular Program offers consultations and a multidisciplinary approach to patients with problems of the peripheral nervous system, neuromuscular junction, and muscle such as:

- amyotrophic lateral sclerosis (ALS)
- peripheral neuropathies
- myasthenia gravis
- (MG) muscular dystrophies and myopathies

After an initial evaluation, usually requiring one or two visits, patients return to the care of their referring physicians for implementation and management of the plan.

The Post-polio Program provides consultation for diagnosis and management of the late effects of poliomyelitis. The physician specialist evaluates each patient and coordinates a multidisciplinary team comprised of a physical therapist, occupational therapist, orthotist, nurse, and social worker as needed to provide individualized management strategies.

The Seizure Disorder Center (Adult Epilepsy) specializes in the diagnosis and treatment of patients with intractable seizure disorders. A broad range of anticonvulsant drugs is part of the overall treatment program. Some patients may be referred for inpatient EEG telemetry with video monitoring and/or surgical treatment.

The Sleep Disorders Center offers diagnosis and treatment for adults and children with disorders such as narcolepsy, sleep apnea, insomnia, and abnormal behaviors during sleep.

The Spasticity Clinic offers a multidisciplinary approach to the management of spasticity caused by various neurological conditions. Neurological treatments with Botulinum toxins and the Baclofen pump, neurosurgical and orthopaedic procedures, and comprehensive rehabilitative interventions are used.

The Stroke and Vascular Neurology Clinic, an integral component of the UCLA Stroke Center, provides comprehensive evaluation and treatment for patients with cerebrovascular disorders, including transient ischemic attacks, carotid artery stenosis, vertebrobasilar stenosis, cardioembolic stroke, lacunar stroke, cerebral hemorrhage, cerebral vascular malformations, stroke in the young, cerebral vasculitides, hypercoagulable states, and related conditions.

The Comprehensive Spine Center offers a multidisciplinary approach to patients with problems of the spine and skull base, and craniofacial problems.

The Brain Injury/Trauma program provides emergency evaluation and surgical treatment as well as long-term therapy and care for post-traumatic syndromes. Comprehensive services are provided with neuropsychology and neurologic rehabilitation. As a Level 1 trauma facility, UCLA Medical Center has been designated as one of the six Public Health Service and Research Centers for providing acute trauma care and extensive clinical research.

The Comprehensive Brain Tumor Program offers improved tumor control with treatment approaches that provide fewer harmful effects, reduced hospital stays and even avoidance of craniotomy. State-of-the-art scanning techniques provide improved tumor identification.

Areas of program focus include:

- Acoustic neuromas
- Benign and skull base tumors
- Pituitary tumors
- Primary and metastatic brain tumors

The Comprehensive Spine Center is a state-of-the-art program that encompasses all aspects of intra- and extra-spinal microsurgery from the skull base to the sacrum. Treatment includes cervical, thoracic, and lumbar disc removal and decompressive surgery for radiculopathy and myelopathy. A full range of spinal instrumentation procedures are performed to stabilize degenerative, neoplastic, and traumatic etiologies are available.

The UCLA Epilepsy Surgery Program featuring a scientific protocol to localize and treat partial seizures, evaluating patient care at weekly team conferences. Evaluation for surgical treatment begins with Phase I, which includes continuous EEG telemetry and video monitoring. Phase II includes these modalities plus stereotactically implanted depth electrodes or subdural grid electrodes. Many patients proceed to surgery without requiring Phase II.

The Functional Neurosurgery program treats chronic pain disorders such as trigeminal neuralgia, cancer pain, and lower back pain with stereotactic techniques and radiofrequency (radio waves). The same techniques are used to treat movement disorders including dystonia, Parkinson’s disease, essential tremor, and post-traumatic tremor.

The Neurovascular/Stroke Program offers multidisciplinary evaluation and treatment of patients with conditions that predispose them to stroke or central nervous system hemorrhage, including brain and spinal cord arteriovenous malformations, giant and complex intracranial aneurysms, and occlusive cerebrovascular disease.

The multifaceted Pediatric Neurosurgery program offers comprehensive care to children with cerebral palsy, epilepsy, brain tumor, hydrocephalus, neurovascular disorders, congenital abnormalities of the spine and skull base, and craniofacial problems.

The Peripheral Nerve Program is a resource for evaluating and treating patients with nerve injuries in the limbs, such as brachial plexus injuries or tumors of peripheral nerves. Because rapid nerve repair after injury is crucial, early evaluation is recommended. Intraoperative electro-diagnostic testing as well as microsurgical repair and nerve grafting techniques are used when appropriate.

The UCLA Pituicytoma and Neuroendocrine Program is dedicated to providing comprehensive evaluation and treatment of patients with pituitary tumors and related endocrinologic disorders. Our team of specialists in endocrinology, neurosurgery, radiosurgery, neuro-opthalmology, obstetrics and gynecology, and psychiatry work to provide individualized care. The program offers outpatient evaluations by an endocrinologist and a neurosurgeon during the same clinic visit in the Gonda Vascular Center in the UCLA Medical Plaza.

Stereotactic radiosurgery delivers of high-focal radiation to lesions without damaging vital areas of the brain. A non-invasive, outpatient procedure, it has created new therapies for arteriovenous malformations, skull base tumors, primary malignant brain tumors, eye tumors, and benign brain tumors such as meningiomas, acoustic neuromas, pituitary tumors, and chordomas.

UCLA is one of three centers in the United States to use a dedicated spiral accelerator for stereotactic radiation surgery. This instrumentation is the latest development in the field of radiosurgery.

**UCLA Neurosurgery**

**Division of Neurosurgery**

**Chief Neil A. Martin, M.D.**

The Division of Neurosurgery welcomes patient referrals for consultation and/or treatment. Its physicians offer diagnostic, consultative, and therapeutic services for all neurosurgical problems. The division is structured programmatically, with many programs having a multidisciplinary team approach.

Information and referral:

(310) 825-5111

More information can be found at:

[www.neurosurg.ucla.edu](http://www.neurosurg.ucla.edu)

**Neurosurgery Programs**

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The UCLA Epilepsy Surgery Program featuring a scientific protocol to localize and treat partial seizures, evaluating patient care at weekly team conferences. Evaluation for surgical treatment begins with Phase I, which includes continuous EEG telemetry and video monitoring. Phase II includes these modalities plus stereotactically implanted depth electrodes or subdural grid electrodes. Many patients proceed to surgery without requiring Phase II.

The Functional Neurosurgery program treats chronic pain disorders such as trigeminal neuralgia, cancer pain, and lower back pain with stereotactic techniques and radiofrequency (radio waves). The same techniques are used to treat movement disorders including dystonia, Parkinson’s disease, essential tremor, and post-traumatic tremor.

The Neurovascular/Stroke Program offers multidisciplinary evaluation and treatment of patients with conditions that predispose them to stroke or central nervous system hemorrhage, including brain and spinal cord arteriovenous malformations, giant and complex intracranial aneurysms, and occlusive cerebrovascular disease.

The multifaceted Pediatric Neurosurgery program offers comprehensive care to children with cerebral palsy, epilepsy, brain tumor, hydrocephalus, neurovascular disorders, congenital abnormalities of the spine and skull base, and craniofacial problems.

The Peripheral Nerve Program is a resource for evaluating and treating patients with nerve injuries in the limbs, such as brachial plexus injuries or tumors of peripheral nerves. Because rapid nerve repair after injury is crucial, early evaluation is recommended. Intraoperative electro-diagnostic testing as well as microsurgical repair and nerve grafting techniques are used when appropriate.

The UCLA Pituitary Tumor and Neuroendocrine Program is dedicated to providing comprehensive evaluation and treatment of patients with pituitary tumors and related endocrinologic disorders. Our team of specialists in endocrinology, neurosurgery, radiosurgery, neuro-opthalmology, obstetrics and gynecology, and psychiatry work to provide individualized care. The program offers outpatient evaluations by an endocrinologist and a neurosurgeon during the same clinic visit in the Gonda Vascular Center in the UCLA Medical Plaza.

Stereotactic radiosurgery delivers of high-focal radiation to lesions without damaging vital areas of the brain. A non-invasive, outpatient procedure, it has created new therapies for arteriovenous malformations, skull base tumors, primary malignant brain tumors, eye tumors, and benign brain tumors such as meningiomas, acoustic neuromas, pituitary tumors, and chordomas.

UCLA is one of three centers in the United States to use a dedicated spiral accelerator for stereotactic radiation surgery. This instrumentation is the latest development in the field of radiosurgery.
To contact any of the doctors referred to in this issue, or to correspond with a UCLA specialty neurologist or neurosurgeon, click the “contact us” icon at www.healthcare.ucla.edu or call 1-800-UCLA-888.

Clinical Trials at UCLA

The Early Randomized Surgical Epilepsy Trial
Participants are needed for a clinical research study that will compare the efficacy of surgical treatment of mesial temporal lobe epilepsy (MTLE) against aggressive drug treatment. Evidence shows that the earlier seizures are controlled without side effects, the better the opportunities for patients to lead full and satisfying lives. To examine whether surgical treatment is more likely than an optimal pharmacotherapy protocol to quickly abolish disabling seizures in patients with mesial temporal lobe epilepsy, the National Institute of Neurological Disorders and Stroke, a part of the National Institutes of Health within the US Department of Health and Human Services, is sponsoring ERSET (Early Randomized Surgical Epilepsy Trial). ERSET is being conducted at 19 locations throughout the country, with UCLA as one of the sites.

Potential candidates should meet the following criteria:
❖ Ages 12 years and older
❖ Have suffered disabling seizures for less than two consecutive years
❖ Have not responded to two or more antiepileptic drugs, one of which must be Dilantin, Tegretol, Carbatrol, or Trileptal

For more information online, log on to www.erset.net, or call (800) 352-9424 or (310) 267-2880.

Carotid Occlusion Surgery Study
Data from this study will be used to determine if surgical anastomosis of the superficial temporal artery to the middle cerebral artery (STA-MCA) combined with best medical therapy can reduce subsequent ipsilateral ischemic stroke (fatal and non-fatal) at two years by 40%, despite perioperative stroke and death. Eligible participants between the ages of 18 through 85 years must have internal carotid artery occlusion producing hemispheric symptoms within the previous 120 days and ipsilateral increased oxygen extraction fraction measured by positron emission tomography (PET).

This hypothesis will be tested by conducting a randomized, non-blinded, controlled trial in 372 participants randomized equally to surgical or non-surgical treatment.

For more information, call Judith Guzy, RN at (310) 794-0600 or send email to jguzy@mednet.ucla.edu.