To Our Colleagues:

Over the past decade, alone, our understanding and management of diseases and disorders of the central nervous system have advanced appreciably primarily because of the evolution of imaging technology and significant improvements in treatment techniques.

Winthrop’s Institute for Neurosciences has made use of these advances, with noteworthy progress in diagnosing and treating the often life-threatening and life-altering conditions of the brain and spine. Countless lives have been saved, and many people with chronic neurologic illnesses have been able to improve the quality of their lives beyond expectations.

In the current issue of Progressive Neuroscience, we highlight the impact of some of these developments:

- An article about a young patient, who presented with serious neck pain and lower extremity parathesia, shows how sophisticated MRI technology and complex endovascular surgery was used to treat a dangerous cervical arteriovenous malformation.

- Another piece focuses on a middle-aged woman with a challenging and painful spinal meningioma that seriously impeded her mobility. The Hospital’s modern diagnostic technology, coupled with the exceptional training and skill of our neurosurgical faculty, enabled her to recover and walk unassisted one month postoperatively.

This issue also looks at the:

- Treatment of idiopathic intracranial hypertension/pseudotumor cerebri
- Management of psychopathic, non-epileptic seizures
- Important role of neurohospitalists

We are committed to remaining on the front lines of neuroscience so that we can continue to provide your patients with the most sophisticated and effective care.

Mark M. Stecker, MD, PhD
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Winthrop-University Hospital’s Institute for Neurosciences specializes in the latest and most effective neurological procedures for:

- Acoustic Neuroma
- Astrocytoma
- Arteriovenous Malformation of Brain & Spine
- Back Pain
- Brain Aneurysms
- Brain & Spinal Traumas
- Brain Tumors
- Carotid Stenosis
- Cerebral Aneurysms
- Cerebrovascular & Endovascular Diseases
- Chiari Malformation
- Chronic Pain
- Degenerative Scoliosis
- Epilepsy
- Facial Pain
- Glioblastoma
- Hemifacial Spasm
- Herniated Discs
- Hydrocephalus
- Intracranial Atherosclerotic Disease
- Intracranial Hemorrhage
- Memory Disorders
- Meningiomas
- Metastatic Tumors
- Movement Disorders
- Moyamoya Disease
- Multiple Sclerosis
- Neck Pain
- Neurological Cancers
- Neuromuscular Diseases
- Normal Pressure Hydrocephalus
- Ossification of Posterior Longitudinal Ligament
- Parkinson’s Disease
- Pediatric Neurological Conditions
- Peripheral Nerve Disorders
- Phantom Limb Pain
- Pinched Nerve
- Pituitary Adenoma
- Post Herpetic Neuralgia
- Sciatica
- Seizure Disorder
- Spasticity
- Spina Bifida
- Spinal Cord Injury
- Spinal Stenosis
- Spine Fractures
- Spine Tumors
- Stroke
- Subarachnoid Hemorrhage
- Subdural Hematoma
- Syringomyelia
- Trigeminal Neuralgia

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A young overweight woman presented with a six-month history of persistent, severe headaches and blurred vision. An MRI of the brain and a magnetic resonance venogram were unremarkable, and all laboratory examinations were normal. However, a diagnostic lumbar puncture demonstrated elevated intracranial pressure (ICP) of 400mmH2O in a recumbent position.

Such unremitting, throbbing pressure headaches accompanied by significant visual complications are usually associated with intracranial tumors or other intracranial mass lesions. However, these symptoms can also characterize idiopathic intracranial hypertension (IIH)/pseudotumor cerebri (PTC) — a condition of high intracranial pressure (ICP) with no evidence of intracranial pathology.

A relationship between IIH/PTC and obesity has been established. According to the Intracranial Hypertension Research Foundation, the incidence of IIH/PTC for the general population is approximately 1/100,000. However, in overweight women, 20-40 years old, the rate is 20/100,000. “This patient was one of several with PTC I’d recently seen over a relatively short period of time,” reported Michael Brisman, MD, Winthrop-University Hospital’s Chief of Neurosurgery.
“While PTC classically occurs in obese women of childbearing age and presents with severe headache, vision changes due to papilledema and tinnitus, not every patient is overweight or exhibits all the symptoms. The only universal finding is elevated ICP; it is an illness with a diagnosis of exclusion.”

IIH/PTC etiology is uncertain and the pathophysiology is poorly understood. However, several theories attempt to explain the pathogenesis:

- Hypersecretion or deficient absorption of CSF
- Obstruction of CSF pathways
- Increase in cerebral blood volume or brain water content
- Decreased cranial venous outflow due to increased intrathoracic pressure resulting from intra-abdominal obesity
- Endocrinological dysfunction

**Diagnosis**

Characterized by the absence of clues, IIH/PTC diagnosis requires satisfaction of the modified Dandy criteria:

- Symptoms of increased ICP
- No localized findings in neurological examinations
- Awake and alert patients
- Normal CT/MRI findings without evidence of dural sinus thrombosis
- ICP of >250mmH2O with normal CSF cytological and chemical findings
- No other cause of increased ICP found

Since papilledema is a frequent sign of IIH/PTC, visual function tests are essential to diagnosing and monitoring patients; the most serious sequela of the condition is blindness or permanent visual impairment due to prolonged papilledema. What’s more, once an intracranial mass is ruled out, lumbar puncture, with direct measurement of the lumbar subarachnoid pressure, should be performed.

**Management**

Treating patients with IIH can be challenging, requiring the careful consideration of the patient’s history, examination and clinical course. The amount and progression of visual loss is the most important factor determining treatment modality, followed by the severity of the headaches and their impact on the patient’s activities of daily living.

The first line of therapy aimed at lowering the ICP, as well as treating the headache and visual symptoms, is weight loss, sodium restriction and the use of acetazolamide (Diamox®). “It appears that only modest degrees of weight loss in the range of 5-10% total body weight are needed for reversal of symptoms and signs.”

Diamox, which reduces CSF production, is also accompanied by serious — though rare — side effects, including malaise, renal stones and aplastic anemia. “The patient discussed above had failed medical management despite taking extremely high doses of Diamox,” Dr. Brisman explained. “This was sufficient reason to consider surgical intervention. Delaying surgery for too long is a common management error.”

In this patient, after Dr. Brisman inserted an LP shunt, the headaches disappeared within several days, and her vision improved dramatically. “LP shunting usually improves the headaches and can result in complete resolution of papilledema,” stated Dr. Brisman. “While, there is no perfect treatment for chronic IIH, and every patient responds differently, shunting should be offered to patients who qualify.”

For more information call the Institute for Neurosciences at 1-866NEURO-RX or visit www.winthrop.org.

**REFERENCES**

By Marlon Seliger, MD
Neurohospitalist
Winthrop-University Hospital

Underscoring its mission to provide cutting-edge, high-quality, efficient and humane patient care, Winthrop-University Hospital’s Department of Neuroscience has initiated a Neurohospitalist Service to work in conjunction with the Neurocritical Care and Neurovascular Services, as well as facilitate care on the Neurosurgical Service.

First reported in the literature roughly five years ago,\(^1\) the neurohospitalist discipline has emerged rapidly as a significant subspecialty with an evolving scope of practice that has the potential to transform inpatient neurological care.

What is a Neurohospitalist?

Neurohospitalists are neurologists — generally with training and experience in acute care — who practice primarily or exclusively in the hospital setting, with little or no outpatient or office commitments. They focus their skills on evaluating and treating inpatients with a wide range of complex and diverse acute neurological illnesses and complications. Location-based, neurohospitalists are often the first “boots on the ground” for patients presenting with such neurologic conditions as stroke, TIA, seizures, encephalopathy, syncope, dementia and migraine — all of which require immediate evaluation and frequent re-evaluation.

Sometimes, neurohospitalists are responsible for all hospitalized neurologic patients — those in the emergency department (ED), as well as those on general and specialty care units. They can also serve as primary admitting physicians or as consultants on patients with neurologic injury under treatment in other hospital departments.

The Roots of Neurohospitalist Medicine

As the need for continuous expert neurological care for inpatients became imperative, many factors contributed to the development of the specialty of neurohospitalist medicine:

- The higher acuity of illness in patients admitted to hospitals had a profound impact. Specifically, neurology patients generally tend to have higher rates of...
complications when admitted. What's more, the rapidly growing number of older patients admitted to the ED is a neurological crisis.

- **Emergency Medical Treatment and Active Labor Act (EMTALA) regulations**, which require hospitals to provide ED patients with the same level of care provided for inpatients, also played an important role. ED coverage and responsibilities can place unrealistic pressures on voluntary physicians.

- **Neurologists were increasingly challenged to fit inpatient medicine into their busy outpatient practices.** As neurology has advanced and developed increasingly effective treatment options for patients presenting with acute neurological illnesses, neurologists have been expected to be present in the hospital to deliver time-intensive assessments and therapies. This has also had a significant impact on voluntary physician practices.

There is evidence to support the fact that neurohospitalists play an important role in helping hospitals meet their challenges. In a study of the effect of a neurohospitalist service on outcomes at an academic medical center before and after the introduction of neurohospitalists, median length-of-stay was reduced.

After adjusting for diagnosis, admission source and severity of illness, cost was also lowered. This was accomplished without increasing the 30-day readmission rates — a major hospital quality indicator. There was no reduction in patient or resident trainee satisfaction, and medical student satisfaction was actually higher, based on standard educator evaluations.2

**Winthrop’s Neurohospitalist Model**

Neurohospitalist services can be organized in many ways. Currently, no data suggest that one approach is best; various settings require different arrangements to optimize care.

Winthrop’s model is designed to optimize continuity of care among the staff’s neurologic subspecialists and community-based physicians. Winthrop’s Neurohospitalists maintain near 24/7 in-house coverage, and are available for neurologic consultations at any time of the day or night, which can help reduce length-of-stay.

**Winthrop’s model is designed to optimize continuity of care among the staff’s neurologic subspecialists and community-based physicians.**

**Beyond Clinical Care**

Their contribution to medicine goes beyond direct clinical care. As hospitals face ever-increasing pressures from the Centers for Medicare and Medicaid Services (CMS), The Joint Commission (TJC), other accountable care organizations and various insurance companies to develop objective quality-of-care indicators and produce reports showing their results, neurohospitalists help develop a range of metrics to help meet various objectives. With multifaceted training and experience in teaching, they also provide neurologic supervision for the house staff and serve as preceptors for medical students, enhancing medical education in teaching hospitals, such as Winthrop.

In short, the burgeoning neurohospitalist specialty advances quality care for inpatients with serious and complex neurological conditions, enriches medical education and enhances voluntary physician practices.

For more information call the Institute for Neurosciences at 1-866/NEURO-RX or visit www.winthrop.org.

**REFERENCES**


**GENERAL REFERENCES**


Case Report

Perimedullary Arteriovenous Fistula of the Cervical Spine in an Adolescent Boy

An adolescent boy presented in Winthrop-University Hospital’s Emergency Department with acute neck pain that occurred suddenly while swimming, followed by right-leg paresthesias the following morning. An MRI of the spine found prominent flow voids in the dorsal aspect of the cervical canal and foramen magnum, with an unusually large draining vein at C7-T1. Additionally, an arterial feeder was seen arising from the aorta on the left at T4. An abnormal signal was seen in the MRI T2-weighted images of the cervical cord. (Fig.1)

The patient was diagnosed with a perimedullary arteriovenous fistula of the cervical spine, and the team determined to proceed with minimally invasive endovascular therapy as the preferred treatment. Under X-ray guidance, a flow-directed microcatheter was threaded from the femoral artery through the feeding artery and from the thoracic spine into the fistulous junction between the artery and vein. Because of the lesion’s high-flow, platinum detachable coils were used to disconnect the artery and the vein, and to plug up the fistula, thus obliterating the abnormal connection between the artery and the veins. The patient’s symptoms were alleviated almost immediately, with near complete resolution of the weakness and numbness over the following weeks.

Spinal vascular malformations (SVMs), which constitute several blood vessel disorders affecting the spinal cord, include spinal arteriovenous malformations (AVMs) and arteriovenous fistulas (AVFs), as well as spinal hemangiomas. Typically congenital, spinal cord AVMs account for an estimated 20%-30% of SVMs.1

AVMs and AVFs — abnormal connections between veins and arteries, absent capillaries — are high-flow lesions that form a network of arteriovenous shunts, which divert the flow from the arteries directly to the veins and bypass surrounding tissue. Spinal AVMs are found within the tissue of the spine, while AVFs can be dural or parenchymal. Parenchymal AVFs can be posterior or anterior on the cord, and have been called perimedullary AVFs. Lacking capillaries to slow the flow of blood, AVMs and AVFs exert extreme pressure on the vessel walls, thinning

Fig. 1 Pre-treatment

Fig. 2 Pre-treatment
or weakening them, and rendering patients at risk for neurological deterioration with serious consequences.

"Symptoms can include sudden onset of severe pain, progressive motor and/or sensory deficits, and bladder and bowel disturbances," said Winthrop’s internationally known endovascular neuroradiologist John Pile-Spellman, MD.

“They can surface at any age, but because the anomaly usually causes a slow buildup of neurological damage, they’re usually not evident until patients reach their 20s, 30s or 40s.”

If not detected and treated early, AVMs and AVFs can damage the surrounding tissue in several ways. The most feared and devastating presentation is a catastrophic subarachnoid hemorrhage or parenchymal hemorrhage that functionally transects the cord. Additionally, subarachnoid hemorrhage from an associated aneurysm may become life threatening. They can also present as pulsatile masses and result in mass effect, thus compressing the cord locally, causing long tract signs. Furthermore, since these lesions pump highly pressurized and large volumes of arterialized blood into the venous system in a closed space, they can create significant parenchymal edema.

“As imaging technology has evolved, detection has greatly improved, and our understanding of the structure and pathophysiology of these lesions has increased dramatically,” Dr. Pile-Spellman reported. “Additionally, treatment depends on the lesion’s hemodynamics, precise location and angioarchitecture.”

Dr. Pile-Spellman stressed that, “the patient’s preoperative neurologic status must be considered prior to any type of treatment, as preoperative presentation and postoperative function are clearly related. For embolization, it’s imperative that we understand the individual’s vascular anatomy before proceeding.

“Embolization can result in an excellent prognosis, either as adjuvent therapy or, as in this young boy’s case, definitive treatment,” Dr. Pile-Spellman said. “In any case, the best outcomes are achieved through early intervention before advanced deterioration occurs.”

For more information call the Institute for Neurosciences at 1-866NEURO-RX or visit www.winthrop.org.

REFERENCES
The Key to Treating Psychogenic Non-Epileptic Seizures

By Mary Rzeszut, MSW, LCSW
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Winthrop-University Hospital

When a female in her 60s fell, the event was characterized as a fall attributed to a partial seizure. One year later, she had a second episode, followed by similar events once or twice weekly. The patient was fully awake and conscious during these episodes, and reported that they began with “chills” followed by thrashing of her arms and legs and chattering of the jaw. A neurological exam found no cerebral abnormalities. During one of her events, continuous video-EEG monitoring was conducted, enabling the neurologist to view the seizure and simultaneous brain activity side-by-side. The EEG did not show the electrical brain abnormalities typically associated with epilepsy. Additionally, there were no cardiac abnormalities or changes in blood pressure at the time of the event. Given the video-EEG findings and her symptoms, she was diagnosed with psychogenic non-epileptic seizures (PNES). While her seizures were real, they were not caused by brain injury. She was referred to a psychiatrist, who prescribed an anti-depressant.

The woman could no longer drive, experienced a significant drop in energy and was deeply saddened because the quality of her life had changed so drastically. Additionally, she was confused about the cause of her PNES. However, after beginning psychotherapy, she began paying attention to, and managing, signs of distress within her body. Slowly, her episodes diminished in frequency and intensity. Although she still cannot get herself to drive, the patient has increased her social activities, is in better spirits and has seen a decrease in seizures.

Approximately 1% of Americans have epilepsy, and 5%-20% of these patients are diagnosed with psychogenic non-epileptic seizures (PNES). Occurring more frequently in woman than men, PNES typically begins in young adulthood, but also occurs in children, adolescents and the elderly.

The paroxysmal events caused by PNES and epilepsy appear superficially similar, but there are several significant differences: PNES patients have normal EEG readings, without evidence of the characteristic electrical discharges associated with epilepsy. They are also refractory to anti-epileptic medications, commonly experience violent thrashing of all four limbs and are fully awake during the episodes.

Psychologically, rather than physically driven, PNES is a type of defense mechanism, or action, developed unconsciously by individuals to protect or defend themselves from becoming fully aware of unpleasant or frightening thoughts, feelings and behaviors. Defense mechanisms can be manifested in many ways, including conversion reactions, where a psychopathological condition occurs without discernible physical cause; somatoform disorders, characterized by physical symptoms that cannot be fully attributed to underlying medical con-
conditions; or involuntary dissociative reactions, which involve detaching from reality in response to some past, or ongoing, emotional threat. The DSM-V classifies PNES as “somatic symptoms disorders.”

Everyone reacts to frightening or stressful situations differently. At times, traumatic experiences are so distressing that suppressing the memory is the only way to cope. However, despite well-established defense mechanisms, even “long-forgotten,” deeply buried memories can intrude on the present, rising to consciousness during tense or highly emotional situations that trigger awareness of the previous troubling recollections. A PNES seizure may result from unresolved stress and tension dating back years.

PNES can affect daily living, increasing anxiety, causing social isolation and impeding employment; it can also have a profound impact on self-confidence and self esteem.

Several studies have demonstrated that a diagnosis of PNES may affect patients adversely. They may resist attempts to link the apparent physical problem to emotional causes or unpleasant events. For some patients, learning they do not have epilepsy may be traumatic, generating feelings of abandonment as they try to handle the seizures without support from medical professionals. They may even experience other mental health disturbances following the diagnosis.

It has been suggested that patients react better to being told they have PNES by a neurologist rather than being informed by a psychiatrist. Many PNES patients do not experience sustained symptom improvement with diagnosis. It is important to note that patients with PNES symptoms — which can disappear temporarily after diagnosis — may need further psychological or psychiatric attention.

In PNES patients, psychiatric comorbidities are the rule, not the exception. Only 5% of these individuals do not have a co-existing psychiatric disorder or stressor. A history of trauma and physical or sexual abuse is found in 80%, and sexual abuse has been identified as a major psychological threat. PNES patients may divulge this type of history during examinations where current and past stressors are assessed systematically and with empathy.

Therefore, it is crucial that this assessment is conducted by a professional trained and skilled to handle such disclosures in an appropriate setting. The “whole person” biopsychosocial/spiritual assessment examines patients in the context of their humanity, providing a framework for treatment.

Over the last 15 years, several studies have suggested that psychological interventions are likely to reduce seizure frequency. The investigations have either exposed individuals to one-on-one interventions or, in a small number of cases, to group work, often as an adjunct to individual psychotherapy.

Psychotherapy aims to help PNES patients recognize early signs of crisis and disrupt secondary escalation. It can be directed at identifying stressors and presenting alternative ways to address problems stemming from the patient’s personal vulnerability. It can also focus on the original negative event or trauma believed to have precipitated the seizures. Therapy can be an opportunity for patients to learn how to be more in control of life and accept the diagnosis. However, the chances of engaging patients in psychotherapy may be reduced, if they are angry or confused by the diagnosis.

Although psychotherapy is considered the treatment of choice for PNES, there is no agreement regarding the type of therapy likely to achieve the best results. Cognitive behavioral therapy aims at changing dysfunctional thought processes, as well as modifying behavior. Behavioral therapy uses progressive relaxation, systematic desensitization, and exposure and response prevention to alleviate anxiety and allow for more adaptive responses. Psychodynamic therapy involves interventions that address unconscious interpersonal conflicts, both past and present.

For patients who are emotionally or socially isolated, there may be some benefit from group psychotherapy by decreasing the sense of isolation and building a support network. It is well known that symptoms of anxiety and depression respond well to psychopharmacological treatment; antidepressants may be able to reduce the frequency of the seizures.

Psychogenic, non-epileptic seizures resemble epileptic seizures outwardly, but they are generated by subconscious psychological mechanisms. Underlying psychopathology of prior abuse history and recurrent stressors may predispose, precipitate and perpetuate the factors underlying PNES. These factors can be addressed effectively in psychotherapy with a provider who is comfortable and familiar with PNES and somatoform disorders. It is essential that neurologists, psychiatrists and psychotherapists collaborate to reduce morbidity and improve the quality of life in patients with PNES.

REFERENCES
Spinal Cord Meningioma
Surgical Management & Outcome

A middle-aged woman with a two-month history of intensifying and intractable back pain — as well as progressive weakness in her lower extremities — presented in Winthrop-University Hospital’s Emergency Department unable to walk without assistance.

An MRI revealed a severely compressed spinal cord caused by a large, right-sided T-9 intradural extramedullary mass, located ventrally and measuring 3cm x 1.5cm with broad-based dural attachment. She was diagnosed with a benign, but complex, spinal meningioma.

John Grant, MD, a Winthrop-University Hospital neurosurgeon, performed a multisegmental laminectomy, removing T-9, T-10 and part of T-11 in order to resect the entire mass. Using modern neuroimaging and microneurosurgical techniques, he incised the dura, exposed the tumor and debulked it to achieve decompression.

Following resection, Dr. Grant performed an osteoplastic laminotomy, protecting the dural sac and nerve roots, stabilizing the spine postoperatively and minimizing the risk of spinal deformity.

“The ventral position of the mass was challenging and increased the complexity of the surgery,” reported Dr. Grant. “Nevertheless, we were able to resect 100% of the tumor, and the patient’s symptoms began to improve almost immediately. One month postop, she was able to walk unassisted, having regained much of the strength in her legs.”

Spinal meningiomas, which account for an estimated 25%-46% of tumors of the spinal cord, are seen most often in the thoracic region of middle-aged women. Originating within the arachnoid layer of the meninges, the majority of these masses are benign, slow-growing and typically found in the intradural extramedullary space. They spread laterally in the subarachnoid space via local invasion, eroding surrounding bony structures through pressure.

In addition to gender and age, risk factors include exposure to radiation and the genetic disorder, neurofibromatosis type 2. An association between meningiomas and hormones has been suggested but remains to be confirmed.

Symptoms & Diagnosis

“These tumors generally remain undiscovered until they are well developed and produce disabling symptoms...”

John Grant, MD
Neurosurgeon

Before the development of advanced neuroimaging technology, spinal meningioma symptoms were often confused with those of multiple sclerosis, syringomyelia, pernicious anemia and...
herniated disc. Still difficult to diagnose until they become large, the lesions are often attributed to normal signs of aging or other medical conditions. “These tumors generally remain undiscovered until they are well developed and produce disabling symptoms, such as severe back pain, sensory-motor deficits and sphincter disturbances,” Dr. Grant explained. “Morbidity reflects the location of the mass and degree of neurological dysfunction.”

Though rare, recurrence of spinal meningioma ranges between 1.3%-6.4%. The slow growth of the masses and late age of the patients contribute to the low recurrence rates. Recurrence is usually treated surgically,” explained Dr. Grant. “However, in these instances, the procedure can be more challenging because of the presence of adhesions caused by the primary procedure.”

Treatment

While corticosteroids are the initial therapy prescribed for patients with suspected spinal cord compression, surgical resection is the treatment of choice for spinal meningiomas, with prognosis depending upon the specific location and position of the mass and how much can be resected. “The benefits of complete resection should always be weighed against the potential for spinal cord injury,” said Dr. Grant. “When it’s impossible to remove 100% of the lesion, focused radiotherapy, such as CyberKnife, is commonly used postoperatively.”

Outcomes

Functional results of surgically treated spinal meningiomas are generally positive, with good or excellent results ranging between 79%-98%. “Although age and the location of the tumor are the primary determinants of outcome, with skillful surgical intervention and appropriate rehabilitation, prognosis is excellent, and most patients experience good results.”

For more information call the Institute for Neurosciences at 1-866NEURO-RX or visit www.winthrop.org.

REFERENCES

Contributing Clinicians

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Dr. Mark Stecker is Board Certified by the American Board of Psychiatry and Neurology in Neurology and Clinical Neurophysiology, as well as by the American Board of Clinical Neurophysiology in EEG and by the American Board of Neurophysiologic Monitoring in Intra-Operative Neurophysiology. His special clinical interests are EEG/epilepsy and intra-operative neurophysiologic monitoring. His research interests center on the response of peripheral nerve to ischemia, the properties of electrodes and information theory. Prior to his appointment as Chairman of Neuroscience at Winthrop, he was Associate Chair for Neurology in the Department of Neuroscience at Marshall University in Huntington, West Virginia, where he was also a Professor of Neuroscience. His postgraduate training includes a Dana Fellowship in Neuroscience/Epilepsy/EEG at the University of Pennsylvania and Graduate Hospital in Philadelphia. He completed a residency in neurology at the Hospital of the University of Pennsylvania and an internship in medicine at Lankenau Hospital in Philadelphia. Dr. Stecker earned his medical degree from the Harvard Medical School/MIT HST Program and a PhD in physics from the University of Pennsylvania. He is a past president and a Fellow of the American Society of Neurophysiologic Monitoring and a Fellow of the American Clinical Neurophysiology Society. Dr. Stecker is a senior member of the IEEE (Institute of Electrical and Electronics Engineers) and has authored over 100 papers and articles.

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Dr. Michael Brisman specializes in stereotactic surgery and radiosurgery for brain tumors and trigeminal neuralgia. He is Board Certified by the American Board of Neurological Surgeons and is a Fellow of the American College of Surgeons. His postgraduate training includes a neurosurgical residency and surgical internship at The Mount Sinai Medical Center in New York, where he was Chief Resident. He received his medical degree from Columbia University’s College of Physicians and Surgeons. Dr. Brisman has published numerous articles in professional journals. He is past President of the Nassau County Medical Society and serves on the Board of Directors of the New York State Neurosurgical Society.

John A. Grant, MD  
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Dr. John Grant, a Board Certified neurosurgeon, specializes in pediatric neurosurgery, and has an interest in vascular neurosurgery, as well as epilepsy surgery. His postgraduate training includes a Fellowship in Pediatric Neurosurgery at Children’s Memorial Hospital in Chicago and a neurosurgery residency at the Neurological Institute of New York at Columbia University. Dr. Grant completed general surgery internships in Dublin and at Johns Hopkins Hospital in Baltimore. He earned his medical degree from the Medical School of the Royal College of Surgeons in Ireland, where he was an Arthur Jacob Scholar. Dr. Grant served as Professor and Chairman of the Department of Neurosurgery at the University of Kansas Medical Center’s School of Medicine from 2004 to 2011. He received the inaugural A. Todd Davis Outstanding Physician Award at Children’s Memorial Hospital. Dr. Grant has written on pediatric and congenital neurosurgery, as well as the history of neurosurgery and head trauma. He has been a member of the editorial board of Pediatric Neurosurgery since 2006 and has presented widely at international professional meetings. Dr. Grant visits Haiti regularly where he has a long-term commitment to caring for children with hydrocephalus and congenital malformations.

John Pile-Spellman, MD  
Endovascular Neuroradiologist  
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Dr. John Pile-Spellman is an internationally known endovascular neuroradiologist, specializing in the diagnosis, management and treatment of cerebral aneurysms, strokes, tumors and vascular malformations. Dr. Pile-Spellman has many years of experience in developing high impact, clinically relevant imaging and treatment paradigms. His postgraduate training includes Fellowships in Neuroradiology at Massachusetts General Hospital and in Interventional Neuroradiology at New York University Medical Center; he was also a visiting Fellow in Endovascular Neurosurgery at the Kiev Neurosurgical Institute, Kiev, Ukraine. Dr. Pile-Spellman completed a residency in diagnostic radiology at Massachusetts General Hospital in Boston, and earned his medical degree from Tufts University School of Medicine in Boston. Prior to joining Winthrop, he was an attending radiologist and Director of Academic Interventional Neuroradiology at New York Presbyterian Hospital. He was also Vice Chair of Research and Director of Interventional MRI at Columbia University Medical Center. He has published numerous articles in peer-reviewed journals.
Ms. Mary Rzeszut, a Licensed Clinical Social Worker in Winthrop’s Department of Neuroscience, is responsible for providing counseling, support services and referrals to community resources for patients and families with neurological disorders. Ms Rzeszut also provides support with disease management to maximize health care and assistance in maintaining positive relationships with healthcare providers. Additionally, she coordinates and facilitates support groups and educational programs. Ms. Rzeszut is also a credentialed provider for the Hospital’s private neurology practice, offering psychotherapy for patients, as well as members of the community. In addition, she is a clinical supervisor for other Winthrop social workers. Prior to joining the Department of Neuroscience, Ms. Rzeszut provided social work services in the Hospital’s Institute for Cancer Care; her social work career began at Winthrop in 2006 as a renal social worker in the outpatient dialysis unit. Ms. Rzeszut’s training includes an MSW from Fordham University. Additionally, she is a practicing psychotherapist, specializing in chronic illnesses, anxiety, depression and grief, as well as a trained bereavement counselor and a social work field supervisor for Molloy College in Rockville Centre. Her work has been published in the Journal of Nephrology Social Work, and she is affiliated with the National Association of Social Workers.

Dr. Marlon Seliger’s vast knowledge as a neurologist includes over 20 years of experience at Long Island College Hospital (LICH) in Brooklyn, where he served as Director of the EEG Laboratory and the Sleep Disorders Center prior to joining Winthrop. Dr. Seliger’s postgraduate training includes a Fellowship in Sleep Disorders at the SUNY School of Medicine at Stony Brook and a Fellowship in Neurophysiology at the SUNY State Health Science Center in Brooklyn. He completed a neurology residency at the Neurologic Institute of New York, and earned his medical degree from the SUNY Downstate Medical College in Brooklyn. Dr. Seliger is a diplomate of the American Board of Neurology and Psychiatry and a Diplomate of the American Board of Sleep Medicine. His professional activities include being a member of the Clinical Neurophysiology Education Committee of the SUNY Health Science Center in Brooklyn and Director of Quality Assurance for the Neurology Department at LICH.
Winthrop-University Hospital’s Institute for Neurosciences

Winthrop-University Hospital is a 591-bed teaching hospital located on Long Island in Mineola, NY. A major regional healthcare resource, the Hospital has been a leading healthcare provider for more than a century, dedicated to the integrity, dignity and well-being of every individual. Winthrop offers a full complement of advanced inpatient and outpatient services with a deep commitment to medical education and research.

Physicians and surgeons in Winthrop’s Institute for Neurosciences are pioneering the use of technologically advanced approaches for the diagnosis and treatment of diseases of the brain and spine, including computerized imaging systems, state-of-the-art surgical interventions and the latest generation of medication therapies.

The Institute’s interdisciplinary team includes neurologists; neurosurgeons; neurointensivists; pediatric neurologists and neurosurgeons; neuroradiologists; vascular surgeons; orthopaedic spine surgeons; neuro-oncologists; neuro-pathologists; neurophysiologists; and specially trained nurse practitioners, physician assistants and nurses. Specialized physical and occupational therapy, social work and other supportive services are also key components of the Institute. The Institute’s experts are up to date on the latest developments in neuroscience and help pave the way for new discoveries through participation in clinical research trials, which enable them to provide patients with access to tomorrow’s most promising therapies.

Programs & Services Offered by the Institute for Neurosciences

Neuroscience Intensive Care Unit
The 14-bed acute care NeuroICU is reserved for patients with serious, complex neurological issues. The focus is on providing continuous monitoring and instantaneous results of critical values, allowing the expert staff, experienced in using advanced technology and providing neurocritical care, to employ aggressive interventions that treat neurological deterioration.

Neurology

- Comprehensive Level 4 Epilepsy Center
- Movement Disorders Program
- Multiple Sclerosis Care Center
- Neurodiagnostic Laboratory

Neurosurgery

- Aneurysm Coiling & Clipping
- Disc Replacement
- Brain Aneurysm Program
- Brain Tumor Program
- Brain & Skull Base Surgery
- Carotid Stenting & Endarterectomy
- Cerebrovascular & Endovascular Surgery
- Chiari Decompression Surgery
- Complex & Minimally Invasive Spinal Surgeries
- Complex Cranial Surgery
- Computer-Assisted Resection of Brain Tumors
- CyberKnife® Radiosurgery
- Endoscopic Pituitary Surgery
- Epilepsy Surgery Program
- Facial Pain/Trigeminal Neuralgia Program
- Image-Guided Spine Surgery
- Kyphoplasty

Neuroradiology

- Aneurysm Treatment
- CT Perfusion Scanning
- Interventional Neuroradiology
- Neuroangiography

- Positron Emission Tomography (PET) Scanning
- Ultrafast Computed Tomography (CT) & Magnetic Resonance Imaging (MRI)

Pediatric Neurology & Neurosurgery

- Attention Disorders & Learning Disabilities Treatment
- Craniosynostosis Surgery
- Brain Tumor Treatment
- Evaluation & Treatment of Children with Headaches
- Evaluation & Treatment of Neurological Disorders
- Myelomeningocele Surgery

- Neuro Developmental Screening & Early Intervention
- Pediatric Intensive Care Unit
- Seizure Disorders Management
- Surgery for Pediatric Neurovascular Disorders
- Treatment for Hydrocephalus & Other CNS Anomalies

For more information, call the Institute for Neurosciences at 1-866-NEURO-RX.