WORLD SKULL BASE
E-LEARNING MATERIAL

Interventional Neuroradiology

Neurointerventional surgery

Neurointerventional Surgery (NIS) is an (ACGME) Accreditation Council for Graduate Medical Education accredited medical subspecialty specializing in minimally invasive image-based technologies and procedures used in diagnosis and treatment of diseases of the head, neck, and spine. While NIS can be ACGME accredited, fewer than 5 programs in the U.S. are actually accredited. First accredited in 2000, there are currently around 500 individuals in the United States who have an active interest and special competency in this field.

History

The technique that constitutes the basis for angiographic neurointerventions, and thus, interventional neuroradiology, was first developed in 1927 by the Portuguese physician Egas Moniz at the University of Lisbon to provide contrasted x-ray angiography in order to diagnose several kinds of nervous diseases, such as tumors, coronary heart disease and arteriovenous malformations. He is usually recognized as one of the pioneers in this field. Moniz performed the first cerebral angiogram in Lisbon in 1927.

In 2007, the specialty changed its name from Interventional Neuroradiology (INR) to Neurointerventional Surgery. The American Society of Interventional & Therapeutic Neuroradiology (ASITN) changed its name to Society of Neurointerventional Surgery (SNIS [1]). Others have proposed redefining the field as "endovascular surgical neuroradiology."[]

Training

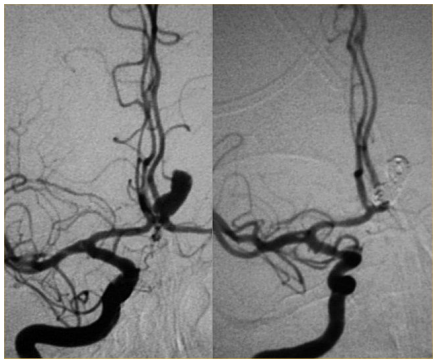
Preparatory requirements for a fellowship in INR/NIS include successful completion of a residency in Radiology, Neurosurgery, or Neurology and additional training depending on the given field. Neurologists must complete additional fellowship training in neurovascular diseases/vascular neurology, stroke neurology, or neurocritical care as well as gain experience in neuroangiography in order to qualify to train in a neurointerventional fellowship. Radiologists usually complete a fellowship in diagnostic neuroradiology prior to a neurointerventional fellowship but some train in neurointerventional surgery following vascular/interventional radiology fellowship. Neurosurgeons must gain experience in neuroangiography prior to a neurointerventional fellowship.

Neurointerventional fellowships are variable in length, but last from 1-3 years with a focus on the integration of clinical management and performance of endovascular and minimally-invasive surgeries of the conditions/diseases listed below. Many fellowships require a second year of training which allows participants to further hone their technical skills and assert a greater degree of influence in clinical management of patients with diseases of interest.

Diseases and conditions

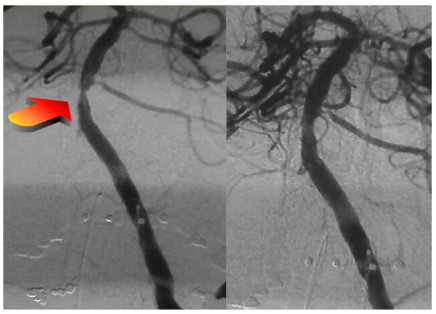
The following is a list of diseases and conditions typically treated by neurointerventionalists.

- Cerebral aneurysm
- Brain arteriovenous malformation (AVM)
- Carotid-cavernous fistula (CCF)
- Dural arteriovenous fistula
- Extracranial (brachiocephalic) atherosclerosis
- Extracranial (head and neck) and paraspinal vascular malformations
- Head and neck tumors
- Intracranial atherosclerosis
- Juvenile nasopharyngeal tumor



Endovascular repair of cerebral aneurysm.

- Meningiomas
- Nosebleeds
- Paragangliomas
- Stroke
- Spinal vascular malformations
- Traumatic vascular lesions
- Vasospasm
- Vertebral body tumors
- Vertebral body compression fractures



Intra-Cranial Angioplasty and Stent of Basilar Artery Stenosis.

References

[1] http://www.snisonline.org

Article Sources and Contributors

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