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The value of a dedicated neurovascular rotation during neurosurgery residency: evaluation of a 3- and 12month experience

Kyle Mueller MD; Daniel Felbaum MD; Ai-Hsi Liu MD; Robert Bryan Mason MD, FACS; Edward F. Aulisi MD, FAC; Randy Scott Bell MD; Rocco Armonda MD



Medstar Georgeton University Hospital and Medstar Washington Hospital Center

Introduction

There is a profound role for neurosurgeons' involvement in the comprehensive treatment of cerebrovascular patients. This specific population encompasses a variety of pathology including intracranial hemorrhage, arteriovenous malformations, cerebral aneurysms and stroke. Recent clinical trials for endovascular treatment of large-vessel occlusion have expanded therapeutic options for acute stroke and requires exposure during neurosurgical residency. Resident education, in being properly prepared to treat and manage these patients, requires a dedicated rotation with exposure to both open and endovascular interventions.

Methods

We investigated the role of a senior neurosurgical resident during a separate 3- and 12month neurovascular rotation at a single institution. A post-graduate year 4 resident completed a 12-month rotation or a separate 3-month on the cerebrovascular service at Washington Hospital Center with senior supervising surgeons (RAA, RBM, EFA, AHL). During this time period, the resident was responsible for all patients being managed by the neurosurgical service with attention to vascular-related pathology. The resident was the main focal point for seeing and evaluating vascular patients, communicating issues with the cerebrovascular attendings, and participating in any potential interventions.

Conclusions

Being facile with both open and endovascular techniques is important in training neurosurgical residents to be adequately prepared managing patients with cerebrovascular disease. We found that a dedicated neurovascular rotation for a 3-month block provides sufficient exposure in meeting neurosurgical residency mandated minimal requirements. In addition, during a 12-month rotation a resident can begin to develop the necessary skill set to be able to become facile in endovascular or open cerebrovascular techniques.



Neurovascular Experience for a 3- and 12-Month Rotation

	3-Month Rotation	12-Month Rotation
Open Vascular Intervention	15	30
Endovascular Intervention	26	81
Diagnostic angiograms	61	136

3-Month Endovascular Case Breakdown

Stroke	Aneurysm	Tumor Embolization	AVM/AVF Embolization	Diagnostic	Other ^A	
8	15	3	6	99	5	
A: kyphoplasty, lumbar drain, catheter dye study						

Learning Objectives

1.Residency programs should formalize in their curriculum a dedicated 3-month neurovascular rotation during the mid-level years.

2. Three months provides sufficient exposure to both open and endovascular interventions to meet ACGME requirements for training.

3.Increased time on the rotation will allow senior residents to begin to develop skills in both open and endovascular techniques.

4.Neurosurgery residents should be an active part of endovascular treatments of cerebrovascular patients.