Primary Stroke Center vs. Comprehensive Stroke Center

WHAT’S THE DIFFERENCE?

Primary Stroke Center (PSC) designation was initiated in 2004 by The Joint Commission, and indicates that a hospital has demonstrated the capability to rapidly evaluate acute stroke patients, provide IV tPA according to guidelines, and provide evidence-based acute care, therapy, education, and discharge planning. PSC staff and providers who care for stroke patients are educated and competent. Complex stroke patients, and those requiring advanced intervention, are transferred to Comprehensive Stroke Centers.

Comprehensive Stroke Center (CSC) designation was initiated in 2012 by The Joint Commission, and indicates that a hospital has met the criteria for PSC, as well as demonstrates the following capabilities: advanced neuro-imaging, endovascular neuro-intervention according to guidelines, a sufficient volume of complex stroke patients, education and competency requirements for staff and providers, follow-up of patients after discharge, and a database for tracking complications and patient outcomes.

The side-by-side comparison illustrates the differences between these two certifications.
Pipeline Embolic Device Provides Revolutionary Treatment for Brain Aneurysms

This 73-year-old male presented with double vision. He was a long-term smoker with a history of hypertension, peripheral vascular disease, and an abdominal aortic aneurysm. His examination revealed a mild left VIth nerve palsy, but no other neurological deficits. The patient was referred for a brain MRI, which revealed a large mass within the left cavernous sinus (Figure 1). The signal characteristics on MRI were consistent with a vascular lesion, most likely an aneurysm.

The patient was referred for neurosurgical consultation and underwent a diagnostic cerebral angiogram to better assess the area of the suspected abnormality. The angiogram (Figure 2) demonstrated a large saccular aneurysm arising from the intracavernous left internal carotid artery. Given the patient’s symptoms and the size of the aneurysm, treatment was recommended to occlude the aneurysm.

More recently, the technique of flow-diversion has become popular as an alternative to coil embolization for these challenging aneurysms. In a flow-diversion procedure, a mesh-like tube (similar to a stent) is placed across the neck or base of the aneurysm. The device literally diverts flow away from the aneurysm, causing it to thrombose (occlude) over time. Complete thrombosis may take weeks or months, depending on the size of the aneurysm and the degree of flow diversion achieved, but once the aneurysm is occluded, it will not reoccur. Because this treatment does not result in immediate aneurysm occlusion, it is not recommended for patients with subarachnoid hemorrhage (stroke) from a recently ruptured aneurysm. In the United States, the Pipeline Embolic Device (Covidien Neurovascular, Irvine, CA) is the only device approved by the FDA for the flow-diversion treatment of brain aneurysms (Figure 3).

Based on the size, location and configuration of this patient’s aneurysm, treatment with a Pipeline Embolic Device was recommended. The patient was pre-treated with aspirin and clopidogrel (PLAVIX) for one week to prevent thrombus formation on the device itself. He was then taken to Penn State Hershey’s neuroendovascular suite and a single Pipeline Embolic Device was placed across the base of the aneurysm (Figure 4). The patient tolerated the procedure well and he was discharged to his home the next day.
LionNet Update

We welcome our newest LionNet telestroke partners: Evangelical Hospital, Lancaster Regional Medical Center, and Heart of Lancaster Medical Center have all become active partners since January 2014, giving the network a total of ten partners. Penn State Hershey has completed more than 900 consults since July 2012, and maintains an impressive network treatment rate of more than 25 percent, and transfer rate of less than 30 percent.

FIGURE 4: Lateral skull X-ray taken during treatment showing the newly placed Pipeline Embolic Device (arrow) within the left internal carotid artery.

The patient continued on dual antiplatelet therapy for three months. A follow-up angiogram at that time revealed complete occlusion of the aneurysm (Figure 5), and his antiplatelet therapy was discontinued. His left VIth nerve palsy and double vision gradually resolved after treatment.

FIGURE 5: Comparison lateral views from the patient’s cerebral angiograms. Photo 5A shows the pretreatment appearance of the aneurysm and internal carotid artery. Photo 5B illustrates stasis within the aneurysm (arrow) after initial Pipeline Embolic Device placement. Photo 5C (from the patient’s follow-up angiogram performed three months after treatment) shows complete occlusion of the aneurysm with restoration of a normal appearance to the internal carotid artery.

If you are interested in becoming a LionNet partner or would like to hear more about the program, please contact Jen Humbert, RN, LionNet project manager, at 717-531-1276. For stroke patient transfers to Penn State Hershey Medical Center, please contact Patient Logistics at 717-531-8856. For outpatient referrals to Penn State Hershey Neurology or Penn State Hershey Neurosurgery, please call 717-531-3828.

CURRENT LIONNET PARTNERS

Carlisle Regional Medical Center
Ephrata Community Hospital
Evangelical Community Hospital
Hanover Hospital
Heart of Lancaster Regional Medical Center
Lancaster Regional Medical Center
Memorial Hospital
Mount Nittany Medical Center
St. Joseph Medical Center
The Good Samaritan Hospital (Lebanon)
Research Corner

### ISCHEMIC STROKE STUDIES

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<tr>
<td><strong>POINT</strong> Platelet Oriented Inhibition in New TIA and minor ischemic stroke</td>
<td>University of Southern California supported by NIH</td>
<td>To determine if clopidogrel is effective in preventing major ischemic vascular events at 90 days</td>
<td>TIA or minor stroke</td>
<td>On clopidogrel, any antiplatelet or anticoagulants at time of symptom onset</td>
<td>Call hospital operator 717 531 8521 and ask for research coordinator-Kim Hitz to be paged.</td>
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<td><strong>SHINE</strong> Stroke Hyperglycemia Insulin Network Effort</td>
<td>University of Virginia supported by NINDS &amp; NIH</td>
<td>To determine the efficacy of tight glucose control with IV insulin infusion in hyperglycemic acute ischemic stroke patients within 12 hours of symptom onset</td>
<td>NIHSS 3-7 with mRS 0 or NIHSS 8-22 with mRS 0-1 Type II Diabetic with glucose &gt;110 or non-diabetic with a glucose &gt;/=150 Age &gt; or =18</td>
<td>Diabetes patients</td>
<td>Call hospital operator 717 531 8521 and ask for research coordinator-Deborah Hoffman to be paged on pager 2613</td>
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<td><strong>ATHERSYS</strong> Double blind, randomized, placebo controlled phase 2 safety &amp; efficacy trial of Multistem in adults with ischemic stroke</td>
<td>Athersys, Inc.</td>
<td>To determine the safety and efficacy of MultiStem in subjects with ischemic stroke</td>
<td>Cortical stroke with a volume of 5-100ml Age 18-83 NIHSS 8-20 mRS 0-1</td>
<td>Seizures History of cancer</td>
<td>Call hospital operator 717 531 8521 and ask for research coordinator-Deborah Hoffman to be paged on pager 2613</td>
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### HEMORRHAGIC STROKE STUDIES

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<td><strong>CLEAR III</strong> Clot Lysis: Evaluating Accelerated Resolution Of intraventricular hemorrhage - Phase III</td>
<td>John Hopkins University supported by NIH</td>
<td>To test the efficacy of more rapid intraventricular clot resolution by clot drainage plus intraventricular rt-PA.</td>
<td>Age 18-80 mRS 0 or 1 Must be enrolled within 72 hours of onset ICH &lt; or =30cc IIIrd or IVth ventricles occluded Requires an EVD</td>
<td>Clotting disorder No EVD needed ICH &gt;30cc</td>
<td>Call hospital operator 717 531 8521 and ask for research coordinator-Deborah Hoffman to be paged on pager 2613</td>
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<td><strong>ATACH II</strong> Antihypertensive Treatment of Acute Cerebral Hemorrhage</td>
<td>University of Minnesota supported by NINDS</td>
<td>The primary aim of the study will be to measure if intensive SBP treatment (SBP ≤140 mmHg) is better than standard SBP treatment (SBP ≤180 mmHg)</td>
<td>Must be enrolled by 4.5 hrs post onset of symptoms SBP&gt;180 ICH/IVH/IPH &lt;60cc Age &gt;18</td>
<td>GCS &lt;5 SBP &lt;180 on arrival at study site and does not rise above SBP 180</td>
<td>Call hospital operator 717 531 8521 and ask for research coordinator-Deborah Hoffman to be paged on pager 2613</td>
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### Upcoming Events

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<td>Capital Region Stroke</td>
<td>Harrisburg, PA</td>
<td>Oct 2-3, 2014</td>
<td>PennStateHershey.org/ce</td>
<td>This event features presentations and discussions related to the care and treatment of stroke patients.</td>
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