Washington University in St. Louis
Office of Technology Management

DECISION SUPPORT PROCESS FOR CEREBRAL ANEURYSM PATTERN RECOGNITION IN MICROSURGICAL/ENDOVASCULAR DECISION SUPPORT SYSTEM

Dacey, Ralph, Ju, Tao, Washington, Chad

Weilbaecher, Craig

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Cerebral Aneurysms are weak areas in the wall of a blood vessel causing it to bulge out. These aneurysms can take on many sizes, shapes, and be in different locations. Currently cerebral angiographies, spinal tap, CT or MRI are used to diagnose cerebral aneurysm. Treatment options are chosen by a doctor in case-by-case manner by evaluating risks of each treatment as well as non-treatment. If a surgeon chooses to treat the aneurysm, he or she must then decide if whether to use a coil or one of the 100s of different clips. Non-experienced surgeons or residents in training could benefit from a process to support decision making and optimize treatment.

Dr. Ralph Dacey, chairmen of the Department of Neurological Surgery at Washington University in St. Louis, along with colleagues has developed a Decision Support System (DSS) that implements mathematical processes to assist the surgeon in the selection of preferred treatment constructs (clips/coil) based on shape analysis of cerebral aneurysms. This software package can be integrated into operating room microscopes and 3D angiogram; or be used for post-processing in these images.

Advantages:

- Support decision making capabilities
- Automates process (Fast)
- Easily integrated into current imaged equipment
- Useful for non-experienced surgeons