**Abstract 147: Utilization and Application of Transcranial Doppler Emboli Monitoring for Infective Endocarditis**

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**Abstract**

**Introduction**

The rapid growth of the elderly population, an increase in cardiac disease, and notable use of intracardiac prosthetic devices has led to an increased prevalence of infective endocarditis (IE). Among the sequelae observed with an IE diagnosis, acute ischemic stroke (AIS), subarachnoid hemorrhage (SAH), intracerebral hemorrhage (ICH), vasculitis, septic emboli, cerebral abscess, and infectious intracranial aneurysms (IIA) continue to complicate overall management of this disease. Current literature on neurological complications of IE includes limited data on the defined role of neuroimaging in dictating inpatient management. Transcranial doppler (TCD) emboli monitoring with high intensity signals (HITS) offers a real time, radiation‐free, relatively low cost, non‐invasive imaging option to potentially risk stratify and identify candidates for earlier intervention to prevent further cerebrovascular (CV) complications.

**Methods**

We conducted an observational study of infective endocarditis cases admitted to our institution from April 2022 to May 2023 who had TCD with HITS completed. Baseline clinical characteristics (age, sex, date and timing of TCD with HITS study, date of last positive blood culture, organism of infection, other neuroimaging utilized) were recorded. Observations recorded included the results of the TCD with HITS studies, the overall incidence and timing of neurological complications (AIS, SAH, ICH, IIA, septic emboli, cerebral abscess), timing of valve surgery, and inpatient mortality rates. A positive HITS was defined as detection of cerebral microembolism during ultrasound monitoring of bilateral middle cerebral arteries (MCA) for 30 minutes using a TCD machine (VIASONIX Dolphin IQ).

**Results**

Between April 2022 to July 2023, we identified 22 patients with confirmed left‐sided infective endocarditis who underwent TCD with HITS. Mean age was 66 years (SD, 10), and 82% were men. Leading pathogen types were Enterococcus Faecalis (27%) and Staphylococcus Epidermidis (18%). CV complications were noted in 19/22 patients (86%), the most common being AIS (82%) and IPH (18%). Two patients (9%) were found to have a positive HITS study, both of which developed septic emboli that caused ischemic stroke in one case, and hemorrhagic stroke in the other case. Average days from admission to timing of TCD with HITS study was 8.5 days. 14/22 patients underwent valve surgery (64%) during the admission on average 9.2 days after TCD with HITS study in the negative HITS group versus 5 days in the positive HITS group. Of the positive HITS cases, one of them died inpatient.

**Conclusion**

The association between neurological complications in patients with IE and cerebral microemboli detected with TCD monitoring has yet to be elucidated. While our observational study was limited by our sample size, both of our IE patients who had positive TCD with HITS studies developed more severe CV complications, and aggressive care was sought out more urgently to further minimize complications. Future directions include pursuing a prospective study incorporating TCD with HITS monitoring for patients with IE in order to risk‐stratify neurological complications and safety of valve surgery.