

## **Use of Intra-Aortic Balloon Pump Counterpulsation in Patients with Symptomatic Vasospasm Following Subarachnoid Hemorrhage and Neurogenic Stress Cardiomyopathy**

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### **Introduction**

Intra-aortic counterpulsation balloon pumps (IABPs) have been widely used to augment hemodynamics in critically ill patients with cardiogenic shock, and have recently been proposed as a management strategy for subarachnoid hemorrhage (SAH) patients with neurogenic stress cardiomyopathy (NSC). Prior case series have described the use of IABP as a means to manage cardiogenic shock in this patient population; however, we sought to describe our experience with IABP as a means to wean vasopressor requirement while augmenting hemodynamics and maintaining pressures at goal.

### **Methods**

5 patients were identified from a single center, prospective, observational cohort study, that received an IABP for management of ischemia related to cerebral vasospasm in the setting of NSC. We evaluated all cases for efficacy of IABP in reducing vasopressor requirement, and complications.

### **Results**

Vasopressor requirements were reduced by a mean of 50% (range 25-65%) following IABPs placement within 24-48 hours. There were no significant complications from IABPs. Out of the 5 patients, the outcome in 3 cases was favorable (mRS=1). Two patients suffered DCI despite IABP placement, one patient passed away due to severe sepsis, and one patient was left with severe disability. Only one patient required anticoagulation and that was for a preexisting deep venous thrombosis.

### **Conclusions**

The use of IABPs may be beneficial as an adjunctive therapy in SAH patients with concomitant symptomatic vasospasm and NSC.

### **Learning Objectives**

We sought to describe our experience with IABP as a means to wean vasopressor requirement while augmenting hemodynamics and maintaining pressures at goal.

### **References**

Lazaridis C, Pradilla G, Nyquist PA, Tamargo RJ. Intra-aortic balloon pump counterpulsation in the setting of subarachnoid hemorrhage, cerebral vasospasm, and neurogenic stress cardiomyopathy. Case report and review of the literature. *Neurocritical care*. 2010;13:101-108

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