

The Contribution of Whole Platelet Aggregometry to the Endovascular Management of Unruptured Aneurysms: An Institutional Experience

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Introduction

Results

aneurysms is a viable and efficient treatment alternative to surgical clipping but requires prolonged antiplatelet therapy. Some patients can be non-responsive to aspirin and/or clopidogrel. This is the first study analyzing the implications of this assessment using the "whole blood aggregometry (WBA) by impedance" technique.

Methods

The Southwestern Tertiary Aneurysm Registry (STAR) was reviewed between 2002 and 2012 for patients with unruptured aneurysms treated with stentassisted coiling. The study population was divided into patients who were tested preoperatively for platelet responsiveness to aspirin and clopidogrel ("tested" patients) and those who were not ("non-tested" patients). Where necessary, a majority of tested patients received additional doses of anti-platelet drugs to achieve adequate platelet inhibition. Endpoints included the incidence of antiaggregant nonresponsiveness, the rates of thrombotic and hemorrhagic complications, and the rates of permanent morbidity and mortality.

Stent-assisted coiling of intracranial A total of 266 patients fulfilled our selection criteria. There were 114 non-tested patients who underwent 121 procedures, and 152 tested patients who underwent 171 procedures. The two groups did not vary significantly in patient age, gender, and aneurysms location. Aspirin nonresponsiveness was detected in 3 patients (1.75%) and clopidogrel nonresponsiveness in 21 patients (12.3%). Non-tested patients had an 11.5% rate of thrombotic complications with a 4.23% permanent morbidity or mortality rate versus 2.3% and 0.58% in tested patients (p=0.0013). The incidence of hemorrhagic complications was similar between the two groups.

	Non-Tested Patients	Tested Patients
	114 Patients; 121 procedures	152 Patients; 171 Procedures
Combined Hemorrhagic and ischemic Event Rate	22 (17.6%)	10 (5.8%)
Number of Total Hemorrhagic Complications	8 (6.61%)	6 (3.5%)
Number of Total Ischemic Complications	14 (11.57%)	4 (2.4%)
Number of Permanent Hemorrhagic Morbidity	3 (2.47%)	2 (1.17%)
Number of Permanent Ischemic Morbidity	5 (4.13%)	1 (0.58%)
Total Fatality Cases	2	2

Conclusions

Preoperative platelet inhibition testing using WBA can be useful to assess and correct antiaggregant non-responsiveness, and may reduce post-operative mortality and permanent morbidity.

Learning Objectives

- Identify the role of adequate aspririn and Plavix effect prior to endovascular stent-assisted coiling of brain aneurysms
- Recognize the role of whole blood aggregometry in assessing and correcting antiaggregant nonresponsiveness

References

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