

## Clinical Manifestations of Clopidogrel Hyper-response in Dual Antiplatelet Therapy Following Intracranial Aneurysm Stenting

Rajeev D. Sen MD; Christopher Cheng Young MD, MBChB, MSc, PhD; Cory Kelly BS; Isaac Josh Abecassis; Louis J. Kim MD; Michael Robert Levitt MD  
University of Washington



### Introduction

Endovascular stenting of intracranial aneurysms can be complicated by stent thrombosis. To mitigate this risk, patients are prescribed dual anti-platelet therapy (DAPT), typically aspirin and clopidogrel. Clopidogrel prevents thrombosis by inhibiting the P2Y12 adenosine diphosphate (ADP) receptor on the platelet cell membrane. Platelet response to P2Y12 inhibitors has been shown to vary by patient and is determined using the VerifyNow assay. Results are reported in P2Y12 reaction units (PRU), a lower score representing a greater response to the drug. Few studies have examined the clinical effects and management after intracranial aneurysm stenting in patients with a hyper-response to clopidogrel.

### Methods

We performed a single institution, 5-year retrospective review of all patients who underwent endovascular aneurysm treatment that included stenting (stent-assisted coiling and flow-diverting stent placement) and received clopidogrel as part of DAPT (clopidogrel 75mg and aspirin 325mg daily).

### Results

255 patients underwent endovascular stent procedures and required treatment with DAPT. VerifyNow P2Y12 reaction assay was obtained following preoperative DAPT treatment. VerifyNow PRU <15, indicating a hyper-response, was found in 45 patients. Of these 45 hyper-responders, 7 patients (16%) experienced significant fatigue that resolved by either dose reduction, completion of treatment, or spontaneous improvement over several months. Clopidogrel hyper-response was not associated with aspirin hyper-response or bleeding complications.

### Conclusions

Hyper-response to clopidogrel after intracranial aneurysm stenting may result in symptoms such as fatigue, and dose adjustment may mitigate symptoms and improve patient compliance and satisfaction.

### Learning Objectives

By the conclusion of this session, participants should be able to:

- 1) Understand the mechanism of action of anti-platelet agents and their respective activity assays
- 2) Identify rates of hyper-response
- 3) Identify clinical manifestations of clopidogrel hyper-response.

### References

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