Effect of Tapering Clopidogrel Treatment on Platelet Reactivity in Patients after Coronary Stenting

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Background: Recent evidence suggests that after discontinuing clopidogrel treatment in patients with acute coronary syndrome there is an increase in adverse cardiovascular events in the initial months, suggesting there may be a clopidogrel "rebound" effect. Given this possibility, it has been suggested that drug "tapering" should be considered. However, there is limited data about the pharmacodynamic effects of this strategy. Accordingly, we aimed to assess the effect of gradual withdrawal of clopidogrel treatment on platelet reactivity.

Methods: Two groups of 10 patients each were included. The groups comprised of patients who underwent elective percutaneous coronary intervention with bare metal stents. Following 3 months treatment with clopidogrel 75 mg daily (and aspirin 100 mg) patients were randomized to one of two groups: a. treatment for an additional month with clopidogrel 75 mg every other day; b. discontinuation of clopidogrel. Four blood tests were taken during a period of 6 weeks from all patients: prior to the additional period of therapy (on full clopidogrel), two- and four- weeks into the additional period, and two weeks after termination of the additional period. Platelet reactivity was assessed by light transmission aggregometry in response to 5 and 10 µM ADP.

Results: Gradual withdrawal of clopidogrel was associated with substantial inhibition of platelet reactivity, compared with abrupt cessation of treatment. Unexpectedly, in the study group the level of platelet inhibition during treatment with clopidogrel every other day was similar to the level of inhibition reached with standard dosage of clopidogrel before altering treatment (Figure).

Conclusions: This study suggests that effective platelet inhibition can be achieved by tapering of clopidogrel treatment using a strategy of clopidogrel administration every other day. Further studies regarding strategies of tapering of clopidogrel treatment and their potential clinical impact should be performed.