# Cerebral Micro bleeds in Coronary Artery Disease Patients during Antiplatelet Therapy

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## Abstract

**Background**: Brain hemorrhage is a serious complication of antiplatelet therapy, particularly dual antiplatelet therapy (DAPT), in patients with coronary artery disease (CAD) who undergo percutaneous coronary intervention (PCI). It has been suggested that cerebral micro bleeds (CMBs) detected on magnetic resonance imaging (MRI) are a risk factor for future cerebral haemorrhage. However, little is known about CMBs in CAD patients during antiplatelet therapy. We investigated the temporal changes of CMBs and determined the risk factors for CMBs in patients with CAD on antiplatelet therapy.

**Methods:** This study prospectively enrolled 14 CAD patients who underwent antiplatelet therapy (DAPT in 13 patients) and had no history of symptomatic stroke. Brain MRI was performed at baseline and after 8-month follow-up.

**Results:** Baseline MRI revealed CMBs in two patients (14%). New CMBs were detected by follow-up MRI in two other patients (14%). CMB-positive patients had a greater number of coronary artery lesions ($p=0.04$) and a tendency to have a higher SYNTAX score at baseline ($p=0.06$) than CMB-negative patients. Although blood pressure (BP) at baseline did not differ between the CMB-positive and CMB-negative patients, BP after 8 months was significantly higher in CMB-positive than in CMB-negative patients (systolic BP: $p=0.03$, diastolic BP: $p=0.02$).

**Conclusions**: CAD patients with severe coronary artery lesions and poor BP control appear to be at higher risk for CMBs during antiplatelet therapy. Accordingly, strict coronary risk control, especially BP control, is necessary to prevent new CMBs in CAD patients receiving long-term antiplatelet therapy

**Keywords:** Antiplatelet therapy; Coronary artery disease; Hypertension; MRI; Cerebral hemorrhage