Abstract:
Inflammatory processes in the vessel wall are associated with progression of atherosclerosis and myocardial infarction. Both high levels of C-reactive protein (CRP) and high on-clopidogrel treatment platelet reactivity (HPR) have been linked to an increased risk of ischaemic events after percutaneous coronary intervention (PCI). The aim of this study was to explore the association between biomarker levels of inflammation and platelet reactivity. Stable patients (n=1,223) eligible for this study were under chronic antiplatelet treatment with aspirin and clopidogrel due to prior coronary stent placement. ADP-induced platelet aggregation (in AU*min) was measured on a Multiplate analyser. The primary outcome measure of this retrospective study was the ADP-induced platelet aggregation in patients with versus those without elevated CRP levels. Of the patients 15.5% (n=189) showed elevated CRP levels (>=5 mg/l). Platelet aggregation (median [interquartile range]) was significantly higher in patients with elevated CRP levels compared to patients with normal (<5 mg/l) CRP levels (305 [202-504] AU*min vs. 218 [144-384] AU*min; p<0.001). A multivariable linear regression model that adjusted for known predictors of HPR confirmed a significant independent association between elevated CRP levels and high
ADP-induced platelet aggregation values (p=0.0002). Elevated WBC count and fibrinogen levels were also associated with higher platelet aggregation values (p<0.001 for both). In conclusion, elevated levels of CRP, WBC count and fibrinogen were significantly associated with high platelet reactivity in patients under chronic clopidogrel treatment. Whether a direct relation between platelets and inflammation exists, as well as the clinical impact of our results, warrants further investigations.