The mortality of coronary artery disease has substantially decreased in the developed countries, however, cardiovascular diseases and their complications still remain the leading cause of premature death worldwide. Hemorheological parameters have been proved to be independent risk factors of ischemic heart disease. Platelets are vital components of normal hemostasis and key participants in pathologic thrombosis by virtue of their capacity to adhere to injured blood vessels and to accumulate at sites of injury. A variability in patient response in the case of both ASA and clopidogrel therapy is well known. Differences were found in clinical and hemorheological parameters of ASA treated patients with effective platelet inhibition compared to patients with ineffective treatment. Clinical and hemorheological parameters, plasma von Willebrand factor and soluble P-selectin levels of patients with effective platelet inhibition by clopidogrel have been compared to patients with ineffective clopidogrel treatment. A possible connection was found between gender differences in hemorheological parameters and in vitro platelet aggregation in vascular patients treated with widely used antiplatelet agents. We investigated the relation of platelet aggregation and fibrinogen levels to advancing age in aspirin- and thienopyridine-treated patients. Specific changes were found in hemorheological parameters and platelet aggregation following carotid stenting.