Hemorheology is a field of science which often becomes interesting to researchers studying impairments related to blood flow disturbances. Clinically silent vascular cerebral lesions (CSVCL) are considered as a problem of great importance in neurology. The aim of this work was the analysis of the interdependencies of rheological and biochemical parameters of blood. The group of patients included persons with clinically silent multifocal vascular cerebral lesions diagnosed by means of neuroimaging. The control group had no such symptoms in the central nervous system (CNS). We analysed hemorheological profiles in a group of 69 patients with CSVCL diagnosed by magnetic resonance imaging (MR) or 64-row computer tomography (CT) in relation to the control group – 17 subjects without such changes. Blood and blood plasma viscosity measurements were performed by means of a rotary-oscillating rheometer Contraves LS-40. For each sample the hematocrit value was measured using the standard method. Analysis of erythrocytes aggregability and deformability was performed with the use of rheological model of Quemada. Biochemical tests of blood were also performed. Received results of rheological and biochemical studies were compared with results obtained in the control group. Special attention was paid to the correlation analysis of rheological and biochemical parameters. Such correlation were found e.g. between the red cells deformability and the fibrinogen level.