Early recognition of vulnerable patients is an important issue for stroke prevention. In our study, a multiscore analysis of various biomarkers was performed to evaluate its superiority over the analysis of single factors. Study subjects (n = 110) were divided into four groups: asymptomatic patients with stable (n = 25) and unstable (n = 36) plaques and symptomatic patients with stable (n = 13) and unstable (n = 36) plaques. Serum levels of MMP-1, -2, -3, -7, -8, -9, TIMP-1, -2, TNF-?, IL-1b, and IL-6, -8, -10, -12 were measured. Multi-score analysis was performed using multiple receiver operating characteristics (ROC) and determination of appropriate cutoff values. Significant differences between the groups were observed for MMP-1, -7, -9 and TIMP-1 in serum of the study subjects (P< 0.05). Multiple biomarker analysis led to a significant increase in the AUC (area under curve). In case of plaque instability, positive predictive value (PPV) for up to 86.4% could be correctly associated with vulnerable plaques. Thus, multiscore analysis might be preferable than the use of single biomarkers.