We investigated the role of the red cell distribution width (RDW) and other parameters including platelet (PLT) count, mean platelet volume (MPV), and platelet distribution width (PDW) in patients with obstructive sleep apnea syndrome (OSAS) having cardiovascular diseases (CVDs). Patients (n = 142) having sleep disorders and who applied for a night polysomnography were included in this study. For statistical analysis, chi-square test, bivariate correlation, and logistic and stepwise regression tests were used. A positive correlation between RDW MPV, RDW, and body mass index as well as PLT and apnea-hypopnea index were observed. A negative correlation between AHI and PDW (P = .041) and a positive correlation between AHI and PLT (P = .010) were found in the patients ≥40 years old with CVD. The RDW was higher in patients ≥40 years old who had CVD (P = .016), and 19% of them had RDW >14%. The PDW (odds ratio = 6.02 [95% confidence interval = 1.3-28.2], P = .023) appeared to be associated with increased risk of hyperlipidemia in patients with severe OSAS. If these results are confirmed, RDW could be used with other markers, especially PLT and PDW, in prediction of CVD in patients with severe OSAS.