Background. Rheumatic mitral stenosis (RMS) is associated with increased thromboembolic event, especially in the presence of concomitant atrial fibrillation. In addition, increased platelet activity including elevated mean platelet volume (MPV) has been demonstrated in patients with RMS. It has also been reported that percutaneous mitral balloon valvuloplasty (PMBV) attenuates platelet activity. However, the impact of PMBV on MPV has never been studied. Accordingly, we aimed to investigate whether PMBV decreases MPV in patients with RMS. Methods. In the present study, MPV was measured in 20 patients with RMS planned for PMBV just before and 1 month after the procedure. Twenty sex- and age- matched apparently healthy controls were used for comparison. Mitral valve area (MVA), transmitral gradient (TMG) and pulmonary artery pressure (PAP) were measured using transthoracic echocardiography. Results. As compared to apparently healthy controls, patients with RMS had higher MPV (9.05 ± 1.26 vs. 7.56 ± 0.74 fl, p < 0.001). All patients with RMS underwent successful PMBV. One month after the procedure, MVA, TMG and PAP were reduced significantly (p < 0.0001). As compared to values obtained before the procedure, white blood cell count, hemoglobin concentration and hematocrit remained unchanged. However, 1 month after the procedure platelet count had increased (p < 0.05) and MPV decreased significantly (to 7.78 ± 0.59, p < 0.0001). PMBV induced an absolute decrease in MPV more than 0.2 fl in 19 of 20 patients (95%). Conclusions. As compared to apparently healthy controls, patients with RMS have higher MPV reflecting increased platelet activity, and PMBV is associated with a significant decrease in MPV 1 month after the procedure.