Background*.* In patients with ST-segment elevation myocardial infarction (STEMI), primary percutaneous coronary intervention (PCI) was associated with early and sustained restoration of blood flow compared to fibrinolytic therapy. Impaired myocardial blush grade (MBG), may be present in many after successful PCI. Prolonged QRS was found to be associated with an increased morbidity and mortality after STEMI.

Objectives. To find out if prolonged QRS in STEMI patients can predict low MBG after primary PCI.

**Patients and Methods.** Sixty STEMI patients were included in our study. History taking, clinical examination, ECG with measuring of QRS duration, primary PCI, and echocardiography were done to them. QRS duration was measured before and after PCI and the change was calculated.

**Results.** Patients with low MBG (0-1) had significantly higher QRS duration before and after PCI and significantly lower change after PCI (p <0.00001 for each).Independent predictors for MBG were in order of significance: QRS duration before PCI (p <0.00001), QRS duration after PCI (p <0.00001), Troponin level (p <0.00001), symptom to balloon time (p =0.0063), and CK-MB level (p=0.015). QRS duration 89 ms could predict low MBG with sensitivity 82.6%, specificity86.5%, positive predictive value 79.2%, and negative predictive value 88.9%.

Conclusion. In STEMI patients undergoing primary PCI, prolonged QRS duration was associated with a low MBG, a sign of impaired microvascular reperfusion. QRS duration before and after PCI were found to be independent predictors for low MBG (0-1).

Key words: primary PCI; Microvascular Reperfusion; Myocardial Blush Grade; STEMI; QRS duration.