Aortic stiffness as reflected by fractional pulse pressure is a marker for adverse in-hospital outcomes in patients with STEMI undergoing percutaneous coronary intervention.

**Background:** Fractional pulse pressure (PPf) directly reflects large artery function and stiffness. PPf has been shown to be a strong predictor of impaired coronary microcirculation, presence of CAD, and restenosis after percutaneous coronary intervention (PCI). However, the relationship between PPf and in-hospital outcomes in patients with acute STEMI undergoing PCI has not been studied.

**Methods:** Consecutive patients with acute STEMI (N=209), undergoing primary PCI, from 2007-2013 were studied retrospectively. PPf was calculated as central pulse pressure divided by mean arterial pressure, recorded in the ascending aorta using the liquid-filled recording system at time of primary PCI. Patients were categorized into 3 groups according to PPf: PPf1, 0.5-0.75; PPf2, <0.5; PPf3, >0.75.

**Results:** In our population (mean age 56±12 years, male 65.1%, Hypertension 78.5%, Diabetes 32.5%), PPf1 was associated with the lowest risk of in-hospital mortality (p=0.025), cardiogenic shock (p=0.026), need for intra-aortic balloon pump (IABP) (0.017) and heart failure (HF) (p=0.313) (figure). After adjustment for traditional risk factors, patients with PPf2 or PPf3 had a higher risk of in hospital mortality OR (95%CI) 25.5 [2.1 - 297.7] and 28.4 [1.9- 419.2], respectively (p=0.01 for all).

**Conclusion:** Fractional pulse pressure, marker of aortic stiffness, between 0.5 and 0.75 is associated with low in-hospital mortality and adverse outcomes in patients with acute STEMI undergoing primary PCI.