Radial arteriograms were taken 1 min and 2 min after injection of vasodilators. The RAS incidence was compared at baseline, 1 min and 2 min after injection of vasodilators by one-way ANOVA in three groups. Stenosis of radial arteries in diameter was measured by quantitative computed analysis (QCA) method on radial arteriograms, RAS was defined asstenosis >70%, and clinical RAS was defined as patients’ feeling of pain or there was obvious resistance in advancing or withdrawing catheters.

**Results** The total RAS rate was 10.6%, and clinical RAS rate 6.2%. Diameter of radial artery, sheath profile and previous TRI history >2 were RAS independent risk factors. The RAS rate at baseline in nitroglycerin group, nicardipine group and cocktail group was 15%, 8.3% and 8.3% (no significant difference), 3.3%, 5.0% and 1.7% (no significant difference) at 1 min after injection of vasodilators, 1.7% (vs Nicardipine group, p<0.05), 3.3% and 0% (vs other two groups, both p<0.05) at 2 min after injection.

**Conclusions** RAS rate was 10.6%. The independent relative factors of RAS included diameter of radial artery, sheath profile and ≥2 previous TRI history. Nitroglycerin and Nicardipine can significantly dilate radial arteries, but the combination of both has a more powerful effect.