

Safety and efficacy of sheathless transradial percutaneous coronary interventions for acute coronary syndrome: a prospective study with radial ultrasound follow-up

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**Purpose:** We aimed to investigate the feasibility and safety of primary PCI via the transradial approach using sheathless guiding catheters in patients with ACS. **Methods:** We prospectively screened 318 consecutive patients undergoing primary PCI for ACS at our hospital from January 2015 to October 2015, and enrolled 268 patients who were treated with PCI using 6.5-Fr or 7.5-Fr sheathless guiding catheters, via radial access. The main exclusion criteria were an absolute clinical indication to transfemoral access due to cardiogenic shock and chronic haemodialysis. We evaluated the procedural success and access site complications. Doppler ultrasound study of the radial arteries was performed 2 days and 30 days after the procedures. **Results:** The procedural success was 97% (261/268). 7.5-Fr sheathless guiding catheters were used in 96% (257/268). The incidence of access site-related bleeding defined by the BARC as type 3 and type 5 was 5%. Radial artery occlusion rates defined by Doppler ultrasound were 5% at 2 days follow-up and 5% at 30 days. On logistic regression analysis, sheath to radial artery ratio (OR, 13.4501; CI, 1.7423-95.6661; P = 0.014) and younger age (OR, 0.9358; CI, 0.8914-0.9785; P = 0.003) were identified as associated factors of radial artery occlusion. The ratio of the sheathless guide diameter to the radial artery diameter of 1.1 was identified as the cut-off for radial artery occlusion. **Conclusions:** The transradial approach, using a sheathless guiding catheter, is feasible and safe in primary PCI for ACS with less frequent post-procedural radial artery occlusion.