Prospective Comparison of Transfemoral and Transradial Approaches for Primary Percutaneous Coronary Intervention for Acute Myocardial Infarction

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Background: Bleeding complications are increasingly recognized to portend increased mortality in patients with ST-elevation myocardial infarction (STEMI). Transradial approach (TRA) reduces bleeding from vascular access site complications in patients undergoing percutaneous coronary interventions (PCI) when compared with transfemoral approach (TFA). There is a concern that technical difficulties using TRA can delay achievement of reperfusion during primary PCI in patients with STEMI.

Methods: We prospectively studied 73 patients who underwent primary PCI for STEMI using TRA (49 patients) and TFA (24 patients). Statistical analysis was performed on intention to treat basis. Procedural success was defined as successful completion of PCI from the original access site. Time to reperfusion was defined as time from skin anesthesia to the first balloon inflation and total procedural time as time from skin anesthesia to the completion of procedure. Vascular complications were hematoma > 10 cm, psedoaneurism, AV fistula, need for blood transfusion or surgery.

Results: Baseline clinical characteristics were similar in both groups. Procedural success was achieved in 95.6% and 90.9% and angiographic PCI success in 95.6% and 95.5% of patients in TRA and TFA group respectively (p=NS). GP IIb/IIIa inhibitor was used in 68.9% of patients in TRA group and 59.1% of patients in TFA group (p=NS). Use of contrast media was 203±69 mL in TRA group and 202±51 mL in TFA group (p=NS). Fluoro time (min) was 13.5±6.9 vs. 12.1±6.6, time to reperfusion was 29.3±12.8 vs. 28.0±12.5, total procedural time was 48.3±18.9 vs. 56.1±23.9 in TRA and TFA groups respectively (p=NS for all comparisons). Five patients (20.8%) had at least one vascular complication in TFA group vs. none in TRA group (p=0.01). The rate of complications excluding hematomas was 2/24 (8%) in TFA group vs. 0/49 (0%) in TRA group (p=NS).

Conclusions: The use of TRA for primary PCI is as safe and effective as TFA. The primary PCI from TRA, when performed by experienced operator, is not associated with prolonged time to reperfusion, and leads to fewer vascular complications.