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Impact of Low Molecular Weight Heparin on Reperfusion Rates in Patients with Radial Artery Occlusion after Cardiac Catheterization. Results and Follow-Up in 113 patients

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Background: Transradial access for cardiac catheterization is widely recommended to reduce vascular access site complications and provides several benefits for the patient. However, the rate of radial artery occlusions (RAO) detected by vascular ultrasound examination seems to be higher than expected. The optimal treatment of patients with RAO have yet not been well evaluated. Therefore, we investigated the impact of Low-molecular weight heparin (LMWH) on recanalization rates in patients with RAO after cardiac catheterization.

Methods: To quantify the true rate of RAO and other access site complications in an objective way, vascular ultrasound studies were performed within 24 hours after the procedure. The radial, ulnar and brachial artery of the access forearm were examined using a 9-12 MHz multifrequency vascular probe.

Results: Between 11/2009 and 11/2010, 533 consecutive patients (pts.) were enrolled in the prospective ultrasound registry, a total of 130 pts. had shown dopplersonographic signs of RAO (24.4%), of whom 17 pts. were lost to follow-up. Therefore, we report about a total of 113 pts. presenting with RAO (61.8 ± 12 years (min. 33, max. 89), 47.8% male). Symptomatic pts. (n=69) were treated with LMWH in bodyweight-adjusted dose (n=31) or in half-therapeutic dose in case of additional dual antiplatelet therapy (n=38). Asymptomatic pts. (n=42) did not receive a treatment with LMWH. The first follow-up ultrasound examination was performed after a media of 8 days. At time of the first follow-up, the reperfusion rate of the radial artery was 34.8% (24/69) after treatment with LMWH compared to 6.8% (3/44) in pts. who were not treated with LMWH (P=0.001). In patients with persistent RAO at first follow up, a second follow-up was performed after a median of 12 days. At this time, the final reperfusion rate was 55.0% (38/69) in patients after treatment with LMWH compared to 13.6% (6/44) in pts. without an anticoagulatory therapy (P<0.001). Pts. received a therapy with LMWH over a mean time period of 10.4 ± 6.5 days.

Conclusion: Anticoagulatory therapy with LMWH provides a highly significant increase in recanalization rates in patients with RAO after cardiac catheterization compared to a conservative management. Randomized, controlled studies are needed to investigate the dose-dependent effect of LMWH on recanalization rates.

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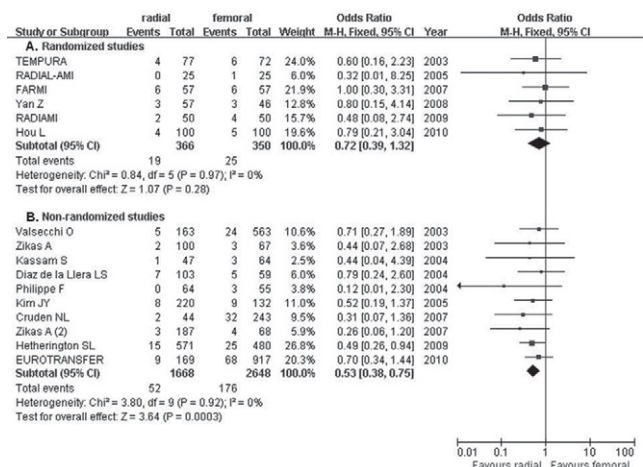
Radial Versus Femoral Approach for Primary Percutaneous Coronary Intervention In Patients with Acute Myocardial Infarction: an Update Meta-analysis

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Background: There is an increasing amount of data suggesting that radial approach is associated with lower incidence of complications in vascular access site and improved clinical outcomes compared with femoral approach in the setting of ST-segment elevation myocardial infarction (STEMI). The objective of this study was to assess the safety and efficacy of radial versus femoral percutaneous coronary intervention (PCI) for patients with STEMI.

Methods: We searched MEDLINE, EMBASE, Cochrane databases for randomized, case-control, and cohort studies comparing access-related complications and clinical outcomes from January 2001 to May 2011. The pooled effects were calculated using fixed-effects model (Mantel-Haenszel method) or random effects models (Dersimonian and Laird method).

Results: Seventeen studies involving 6,248 patients were identified. Transradial PCI was associated with a significant reductions in the composite of death, myocardial infarction, or stroke (odds ratio [OR] 0.57, 95% confidence interval [CI] 0.42 to 0.76, p<0.001) and mortality (OR 0.63, 95% CI 0.46 to 0.85, p=0.003). Transradial PCI reduced major bleeding compared to transfemoral PCI (OR 0.29, 95% CI 0.17-0.49, p<0.001). Stratification and sensitivity analysis suggested lower odds of death or composite endpoints with transradial approach in non-randomized studies compared with those in randomized trials (Figure).



Forest plot of odds ratios of composite endpoints stratified by randomization status.

Conclusion: This updated meta-analysis demonstrates that transradial PCI reduces the risk of significant periprocedural bleeding and improve clinical outcomes in patients with STEMI.

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Translunar and Transradial Approach for Coronary Intervention: a Comparative Study

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Background: Transradial approach (TRA) allows shorter hospital stays and has lower local complication rates than femoral approach. There is less experience with translunar approach (TUA) and is rarely used for coronary intervention. The objective was to compare technical feasibility and safety of TRA and TUA in patients undergoing coronary angiography or angioplasty.

Methods: 255 patients were randomized to intervention by TRA (N=128) vs TUA (n=127). Failures to obtain the access and complications were registered, as well as time to access, total procedure and fluoroscopy time. Continuous variables are expressed as means (SD) and categorical variables as percentages. Groups were compared with non-parametric tests.

Results: Procedure was successfully concluded in 96% of patients in TRA group and 95.2% in TUA (p:ns). Failures were caused by impossibility to obtain access (6 patients), radial spasm (3 patients) and vessel tortuosity (2 patients). There was a trend toward longer time to access with TUA (TRA 2.5 min. vs TUA 3.22 min; p: ns). There was no differences in total procedure time (TRA: 29.1 min vs TUA: 30.2 min; p:ns) and fluoroscopy time (TRA: 5.4 min vs TUA: 5.2 min; p:ns). Complications registered were: loss of pulse (TRA: 4.9% vs TUA: 6.8%; p:ns), moderate to severe local pain (TRA: 8.1% vs TUA 6.8%; p:ns) and hematoma (1 patient each group).

Conclusion: TUA for coronary diagnostic and intervention is an alternative to TRA. Both techniques share high successful and low complication rates.

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Feasibility of Transradial Coronary Intervention for Chronic Total Occlusions

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Background: Transradial coronary intervention (TRI) is associated with a lower risk of bleeding complications and greater patient comfort when compared with transfemoral coronary intervention (TFI). We investigated the feasibility of TRI for the treatment of chronic total occlusions (CTOs).

Methods: Between 2005 and 2009, 307 patients with a CTO underwent PCI via the radial (TRI group, n=137) or the femoral route (TFI group, n=170). The procedural outcomes were retrospectively compared between the two groups.

Results: The numbers of patients on hemodialysis and those with a history of coronary bypass surgery were less frequent in the TRI group (0.7% vs 8.2%, P=0.002; and 2.2% vs 9.4%, P=0.009, respectively). The CTO vessels were predominantly the right coronary artery (RCA) (39.4%), followed by the circumflex artery (CX) (31.3%), and left anterior descending artery (LAD) (29.2%) in the TRI group; and the RCA (54.7%), followed by the LAD (28.8%) and CX (16.5%) in the TFI. Moderate to severe calcifications and lesion length >10 mm were less observed in the TRI group (19.7% vs 35.3%, P= 0.003; and 64.2% vs 81.2%, P=0.001, respectively). A 6-Fr guiding catheter was used in 80.3% of the TRI group, and a 7- or an 8-Fr in 95.0% of the TFI group (P<0.001). There was a trend toward a higher procedural success in the TRI