Distal transradial access to prevent proximal radial artery occlusion: what is really known?

Acesso radial distal para prevenir a oclusão proximal da artéria radial: o que realmente se sabe?

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Transradial access (TRA) offers important advantages over transfemoral approaches, including early patient ambulation, improved patient comfort, less vascular complications, lower health care costs, and reduced adverse cardiovascular events, including mortality.¹ Nevertheless, complications of TRA still exist, and radial artery occlusion (RAO) occurred in up to 30% of cases, in a prospective vascular ultrasound study.² Due to dual blood supply to the hand, RAO is usually asymptomatic and unnoticeable, although sometimes it may be associated with distal ischemia, paresthesia, pain at the site of occlusion, and loss of hand function.³ Most importantly, RAO may prevent future use of the radial artery (RA) for hemodialysis fistula creation, surgical coronary artery bypass grafting, reconstructive surgery, and repeat TRA procedures.¹

Distal TRA (dTRA) has recently gained large popularity worldwide. As a refinement of the standard proximal TRA (pTRA), this relatively new technique may have additional advantages, in terms of patient’s and operator’s comfort, faster haemostasis, and risk of proximal RAO (pRAO).⁴ Importantly, in cases of RAO, since arterial puncture with dTRA is performed after the point of emergence of the superficial palmar branch of the RA, blood flow through the palmar arch would not be compromised and, therefore, the risk of ischemic injury would be minimum.¹

Coomes et al. published a systematic scoping review of 19 publications, comprising 4,212 participants undergoing cardiac catheterization via dTRA. The overall success rate using dTRA was 95.4% (69% to 100%). Proximal RAO was very low (1.7%).⁵ In another contemporary study, Eid-Lidt et al. reported the first randomized comparison of dTRA versus pTRA during coronary angiography and/or percutaneous coronary interventions (PCI), evaluating the rates of pRAO documented by Doppler ultrasound (US). Compared with patients with pTRA, those using dTRA had significantly lower rates of pRAO at 24 hours (8.4% versus 5.6%; p=0.002) and 30 days (8.8% versus 6.4%; p=0.019), respectively.⁶

Mizuguchi et al. evaluated 228 patients submitted to coronary angiography and/or PCI, and only one patient (0.4%) presented pRAO on Doppler US.⁷ Finally, in a meta-analysis by Hamand et al. assessing five studies – four observational and one randomized – comprising 6,746 patients who underwent coronary angiography and/or PCI, the authors reported lower rates of pRAO with dTRA compared with pTRA (2.3% versus 4.9%; p=0.004).⁸

In the Journal of Transcatheter Interventions, Tebet et al. reported their experience with dTRA, in a retrospective and observational study including consecutive 51 patients submitted to coronary angiography and/or PCI (98,1% via right dTRA, with Glidesheath Slender 5/6F). The aim was to evaluate the impact of dTRA on RAO and access-site related bleeding complications. No pRAO was documented by Doppler US at 24 hours after sheath removal and hemostasis.⁹ Despite the small sample size and lack of longer Doppler US evaluation, as in the above mentioned studies, the authors should be congratulated for their brilliant work.
The ongoing randomized DISCO Radial Trial (ClinicalTrials.gov identifier: NCT04171570) will evaluate 1,300 individuals, aiming to demonstrate superiority of dTRA over pTRA, in terms of pRAO, by Doppler US.

In our own experience, patients referred to the cath lab since February 2019, have been continuously included in the DISTRACTION (DIStal TRAnsradial access as default approach for Coronary angiography and interventions) registry (ensaiosclinicos.gov.br Identifier: RBR-7nxkm). To date, more than 2,750 consecutive patients submitted to coronary angiography and/or PCI via dTRA have been enrolled. No significant access site-related hematoma (EASY® type >1) was recorded. There was no documentation of hand/thumb dysfunction after any procedure. One patient developed a pseudoaneurysm after right dTRA coronary angiography and ad hoc PCI, successfully managed by US-guided prolonged TR band® neck compression. Although our cohort lack Doppler US evaluation, distal and proximal RA pulses were palpable in all patients at hospital discharge. Notwithstanding this limitation, performing dTRA without ultrasound guidance might facilitate the widespread use of the technique.

In conclusion, alongside with the widespread adoption of dTRA by different operators worldwide, continuous evidence of pRAO reduction has been published, thus reinforcing the idea that dTRA appears to be feasible, safe, and generalizable, for the majority of patients undergoing diagnostic coronary angiography and PCI. Further and larger randomized trials are warranted and expected, to assure the clinical benefits and safety of this relatively new and potential disruptive technique.

REFERENCES
