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Twitter, Folklore and Evidence-Based Medicine: The Tale of Distal Radial Access

We have really come a long way. And quickly! The distal radial arterial access (DR) for cardiac catheterization has truly demonstrated the power of social media in contemporary clinical practice. Initially, DR was described by Babunashvili in 2011 as a technique to retrogradely recanalize occluded radial arteries [1]. Since then, DR has spread around the planet via Twitter like brushfire. One needs to keep in mind that this rapid adoption of DR has occurred on a background of global adoption of the "traditional" transradial arterial approach (TR).

Twitter is such an appealing medium to show and discuss clinical cases and promote one's particular radial (or arterial) access "ideology." While being so influential and instant, Twitter appears to be competing quite well with the tedious evidence-based medicine (EBM) approach.

The Twitter-based medicine has been a boon for DR despite a clear vacuum of EBM. While TR has been so robustly researched in the last decade, we truly do not have much good EBM about DR.

In this issue of CRM, Koutouzis et al., provide us with the much-needed prospective and randomized comparison of TR and DR. Two hundred patients were randomized 1:1 to DR vs. TR approach. The findings are pretty sobering – 30% access failure in DR group vs. 2% in the TR group with some more bad news for DR – more puncture attempts and longer cannulation time. The flip side is that the occlusion rates were low and similar, hemostasis faster in the DR group and patients did not prefer one over the other approach.

There are some other important technical details worth pointing out. The authors used 6 F sheaths in both groups suggesting that although the distal vessels tend to be slightly smaller, they accommodated standard sheath sizes. For the US readers it is worth noting that they performed manual hemostasis in both groups. They were quite successful in achieving quick and safe hemostasis, similar to a recently published trial from Greece [2].

We do need to put these numbers in some perspective. The authors are highly skilled operators and seasoned upper extremity access researchers. This is evident in their low TR failure rates. One could argue that the rates of DR access failure could have been lower had they used ultrasound-guided techniques. Perhaps the learning curve for DR is longer than for TR due to the smaller size of the vessel and its particular anatomic location. One could immediately envision a DR/TR RAUST-like trial to answer this question [3].

Another point we should emphasize is buried in the manuscript but is tremendously important. The authors used right upper extremity in 76% of cases. While left DR does, indeed, have significant ergonomic advantages – patient arm is in a neutral pronated position and the physician does not have to put tension on his or her lower back by leaning over the patient. Nonetheless, the authors did what most of the operators around the world do – use right upper extremity [4]. One might argue that since the ergonomic advantage for DR is nil with the right upper extremity, the higher failure rate makes it a pretty unattractive access choice.

One of the proposed advantages of DR access is the putative preservation of the radial artery in case of radial artery occlusion. The distal location to the palmar arch does offer this theoretical advantage [5]. Nonetheless, extensive research in radial artery occlusion and variety of outcomes investigating hand function, grip strength and many others does not suggest that radial artery occlusion causes lasting hand impairment. We should, however, make preserving artery patency a priority, as the "open artery theory" is the basic goal when performing upper extremity access, whether it is the radial, ulnar or any other artery.

One might then take a nihilistic and negative approach and conclude that this is a technique that we should not bother with. Failure rate is high, the artery is smaller, and we lose some distance to the coronary arteries. Besides, if we are not going to use if for left arm access it probably makes not much sense to pursue it.

I would argue that what we need is evidence-based medicine. Clinicaltrials.gov search on June 3, 2019 for "distal radial" revealed 7 trials – some recruiting and some completed. I suspect there are more out there. The success story of radial access shows how evidence trumped femoral approach. Before we say the final word, DR needs more data like this excellent study by Koutouzis et al. And I firmly believe that we do need free market forces when it comes to our access sites choices – safe femoral is trying to make a comeback with ultrasound-guided access and micropuncture needles. Stay tuned. On Twitter, of course.

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