

EDITORIAL COMMENT

Who's a-Gonna Hold Your Hard Luck Hand and Who's a-Gonna Be Your Man



Bob Dylan, “Kingsport Town”*

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In this issue of *JACC: Cardiovascular Interventions*, Rashid et al. (1), in their analysis of left radial approach (LRA) and right radial approach (RRA) for percutaneous coronary intervention, have found the answer to Bob Dylan’s question in his song “Kingsport Town.”

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Since the first transradial coronary intervention (TRI) in 1992 (2), the right radial artery is used as default, despite the fact that most patients are right handed and despite the fact that, as a consequence, LRA is more patient friendly. The only explanation for this preference for RRA is quite trivial and banal—it is easier for the operator who works on the right side of the table.

Since the early years of TRI, many studies have questioned the clinical superiority of one or both approaches. There is evidence that LRA carries procedural advantages in terms of fewer catheters used and less catheter manipulation, fluoroscopy time, and contrast used (3–5), especially in cases in which coronary bypasses and left internal mammary artery grafts are present and in case of tortuosity and calcification of the right subclavian artery (6).

The study of Rashid et al. (1) is interesting, as it provides insights at a national level with a considerable sample size of 342,806 patients. The study has a

high quality of performance, despite the obvious limitations as pointed out by the authors. The results demonstrate, despite slight positive outcomes for LRA in previous studies, the infrequent use of LRA (4%) for percutaneous coronary intervention compared with RRA (96%). Those results resonate with the common practice in different countries in which RRA is the method of choice when performing TRI. The results of this large national analysis show no significant difference in major clinical outcomes between LRA and RRA when utilizing multivariable logistic regression analysis.

The use of propensity score matching demonstrated a significant difference in rates of in-hospital stroke incidence in favor of LRA, a very important message of this analysis. With the necessary caution interpreting registry data lacking the active follow-up approach to track endpoints in contrast to prospective randomized controlled trials, the large number of patients in this study provides reliable results. The positive outcome concerning in-hospital stroke incidence is remarkable considering the unfavorable cardiovascular characteristics in the group undergoing LRA such as peripheral vascular disease, previous myocardial infarction, renal failure, older age, increased incidence of diabetes, and previous cerebrovascular events. The advantageous outcome for LRA is probably due to less catheter manipulation as well as the direct origin of left common carotid artery from the aortic arch, as the authors have justly stated.

A disturbing finding is that about one-third of patients who had previous percutaneous coronary intervention via RRA had a next procedure via femoral approach. This was especially the case among women and elderly patients. Information about right

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radial artery patency is lacking in this analysis, as well as data concerning previous diagnostic coronary angiography. Such information would provide significant insights regarding the decision of access switch. If radial artery occlusion were the predominant driver to proceed via femoral approach, this would certainly be a focus for procedural improvement. According to the latest available data in a large, multicenter randomized controlled trial, average radial artery occlusion rate at discharge following transradial access for coronary angiography or interventions with 6-Fr GlideSheathSlender sheaths (Terumo Corporation, Tokyo, Japan) was 3.5% and in combination with patent hemostasis protocols the incidence was 2.6% (7).

This current study is another addition to the existing reports emphasizing the value of LRA. As mentioned, most people are right handed, and the LRA would allow even earlier mobility and self-dependence for the patient after the procedure. With the growing proportion of aging population, but also due to increasing reliance on coronary angiography and intervention, a mounting need will emerge for more safe access routes for angiography especially when RRA is no longer feasible as a result of radial artery occlusion. Furthermore, it is not uncommon to perform interventions on chronic total occlusions with the simultaneous use of more than 1 access site during such procedures. For these reasons, LRA forms an excellent solution, not only as an alternative site, but also as a default approach.

The most important reason for RRA preference, despite the advantages mentioned, is the inconvenient ergonomic posture that the operator has to take during LRA. Bending over the patient while performing LRA, especially during prolonged procedures, is physically discomforting especially for shorter operators. This problem is particularly serious

in extremely overweight patients and in patients with limited function of shoulder and elbow joints. Both cannot bring the left wrist toward the right side where the operator stands. This forces the operator to bend over the patient, coming in close proximity to the radiation source with exposure to higher doses of scatter as result.

A practical solution to overcome these inconveniences and risks may be left distal radial approach, in which the left radial artery is punctured in the anatomical snuffbox (8). The patient's left hand is positioned near or on the right groin, with the hand in pronation with partial flexion at the elbow. The operator stands erect and can work at patient's knee level. In addition, distal radial access adds two more safe entry sites to forearm radial access. In case the distal puncture site occludes, the more proximal location will still be patent and available for future access. Although this technique is young and still needs validation, its use is getting more and more popular. If the left distal radial approach proves to be safe and at least just as feasible and effective as conventional radial approach, it would combine the advantages for the operator, in terms of ergonomics and distance from radiation source, with those of the patient, in terms of safety and convenience.

So, for the operator the bad hand of cards is the patient's left hand because it contains all the inconvenience. But according to the findings of this analysis, it should be the operator who needs to hold that hand to get to the patient's heart. Inconvenience can be alleviated by accessing the left radial artery at the dorsal side of the hand.

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