

## LETTER TO THE EDITOR

# Transradial Approach to All Interventional Procedures

## A Matter of the Learning Curve

Recently, *JACC: Cardiovascular Interventions* published a report describing the role of transradial approach (TRA) in interventional cardiology (1). Its authors pointed out that the TRA is as feasible and effective as the transfemoral approach (TFA).

We started our TRA program in 2005 after a series of serious vascular site complications requiring surgery and blood transfusions. Since then, we have performed more than 12,500 coronary procedures. Our database shows that TRA was not feasible in only 5% of cases. We routinely exclude patients with arteriovenous fistulas, small radial artery diameters (<1.5 mm, measured by palpation in women), and the presence of bilateral arterial grafts (i.e., left internal mammary artery and right internal mammary artery). The patients who require advanced techniques (rotational atherectomy, carotid artery stenting, or peripheral interventions) are scheduled to TFA. Interventional procedures of bifurcations and left main (with kissing balloons) and renal artery angioplasty are mainly performed by TRA.

The learning curve of TRA procedures is not long and requires 50 to 70 cases for an experienced TFA operator. A few years ago, guidewires from TRA kits were stiff; therefore we used a lot of coronary guidewires (0.014-inch) to cannulate the radial artery. After 6 to 7 months, this practice was stopped. A key element in radial artery cannulation is the quality of the sheath, needle, and especially the wire, which should be sufficiently stiff but easy to maneuver.

Another issue is the use of the Allen's test before TRA. Since 2007, we no longer use the Allen test in everyday practice, because we found it clinically useless. As we gained more experience, we limited this procedure to some selected cases—for example, small women. Generally, the rate of TRA complications is low (2). During first 2 years, there were only 3 cases of radial artery excavation, but no consequences for patients in terms of hand blood supply. Acute radial thrombosis occurred in 35 patients (0.28%), but surgical intervention was not necessary. We think that a careful radial examination, including artery size prediction by palpation, is crucial. Also a smaller radial sheath (5-F) can be useful for some patients. We commonly perform multistage procedures via the same radial artery with a 50% rate of success.

In the present study (1), closure devices were used in 93% of patients after coronary angioplasty in TFA. Certainly, their use limits complications (especially with glycoprotein IIb/IIIa inhibitors). However, it should be remembered that using closure devices generates additional costs, which forced us to start a TRA program in our department.

We would like to stress that TRA limits vascular complications, simplifies the management of puncture site by nurses, and increases patient comfort.

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## REFERENCES

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## Reply

We appreciate the interesting remarks of Dr. Pawłowski and colleagues regarding our report (1). We agree that the quality of the needle, guidewire, and sheath in radial artery cannulation is crucial. In particular, the wire should be both soft enough to cross any loops and stiff enough to straighten the vessel. The radial artery never forgets a failed puncture attempt, and therefore, the first radial attempt is the most important one.

The authors consider the Allen's test as clinically useless in everyday practice on the basis of reduced specificity. We excluded 347 of 2,316 screened patients from enrollment in the study, due to pathologic Allen's test. Data on patients undergoing transradial cardiac catheterization in spite of a pathologic Allen's test are not available to our knowledge, and such a study would be unethical and unjustifiable, especially under forensic aspects—thinking of the risk of losing just 1 hand. From the authors' view, as stated in the article, a transradial approach for cardiac catheterization should be avoided in the presence of an abnormal Allen's test unless the risk of using the transfemoral access is exceedingly increased.

Undoubtedly, the use of arterial puncture closure devices (APCD) generates more costs. In addition, ongoing data have raised concerns about the safety of APCD. A recent meta-analysis of 30 randomized trials has shown not only marginal evidence of effectiveness but also a possibly increased risk of hematoma and pseudoaneurysm (2). Due to these evolving data and the paucity of properly designed studies, the safety and efficacy of APCD must be pursued further. This meta-analysis highlights again the single greatest advantage of the radial approach—reduced vascular access complications.