

Editorial

Transradial access. Should we keep turning left?

Acceso transradial. ¿Debemos seguir mirando a la izquierda?

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The feasibility of the transradial approach for diagnostic coronary angiography was described by Campeau¹ in 1989 and the technique was developed for use in coronary interventions by Kiemeneij and Laarman² in 1993. Since then, its use has continued to grow and it is currently the most widely used approach, both in Spain³ and in most other European countries. The superiority of the technique was soon demonstrated in relation to bleeding complications and the possibility of early ambulation.⁴ It was later shown that it was also superior regarding clinical complications, including death, ST-segment elevation infarction,⁵ and non-ST-segment elevation acute coronary syndrome.⁶

During recent years, the technique has undergone major improvements related to both the devices and the procedure, which has facilitated its rapid adoption by most coronary intervention units. These improvements have affected the feasibility and safety of the procedure. It is within this setting that the controversy on the left radial vs right radial approach should be understood. A recent and relevant contribution to this issue was published in *Revista Española de Cardiología* by Tokarek et al.⁷ These authors compared the left and right radial artery approach using data from a very large Polish registry with almost no exclusions.

Questions on this issue go beyond technical details. Both approaches involve different anatomical characteristics. Thus, the right approach runs along the often tortuous subclavian and brachiocephalic arteries, crosses the origin of the homolateral carotid and vertebral arteries, and reaches the coronary arteries at an angle that significantly differs from that of the femoral approach. Given that the most commonly used preshaped catheters (Judkins) were designed for the femoral approach, the right approach involves a higher risk of embolic stroke and greater technical difficulty in the manipulation of the various catheters and in selective coronary catheterization. On the other hand, the layout of the laboratories and the preference of the operators, most of whom are right-handed, mean that the approach is from the patient's right-hand side, which forces the operator to adopt awkward positions for the left approach and could reduce the effectiveness of passive radiation shielding (whose design is oriented to the right approach).

What, then, are the clinical implications of each approach? This key question has prompted a large series of studies. Shah et al.⁸

conducted a meta-analysis of 12 randomized studies, finding that although there were no differences between the 2 approaches, the right radial approach was associated with slightly longer fluoroscopy times and greater contrast use. Therefore, it seemed that the advantages of using the left radial approach were limited to purely technical issues without marked clinical repercussions. However, several well-designed studies have highlighted a number of problems that go beyond the minor ones already mentioned. Dominici et al.⁹ conducted the OPERA trial, which was the only study designed to investigate radiation dose. They found that the right approach was associated with a higher radiation dose and a slightly reduced fluoroscopy time. Furthermore, in a well-designed study using continuous transcranial Doppler monitoring, Pacchioni et al.¹⁰ found a higher incidence of microemboli when using the right radial approach. Rashid et al.¹¹ used the British Cardiovascular Intervention Society (BCIS) registry to compare the 2 approaches. The study included 342 806 patients undergoing percutaneous coronary intervention. Propensity score matching showed that in-hospital clinical stroke was more frequent when the right approach was used, although its incidence was low (0.1%).

Given this background, the study presented by Tokarek et al.⁷ in *Revista Española de Cardiología* is of relevance in that it not only confirms some already published aspects, but also raises questions on other relevant issues. Similar to the BCIS registry, the Polish national registry (ORPKI) individually included a very large number of patients undergoing percutaneous coronary intervention. In contrast to the BCIS study, the Polish study is more recent (BCIS, 2007-2014; ORPKI, 2014-2017). It found an overall transradial approach rate of 80% and much greater use of the left approach (24% vs 4%). These results are clearly due to the difference in the 2 periods studied. Their study confirms some of the results obtained in previous literature, such as female sex, previous coronary surgery or percutaneous coronary intervention, and previous kidney failure as factors favoring the left radial approach, but also adds others. For example, the experience of their hospital in radial access should be highlighted. In contrast to previous results, an association was found between the left radial approach and slightly higher radiation doses and the need for contrast, which was confirmed by propensity score matching, although only in the case of patients with acute coronary syndrome. The reported complications were few, but there was a higher rate of coronary dissections and cardiac arrest with the left approach, mainly in patients with acute coronary syndrome, although mortality was similar in the 2 groups. In conclusion, it seems reasonable to confirm the clinical safety of both approaches. There are slightly more periprocedural technical complications with the left approach, which could be caused by greater technical

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difficulties and the possible inability of propensity score matching to capture certain differences between the 2 groups.

Nevertheless, the commendable study by Tokarek et al.⁷ has some relevant limitations. The nature of such a large national registry means that the quality of the clinical information is limited and unaudited. The authors acknowledge that some data were lacking, but argue that, because the rates of missing data were low, no data imputation methods were used. On the other hand, relevant information on the hospital course was lacking and the information presented was limited to the periprocedural period. Finally, given the limitations of this registry, questions could arise concerning the ability of the propensity score matching procedure used to compare truly homogeneous groups.

However, and despite these limitations, the registry used to investigate this technique is both large and contemporary and challenges previous information affirming the superiority of the left radial approach. The interventional community will doubtless welcome this information with relief, given the difficult ergonomics and marked discomfort (eg, obese patients, short operators, etc) involved in the left radial approach. The gradual and difficult adoption of the distal radial approach could lead to improvements in some of these aspects, but should be assessed in a larger number of patients.

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CONFLICTS OF INTEREST

None declared.

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