

Why transradial instead of transfemoral approach for the percutaneous coronary intervention

Hrvoje Pintarić^{1*}

¹ University Hospital Centre Sestre milosrdnice, Zagreb, Croatia

* Corresponding author e-mail: hrvojepintaric@yahoo.com

Abstract

Despite the fact that transradial approach (TRA) requires a longer learning curve than transfemoral approach (TFA), the transradial challenges are usually overcome with experience. Nowadays, in view of its benefits, there is no longer any justification for ignoring the transradial approach [1]. Multiple randomized clinical trials and reports consistently demonstrate benefits to the patient and improved outcomes from TRA [2]. TRA is particularly appealing in patients with coagulopathy, elevated international normalized ratio due to warfarin, or morbid obesity [3]. A recent meta-analysis of nine studies involving 2,977 patients with ST elevation myocardial infarction (STEMI) demonstrated an impressive nearly 50% reduction in mortality for the TR approach [4].

TR percutaneous coronary intervention (PCI) can be performed by low-to-intermediate volume operators with standard equipment with a low failure rate [5]. Age over 75 years, prior coronary artery bypass graft surgery, and short stature are independent predictors of TR-PCI failure [6]. Appropriate patient selection and careful risk assessment are needed to maximize benefits offered by TR-PCI.

In the Sestre milosrdnice University Hospital Centre, Zagreb, Croatia, seven interventional cardiologists perform almost 900 coronary percutaneous coronary interventions a year (40% pPCI). Our Cath Lab is one of the largest high-volume interventional cardiology centers in Croatia. In the last few years, our center has become dedicated to the radial approach with nearly 90% of PCI performed with either left or right radial access route. In time radial approach has become the first choice even in patients with STEMI. At the 2nd Advanced International Masterclass, September 2013 in New York we have had the opportunity to present our results dedicated to TR approach. In patients with STEMI undergoing primary PCI in our, radial dedicated center, there is no difference in effectiveness, safety, and blood loss between radial and femoral approach. Also there is no significant difference in either left or right radial access type [7]. There are situations when radial arterial approach is not possible (e.g. congenital anomalies, tortuous configurations, radioulnar loop, weak or absent radial pulse secondary to previous puncture or catheterization). In such situations, a common second-line approach is used (femoral or ulnar). Many clinicians considered transbrachial (TB) angiography as a high-risk and obsolete procedure. However, our overall success rate was 95.5% (21/22). There were no major complications and we noticed only two minor complications (9%), both hematomas.

According to our results TB approach, when used by dedicated transradialists, seems to be easily feasible, safe, and effective. Local vascular complications could be avoided by cautious and sensitive puncture technique. Other important factors are using 6 Fr catheters, defensive anticoagulation, and careful observation by the nursing team after sheath withdrawal. TB approach has all advantages of the arm approach over the femoral (early ambulation, patient preference, suitable for patients with severe occlusive aortoiliac disease and for patients with difficulty in lying down) [8].

Radial access use has been growing steadily but, despite encouraging results, still varies greatly among operators, hospitals, countries and continents. Twenty years after its introduction, it was felt that the time had come to develop a common evidence-based view on the technical, clinical and organisational implications of using the radial approach for coronary angiography interventions [9].

Keywords

Transradial approach • Percutaneous coronary intervention • Learning curve

Literature

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