Hellenic Journal of Cardiology (2016) 57, 329–330

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EDITORIAL

The evolution of arterial access for cardiac catheterization: Lessons from Central and Northern Greece

As compared with the femoral approach, transradial cardiac catheterization has been associated with significantly lower risk for vascular access complications, improved patient comfort and earlier ambulation and discharge.[1] Transradial catheterization can, however, be more challenging to perform requiring higher use of equipment and higher patient and operator radiation dose.[2] Adoption of transradial access has been very high in Europe and Asia, but remains limited in the USA.[3,4]

In the current issue of the Journal, Ziakas et al. nicely outline the evolution of transradial catheterization in northern Greece, from essentially 0% in 2004 to approximately 40% in 2013.[5] Adoption was dramatically higher in private (74%) as compared with public (18%) catheterization laboratories. Moreover, between 2009 and 2013 the percutaneous coronary intervention (PCI) volume decreased by about a third in private laboratories, whereas it increased by almost a third in the public hospital laboratories.

These changes of transradial access use in Central and Northern Greece reflect several clinical and socioeconomic factors.

First, there are real and meaningful clinical benefits of using transradial access, especially in patients presenting with acute coronary syndromes, those receiving intensive anticoagulant and antiplatelet therapy, and those who are at increased risk for bleeding. Although advanced femoral access techniques, such as routine ultrasound guidance[6] and micropuncture needle kit, can also reduce complications as compared with standard femoral access and could be reasonable alternatives, there is no direct comparison with transradial access to date.

Second, most patients prefer transradial access, due to improved comfort and ability to sit up or walk immediately after the procedure. As shown by Ziakas et al., patients' preferences may be accommodated more often in private cardiac catheterization laboratories, where the majority of procedures were performed using transradial access. On the other hand, time and workflow pressures in public hospital catheterization laboratories and possibly the need to provide training of cardiology fellows may favor use of the femoral approach, that is often easier and faster.

Third, the higher use of femoral access at public hospitals may be due to selection bias, as such hospitals may be more likely to treat complex patients, such as patients with prior coronary artery bypass graft surgery[7] and chronic total occlusions.[8] In such patients use of femoral access may be preferable to expedite the procedure, limit radiation and contrast administration, and facilitate bailout in case of complications.

Fourth, the economic pressures caused by the collapse of the Greek economy almost certainly affected the overall volume of catheterizations and PCIs and likely the choice of vascular access. For example, limited supply of angiography and angioplasty equipment may have hindered adoption of the transradial approach.

The study by Ziakas et al. provides important lessons:

First, most Central and Northern Greece interventional practices are evolving over time, implementing the latest developments in arterial access into daily practice, a great achievement for which they should be congratulated.

Second, there remains opportunity to further improve access to transradial PCI, by providing training and support to those who are not currently using it. With numerous recent developments facilitating transradial catheterization, such as hydrophilic, slender sheaths, routine use of intra-arterial vasodilators, dedicated radial guide catheters, and guide catheter extensions, starting and expanding a transradial program is easier than ever.

Third, the ultimate goal is not to perform transradial access in 100% of cases. There are many patients who may be better served by transfemoral catheterization,

Peer review under responsibility of Hellenic Cardiological Society.

http://dx.doi.org/10.1016/j.hjc.2017.01.012

especially those with advanced coronary artery disease who need complex, high risk interventions. Also, when the procedure appears unlikely to be successful using transradial approach (for example when engaging a saphenous vein graft is very challenging), prompt conversion to transfemoral access is, in most cases, the best course of action.[9] Overzealous devotion to becoming a 100% transradial laboratory may be a disservice to the patient, as is denying the role of transradial catheterization altogether.

Last, but not least, change is an essential part of life and is constant and omnipresent ("Τα πάντα ρει"). While resisting change is the most common initial response, it is usually counterproductive. Adapting to change is critical for survival; not adapting (i.e. refusing to learn and perform transradial angiography and PCI), may lead to "extinction of the species", an unwelcome outcome for patients and operators alike.

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16 November 2016
Available online 8 March 2017