



Arms Race or Race to the Arm? Obstacles Prevent Widespread Adoption of Transradial Approach for CLTI Interventions

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The need for cost-effective, quality care will drive patient treatment decisions and trends. The manuscript by Ansari et al¹ should make interventionalists ponder the future of transradial (TR) access for endovascular revascularizations. The primary goal of endovascular therapies should focus on successful safe revascularization. Traditionally, the transfemoral approach has offered a dependable primary access site particularly to approach lower extremity disease. Why should there be a shift toward TR peripheral interventions?

Initially the TR approach for coronary intervention in the early 1980s was faced with concern about its utility and benefit over the transfemoral access. Decades later, large trials confirmed its safety and procedural benefits for coronary interventions over the transfemoral route. However, the adoption of this technique for peripheral interventions has been slow. The diversity of operator specialties in the peripheral space brings a range of operator experience and levels of comfort with the radial approach. This likely is a cause of differential rate of adoption between peripheral interventionalists. However, the physical intravascular distance between the lower extremities to the radial artery and the need for a complete range of potential therapies have likely served as the largest obstacles.

Ansari and colleagues point out that the TR approach brings shorter procedure times, reduced radiation, and diminished contrast utilization. These will be important benefits as the push toward TR interventions continue. However, their conclusions demonstrating reduced treatment costs and increased patient satisfaction will likely be more important drivers towards the greater adoption of TR therapies. The ability to recover these patients in radial lounges with lower nurse-to-patient ratios due to their lower acuity, risk of post procedure hematoma, and access complications may be the strongest driver.

In most situations, radial based interventions for peripheral interventions are a “treatment of necessity.” In other

words, operators perform the TR interventions because their traditional first choice for access, the femoral route, was not available in their patient. This is usually related to some form of hostile anatomy. This may be related to an inaccessible femoral artery. This may also occur in clinical situations where the TR approach allows for an easier therapy, such as a mesenteric or renal artery procedure. Additionally, the ability to treat both lower extremities from a single access site may make the TR approach a desirable option. In order for the paradigm shift towards TR interventions to occur, operators must begin to view TR interventions as a first-choice treatment or the “treatment of choice.” For that to occur, both access options should be, at the very least, equivalent in the view of the operator planning the revascularization. To be on the same playing field, as mentioned by Ansari et al, innovation in the TR access space will need to continue to evolve.

The initial solution of making longer shaft catheters and smaller delivery systems will need to give way to more innovative technology to allow for manageable devices that will be effective in navigating, crossing, and treating distant vessel beds effectively. These innovations will be needed to allow treatment from both the right and left radial artery without limitation. Radial artery occlusion will need to be minimized, especially with a greater number of tools, exchanges and larger sheath sizes. The ability to treat distal disease needs to be as easy as the management of iliac and femoral popliteal disease.

Ansari and colleagues describe how the pressures from the COVID pandemic forced operators to perform procedures in a manner that did not rely upon significant periprocedural care, post-procedural admissions, or a prolonged hospital recovery. As these pressures ease, further improvements will be necessary to guarantee that operators will want to benefit from the TR approach.

Innovation, training, and experience will be important drivers for the adoption of TR peripheral interventions for CLTI. The innovations will need to focus on technology that will allow operators to feel successful in their ability to cross difficult occlusions with the same efficiency that they do using transfemoral techniques. The lack of long-shafted covered stents will be an important gap to fill to improve the management of complex iliac disease and serve as a rescue in the setting rupture and perforation. Similarly, a portfolio of therapies such as re-entry devices, atherectomy, thrombectomy, stenting, and drug-elution technologies will be needed for TR procedures.

The challenge of CLTI patients should not be underestimated. They represent high-risk patients with multiple serious comorbidities. These patients typically have complex calcified multilevel occlusive disease that require complex treatment strategies to successfully revascularize and prevent limb amputation. The ability to consistently reach and cross below-the-knee disease will be important in the management of these patients. The approach may require bidirectional access (along with pedal or tibial wire externalization) and innovation to allow treatment

at 250-300 cm away from the TR access. In CLTI, the ability to easily manage patients in the outpatient setting while performing complex procedures will be essential as these patients continue to grow. The ability to treat these patients in an efficient and effective manner should increase the total number of patients that ultimately receive care.

References

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