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Letters

TO THE EDITOR

Don't Try This at Home Versus What Would You Do?

We would like to take this opportunity to respond to Dr. King's thoughtful editorial (1) that accompanied the Lederman et al. (2) state-of-the-art paper on anatomic suitability for transcaval access.

Given Dr. King's history of accomplishments in the development of interventional cardiology as a specialty, it is of interest to reflect back on the early results of balloon angioplasty, where the early success rates were only 64% (32 of 50 patients) (3). Through Dr. Gruntzig's and Dr. King's experience and efforts, percutaneous coronary interventions have now become a standard procedure across the world despite its initial suboptimal results.

In comparison, the Greenbaum et al. (4) series of the first 100 transcaval cases yielded a success rate of 99%, and has been performed on at least 230 patients worldwide. Despite this impressive success rate, Dr. King advised caution with adoption of this technique and advised "don't try this at home," suggesting that this technique be reserved for high-volume centers instead of being used by all operators. This of course begs the question: What is a high-volume center? There are an estimated 450 transcatheter aortic valve replacement centers in the United States. The volumes at these sites range widely from 2 cases per month up to over 500 cases per year. Specific to transcaval access, what number of procedures using this technique denotes a "high-volume center"?

Surely, we should be more concerned about high quality rather than high volume. Rather than the allusion to the television show, "Don't try this is at home"; we would suggest an alternative television show, hosted by John Quiñones on ABC and titled "What Would You Do? This was indeed the question that our site needed to answer in 2016, as we considered adding transcaval access to our percutaneous transfemoral, surgical transaortic, transapical, trans-subclavian procedures with a volume 160 transcatheter aortic valve replacement cases that year.

Our own thoughts, given our laboratory's experience with relatively standard interventional or endovascular techniques, were that the requirements for transcaval were not that dissimilar. We undertook to implement this technique in an organized and structured fashion as follows:

1. We initiated a conversation with an experienced operator (Dr. Greenbaum);
2. We observed the procedure, as presented at many interventional conferences. Anecdotally, a European site in Copenhagen has completed 5 cases after watching a single YouTube video;
3. We examined the literature and learned from other's mistakes;
4. With this knowledge in hand, we developed our inventory and procedural algorithm, as well as ensuring we had what was needed to handle any possible complications;
5. We had a proctor for the initial cases;
6. We critically examined the results, successes and otherwise, after each case. We were prepared to abandon the practice if results were unacceptable.

What was the outcome? Our site felt comfortable after two proctored cases, and to date now have performed 8 transcaval procedures over the past 10 months (7 transcatheter aortic valve replacements, 1 thoracic endovascular aortic repair). Fortunately, we have not had any complications related to this access. In 6 of 8 cases (75%), the aortocaval fistula was closed completely at the end of the procedure. This is in contrast to the 36% immediate closure rate seen in the first 100 patients reported, demonstrating how operators can learn from other's experience.

The moral of this battle of the television shows is that this technique can be applied successfully by interventional cardiologists with relatively standard interventional and endovascular training, and they can develop and institute such a technique independent of their volume, though dependent on using a quality-based approach. Based on our experience, it appears that even after a few proctored cases, the procedure can be done successfully and safely.

Dr. King, along with the early pioneers of interventional cardiology, displayed courage and conviction in developing the techniques of percutaneous coronary intervention even despite mediocre initial results. Today's generation of interventionalists should adopt a similar mindset to develop their skills with all new techniques. Based on our experience, we would argue that transcaval access is not a "disruptive technology" that "should not be tried at home." It is a potentially valuable skill that can allow for safe, alternative access for those patients with severe aortic stenosis and iliofemoral arterial occlusive disease.

What will you do?

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Please note: Dr. Goswami has reported that he has no relationships relevant to the contents of this paper to disclose. Dr. Mishkel has received speaker honoraria from Edwards Lifesciences and has served as a proctor for Boston Scientific.

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Bioresorbable Vascular Scaffolds as a Treatment Option for Left Main Lesions

Drug-eluting stents (DES) are valid treatment options for left main (LM) disease (1), but the presence of a permanent metallic foreign body provides the continued risk of late adverse events. Bioresorbable vascular scaffolds (BVS) may be an attractive alternative because of their complete resorption properties. To date, several outcomes have been reported; however, data regarding LM treatment with BVS are lacking (2,3). Therefore, we performed a multicenter retrospective evaluation of the mid-term outcomes of BVS implantation for LM disease.

Data were examined from 60 patients (of a total of 2,765 LM percutaneous coronary interventions [PCI]), from an international registry involving 12 centers, who underwent BVS (Absorb, Abbott Vascular, Santa Clara, California) implantation between June 2012 and December 2015. All patients provided informed consent for the procedure and subsequent data collection and analysis.

The decision to implant BVS and PCI strategy was dependent on individual operators. PCI with BVS was only performed in patients with reference diameters <4.0 mm and <0.5 mm difference between the proximal and distal reference diameters. PCI was avoided in patients with a concomitant right coronary artery chronic total occlusion or severe calcification of the LM shaft/bifurcation.

The primary endpoint was target lesion failure defined as a composite of cardiac death, target vessel myocardial infarction, and ischemia driven target lesion revascularization (TLR). Cumulative event rates were analyzed using Kaplan-Meier methods.

The mean age of patients was 55.1 ± 8.8 years and 28.3% (n = 17) had diabetes. The mean SYNTAX score of patients was 20.6 ± 9.9. Seventy percent of patients (n = 42) underwent PCI for stable indications, with the remaining 30% (n = 18) for acute coronary syndromes. Most target lesions were LM bifurcations (n = 46; 76.7%), of which 41.3% (n = 19) were true bifurcations. The remaining 14 (23.3%) cases did not involve the LM bifurcation, and received isolated LM shaft stenting. Of the 46 LM bifurcations lesions, a provisional approach was undertaken in 37 cases and elective 2-stenting in 9 cases. The rate of predilatation and post-dilatation was 93.3% (n = 56) and 96.7% (n = 58), respectively. Post-dilatation of the main branch was performed at high pressures (mean, 18.9 ± 4.1 atm). Intravascular imaging was used in most cases (80%; n = 48).

There were no incidences of periprocedural stroke or death. During BVS deployment, 1 patient (provisional LM-left anterior descending strategy) experienced temporary hemodynamic instability. The median follow-up time was 593 days (interquartile range: 230 to 817 days). The primary endpoint of target lesion failure occurred in 14.9% (n = 7) and 25.0% (n = 10) of patients at 1 and 2 years, respectively (**Figure 1**). This was primarily caused by ischemia-driven TLR because the overall TLR rate was 13.4% (n = 6) and 23.6% (n = 9) at 1 and 2 years. The cardiac death rate was 1.8% (n = 1) at 2 years and there were no target vessel myocardial infarction or definite/probable ST segment events at 2 years.