Fly boyz, hybrid artists or cool guys: testing the boundaries of imagination

Thach Nguyen, Hoang Pham, James Nguyen, Bikash Agarwal

1. St Mary Medical Center, Hobart IN
2. Long Island College Hospital, Brooklyn NY
3. St Anthony Memorial Health Center, Michigan City IN

In the early years of coronary interventions, when a single lesion was found, the question then was asked whether it was feasible and safe to dilate right away the lesion with plain old balloon angioplasty (ad hoc POBA) or to call in a senior interventional cardiologist to do POBA on a later date. If lesions were found in more than one coronary artery territories, then the interventional cardiologists had to pull his or her hair and asked whether it was feasible and safe to dilate right away the other lesion(s) at the same session. More than 20 years later, at this present time, with nearly perfect outcomes due to stent availability and high level of experiences from operators, the question of multiple coronary stenting in one session is neither problematic nor relevant. However, if not all lesions are taken care immediately or in near future sessions, the question would be whether the patient receives standard of care as there is no complete revascularization.

During any intervention, on the way to the coronary system, an obstructive lesion could be found incidentally in the iliac artery (from the femoral approach), or in the subclavian artery (from the radial approach), one would ask whether it is indicated to intervene before the coronary intervention (PCI) or after the PCI. In these situations, the peripheral intervention is not to save time, contrast, discomfort and money, it is a question of procedural success and access for equipment, especially if a prolonged indwelling of an intra-aortic balloon pump is needed.

During any intervention, while crossing different vascular territories on the way to the coronary system, if nothing abnormal is found, then the interventional cardiologist is told to stick with her or his area of expertise which is the coronary artery system. Then as it was told or whispered not in rare occasions, a proud (or arrogant) interventional cardiologist came and reported a perfect outcome of a PCI to the family and the referral physician. However, a few months later, the patient died from a lung tumor while taking the history and doing the physical examination of the patient? Did the interventional cardiologist miss the abdominal aortic aneurysm when manipulating the catheter across the abdominal aorta?

In this issue of the Journal of Geriatric Cardiology, CY Lu et al. reported their experience of systematic combined percutaneous diagnostic procedures and interventions in the elderly patients. I presumed all coronary lesions were taken care in one or staged sessions. There are 3 questions about this concept of combined procedures.

The first hot (or sexy) question is whether patients have complete revascularization even the authors did all the vascular interventions. As scientist, the answer is NEVER. As clinician, the question is YES. Why there is a contradiction? The interventional cardiologists can stent all significant lesions in all vascular beds. This is considered complete job (or revascularization). A scientist with an intravascular ultrasound can prove that all arteries are still full with plaques which can rupture and cause occlusion (including myocardial infarction) at any time. This is eternally incomplete revascularization. As a manipulative statistician who considers success if there is difference of 1% of data in a period of 1 day, 7 days, one month, one year or maximally 5 years (as in all randomized cardiovascular trials), then I believe as interventional cardiologists we did do a good job as judged by human criteria (and errors).

The second question for the authors is about their manual dexterity and our frequently bragged ability. All patients had PCI combined with interventions in another vascular bed (renal, carotid or lower peripheral vasculature) or PCI with alcohol septal ablation or PCI with electrophysiologic (EP) study and interventions (including pacemaker insertion). The follow-up showed perfect results with no mortality, no major adverse event. Did the success come because of the individual skill from the operators or there was success due to perfect strategic planning? Can an average interventional cardiologist duplicate the same results?

Every interventional technique or strategy can only become popular and the stock of the manufacturing company can only soar if the technique can be applied daily by the average interventional cardiologist. I never doubt the genius
(and hard works) of the inventor of percutaneous aortic valve.

However, the procedure will never take off and fly high unless an average Doe interventional cardiologist from the Midwest, from South America or from Asia or Eastern Europe can enjoy and play with his or her toy every day with success. Until then, the manufacturing company could apply orphan status for its devices with the Food and Drug Administration. The same question is: Why many esteemed interventional radiologist friends cannot do the PCI or combined procedures as the authors did? The answer lies on the level of clinical competence. Technically, the interventional radiologists can manipulate any catheter, wire, stent, device, as best (or better than) as anybody else. However, PCI requires online clinical judgment as the patient is (or should) never off-line during the procedure. One minor note from the US point of view: no interventional cardiologists in this side of the Pacific are competent with both PCI and EP studies or interventions. It is a question of either and not both. So the Chinese data could not be duplicated here if they wish to randomize both coronary and EP patients.

The third question is whether it is beneficial to do combined procedures. Financially, it is. A patient who has separately an angiogram, a PCI, an EP study or pacemaker insertion occupies separately a hospital bed for an x number of hours. Now with combined procedures, all bundles on a same bed within a same period of time, then the money generated by that bed is doubled or tripled. Because the US payment is based in the DRG system, so separate procedures bring more monies than combined procedures. This is why Medicare (the largest insurance system for the elderly by the US government) promotes bundling of procedures while it prosecutes unbundling of charges.

As physicians, what should we do? By combining procedures, we save monies for the patients (who pay us and the hospital through insurance), then we use cost-effectively the health care dollars which all come from taxes (including mine and yours). By combining procedures, we minimize the discomfort to the patients with less manipulation. However, all the decisions need to be clinically oriented. Did the patients have the indications or the procedure is done because of our innate oculo-stenotic reflex? Was the lesion incidentally discovered because we are a fly boy (on auto-pilot) passing by? Are we pioneers running ahead of the pack, always edging for something sexy or exciting? Do we love raising the bar higher or testing or pushing further the boundaries of religious, political, social, emotional, technical or interventional limit? Knowing the American mentality, the answer to the last question is all of the above. I believe combined procedure is here to stay and will be the norm of the future.