In Transition: Early-Career Interventional Cardiologists

Morton J. Kern, MD

Every year we graduate cardiology fellows and introduce them as new interventionalists into our community. It is our fervent hope and desire that they succeed and deliver great care to their patients.

Interventionalists and staff in the cath lab know that even in the most experienced hands, complications are inevitable. Experience reduces complications and complications produce experience. The only way to get experience is to work through complications. Thankfully, the newly trained interventionalists are cognizant of this. As my parting words to my trainees, I remind them that in the initial practice year, they should temper their enthusiasm for taking on very high-risk cases known to have higher complication rates. Nobody likes a show-off.

This editor's page was stimulated by an article I read on exactly this issue by Rymer et al[1], who reported on cath lab procedure volumes and outcomes among early-career interventional cardiologists. It is a unique study providing a scientific background to our conjectures and suppositions about operator experience and results. In an accompanying editorial, Shah et al[2] help us understand what we can do to assist our younger, less-experienced colleagues navigate their first years without undue problems and risk to patients. While this discussion was applied to cardiology fellows transitioning their experience from training into practice, it applies to all healthcare professionals involved in invasive procedures with the associated risks engendered by inexperience.

How Do Early-Career Interventional Cardiologists Compare to Later-Career Interventionalists?

First, early-career operators were those <5 years out of training. To compare volume and results, data were taken from the National Cardiovascular Data Registry, Cath PCI Registry, ABIM certification database, and the National Plan and Provider Enumeration System database. Rymer et al[1] tabulated and examined case volume, expected mortality, and bleeding risk, using the observed/predicted event rates for early-career operators compared to later-career operators. There were 1,451 early-career operators, of which 1,011 changed their career status over the study period. There were 6,251 later-career operators. Overall, early-career operators treated half a million patients and later-career operators treated nearly 2.3 million patients. It was striking that the median annual case volume per operator was relatively low, at 59 and 57, for early- and later-career operators, respectively.

What Were the Biggest Differences Between Early- and Later-Career Operators?

Early-career operators were more likely to treat patients with ST-elevation myocardial infarction (STEMI) and other urgent indications for percutaneous coronary intervention (PCI) compared to later operators (for both STEMI and urgent PCI, $P<.001$). The treated patients had higher risk profiles for the early- versus late-career operators, with predicted mortality risk of 2.0% and 1.8%, respectively, and a predicted bleeding risk of 4.9% and 4.4%, respectively. After statistical adjustment, the risks of mortality and bleeding remained significantly different and were associated with early-career status. Figure 1 shows the characteristics and outcomes of early-career and later-career operators. The article concluded that these data should prompt institutions and hospital practices to develop systems to assist early career interventionalists transition to become more successful experienced operators. [A perfect task to ask the Society for Cardiovascular Angiography and Interventions (SCAI) to wade in on – *MK*]

Shah et al[2] shared their views and drew attention to several factors that put the early-career operator at risk, some of which may be unavoidable, but certainly could be addressed. The editorial mentions that early-career operators do not always have a more experienced associate in the lab, let alone at the table (as they did in fellowship training). While most of interventional fellow trainers strive to let the interventionalist-in-training operate independently in the last months of their fellowship, there is always an experienced attending nearby or even scrubbed at the table. Not so in practice. Working without a safety net (ie, available attending) can be daunting. Routine procedural details or clinical questions can become less clear to an early independent operator.

In addition, early-career operators start working in a new environment where the personalities, habits, and skill sets are unknown to the team

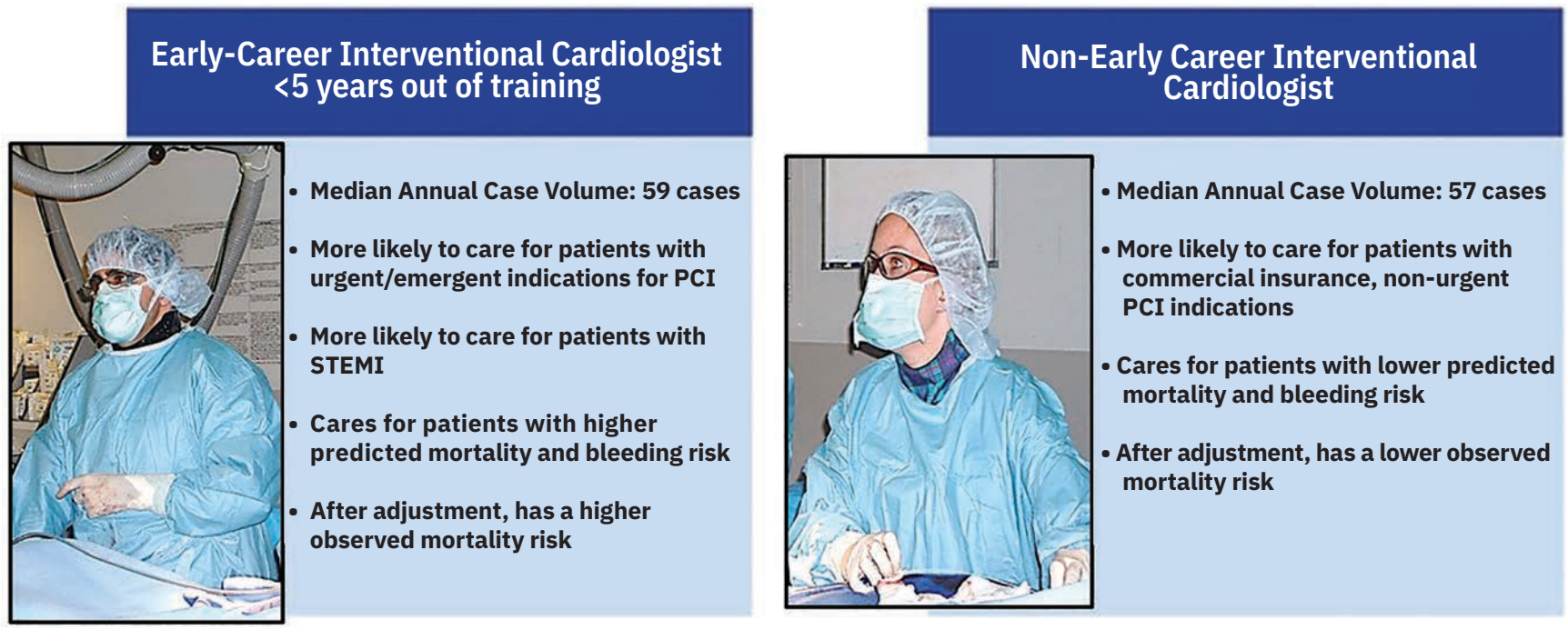

Figure 1. Characteristics and outcomes between early-career and later-career operators.

Modified from Rymer JA, Narcisse DI, Chen A, et al. J Am Coll Cardiol. 2024 May 21; 83(20): 1990-1998.

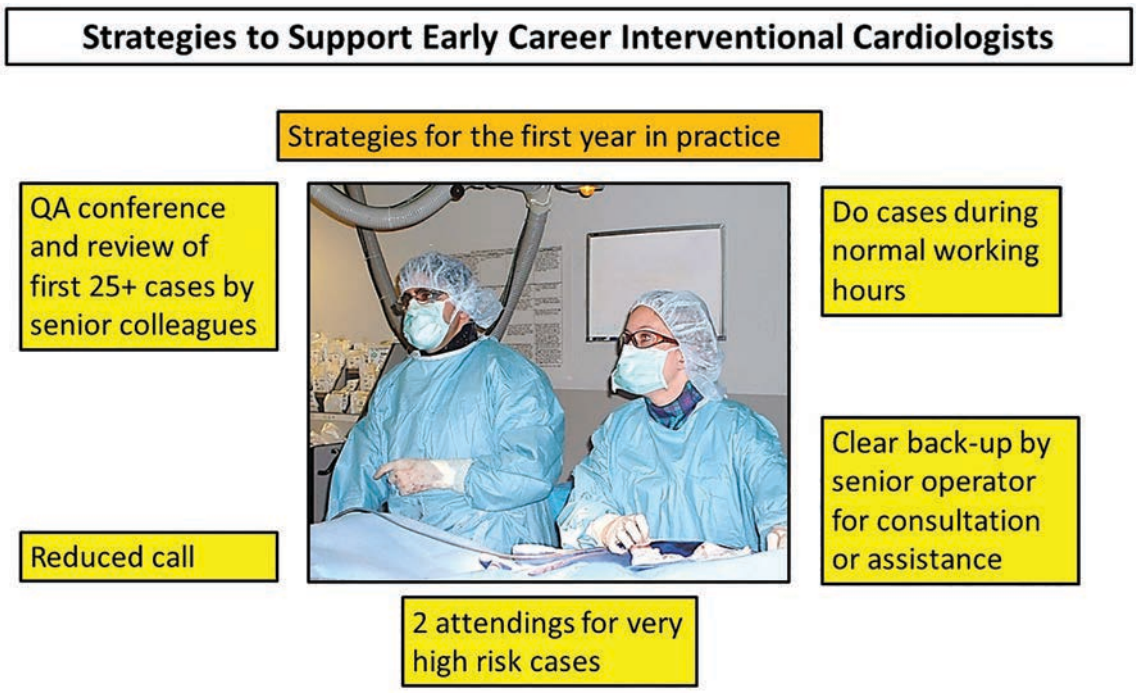

Figure 2. Scheme for the support of early-career interventional cardiologists.

Modified from Shah PB, Gross DA, Kochar A. J Am Coll Cardiol. 2024 May 21; 83(20): 1999-2001.

TABLE. Approaches to help early-career interventionalists.

1. A quality assurance conference with the entire lab.
2. Discussion of the first 25-75 PCI cases with a senior interventionalist before beginning the case.
3. A concerted effort to direct more PCI cases during normal hours to the early-career interventional cardiologist to overcome the challenge of sufficient case load in early career. Also, this will provide more initial opportunities for cases to be done with experienced personnel in place.
4. For higher-risk cases, redistribute them away from the early-career interventional cardiologist or require scrubbing with an experienced partner for the first year.
5. Reduce on-call nights in the first year to lower exposure to highest risk cases.
6. Institute an on-call back-up system for the first year of practice. For example, a 2-attending call schedule for the first half of the year, then a phone call/local available senior colleague to answer any direct assistance request.

Modified from Shah PB, Gross DA, Kochar A. *J Am Coll Cardiol.* 2024 May 21; 83(20): 1999-2001.

supporting the procedures. Both the operators and the team must adapt to each other. Some labs have a wide spectrum of talent among the various technical and nursing personnel. To the new operator, different lab routines, room and table setup, and unfamiliar imaging systems can be a hurdle to smooth operations. While the uncomfortable novelty of a new lab wears off over time, environment is a contributor to the quality of your outcomes. Many early-career operators must contend with the new lab culture and institutional customs which, at times, may feel like a hostile environment. None of the newbies' partners want complications brought by an overzealous new operator. Integrating oneself into the new lab requires a sufficiently high E.Q. (empathy quotient) to make new friends and colleagues. Importantly, mutual respect must be earned, a lesson sometimes forgotten.

Compared to later-career interventional cardiologists (IC), early-career ICs perform more off-hour cases, treating more higher-risk patients (eg, those with STEMI/non-STEMI, out-of-hospital cardiac arrest, high lesion complexity, and cardiogenic shock). Despite this difference, the good news, regardless of whether the operator is early or not, is that absolute event rates for serious adverse in-hospital clinical outcomes and procedural complications were very low for both groups of operators.

Strategies to Help the Early-Career Interventionalist

Shah et al[2] describe several simple strategies to help guide early-career ICs, considerations that we should implement and make a uniform practice for all interventional programs (Figure 2). These strategies (Table) include a quality assurance conference and discussions with senior colleagues about case selections, techniques, and complication avoidance strategies. Comparison to national outcomes and benchmarking will raise awareness of the operator's practice patterns and track record with opportunities to improve outcomes.

The Bottom Line

As colleagues in the lab, teachers, partners, and patients, we all want our newly graduated interventional cardiologists to succeed and thrive. Our understanding of the uncertainty and skills of the new operator should promote safety through the best communications in the form of conferences, case reviews, and one-on-one discussions with nurses, technologists, and senior interventionalists to help our early-career colleagues navigate the turbulent waters to smooth sailing in our labs. ■

References

1. Rymer JA, Narcisse DI, Chen A, Wojdyla D, Ashley S, Damluji AA, Shah B, Nanna MG, Swaminathan R, Gutierrez JA, Uzendu A, Nelson AJ, Bethel G, Kearney K, Jones WS, Rao SV, Doll JA. Case volumes and outcomes among early-career interventional cardiologists in the United States. *J Am Coll Cardiol.* 2024 May 21; 83(20): 1990-1998. doi:10.1016/j.jacc.2024.03.395
2. Shah PB, Gross DA, Kochar A. Is there an experience/exposure paradox in interventional cardiology? *J Am Coll Cardiol.* 2024 May 21; 83(20): 1999-2001. doi:10.1016/j.jacc.2024.03.411

Missed one of Dr. Kern's monthly columns? Visit his page on *CLD* to read more:

Morton J. Kern, MD, MSCAI, FACC, FAHA
Clinical Editor; Interventional Cardiologist, Long Beach VA Medical Center, Long Beach, California; Professor of Medicine, University of California, Irvine Medical Center, Orange, California

Disclosures: Dr. Morton Kern reports he is a consultant for Abiomed, Abbott Vascular, Philips Volcano, ACIST Medical, and Opsens Inc.

Dr. Kern can be contacted at mortonkern2007@gmail.com On Twitter @MortonKern