Letter by Azzalini and Ly Regarding Article, “The Learning Curve for Transradial Percutaneous Coronary Intervention among Operators in the United States: A Study from the National Cardiovascular Data Registry”

To the Editor:

In their article, Hess et al.1 report on the learning curve (LC) for transradial percutaneous coronary intervention (TR-PCI), using the National Cardiovascular Registry Database. The threshold to overcome this LC is identified at 30 to 50 cases. Moreover, it is concluded that, as operator TR-PCI volume increases, higher risk patients are selected and efficiency increases, while safety is maintained. The authors are to be congratulated for their insightful analysis, which contributes to the body of knowledge on the topic.

However, several observations need to be addressed. Firstly, the importance of access-site crossover in Hess’ population remains unknown, but is likely not less than the 6.6% seen in a population of standard radialists (>60% of TR-PCIs).2 From our understanding, the CathPCI Registry does not capture access-site crossover. Thus, documenting procedural success via the initial access site would not have been possible. This implies that failed TR-PCIs were accounted for as transfemoral procedures and were excluded from the analysis, introducing an inherent selection bias that would cause an increased likelihood for TR access procedural success. Such a key confounder was not adjusted for in the provided statistical analysis.

Secondly, TR access failure can occur either solely or due to a combination of factors such as failure to appropriately puncture the artery, to advance guidewires/catheters or due to a lack of support secondary to vessel anatomy.1 Hess et al1 seem to have captured only vascular access-successful TR-PCIs, and exclusions included cases where PCI was unlikely to be completed transradially and/or the post-procedural angiographic result was judged a priori to potentially be suboptimal. This could be especially true for the mid- to late part of the LC, when new TR operators began to consider more challenging cases. This was confirmed indirectly by the finding that 89.7% of PCI were performed ad hoc; this strategy is not usually adopted for the most challenging procedures (rotational atherectomy, chronic total occlusion and bypass graft interventions). Additionally, STEMI cases constituted only 7.0% of the study population, which hampered specific subanalyses. It would have been interesting to analyze the TR-LC in this setting, since it has been shown that, in default radial institutions, time-to-revascularization is similar as compared with the transfemoral route.4

Therefore, from our perspective and as a consequence of the aforementioned selection bias, the reported inflection point in the TR-PCI LC (30–50 cases) in the study by Hess et al1 appears somewhat low. Their findings are in accordance with the threshold of 50 procedures identified in a study on single-vessel and low-complexity TR-PCIs.5 Conversely, a recently published consensus document on TR-PCI recommended a caseload of >100 TR-procedures to safely perform TR-PCI in stable patients with simple lesions, >200 for TR-PCI in all-comer stable patients, and >300 for TR-primary PCI.1

In summary, while the findings by Hess et al1 contribute to better characterize the TR-PCI LC, their observations should be interpreted in light of low-to-medium complexity interventions, and one should be careful in extrapolating such data to TK-PCI in all-comers, for whom a different, steeper LC likely exists.

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Disclosures

None.

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