Response by Costa et al to Letter Regarding Article, “The Rotterdam Radial Access Research: Ultrasound-Based Radial Artery Evaluation for Diagnostic and Therapeutic Coronary Procedures”

In Response:

In response to the comments of Chugh et al on our study,\(^1\) we would like to point out that the rate of radial artery occlusion (RAO) ranged from <1\% to 30\% in recent studies (mean 7.89\%), whereas in the Rotterdam Radial Access Research study, this was <4\% at all time points.\(^1\) The incidence of RAO varies and seems multifactorial, including anatomic substrate (ie, vessel size), access technique, and access management before, during, and after the procedure. Our study underscores the clinical importance of number of radial punctures to obtain arterial access and its association with RAO, radial pulse loss, and pain and discomfort. In contrast, radial artery size at baseline, which was handled as a continuous variable in our model, had no impact on RAO. We agree with Chugh et al that smaller radial artery size may result in serial puncture attempts. In fact, the median radial inner lumen at baseline in our study was 2.25 mm in patients receiving 1 puncture and 2.01 mm in those receiving >1 puncture. However, a lumen of <2.00 mm did not predict RAO at any time point in our study, confirming our hypothesis that the number of punctures could independently predict RAO.

The use of low-dose heparin for short-lasting transradial diagnostic studies resembles standard practice in many institutions throughout the world. Systematic use of a higher heparin dose in a diagnostic setting may result in less RAO, especially when patent hemostasis could not be achieved.\(^2\) Still, full anticoagulation is associated with a significant increase in access site bleeding with no further benefit on RAO in a recent, large, double-blind randomized trial.\(^1\) Similarly, Pancholy et al\(^4\) demonstrated that shorter compression times (2 versus 6 hours) also reduced RAO. Shorter compression time (15 minutes) with newer compression devices was associated with a higher bleeding rate. Noteworthy, kaolin-filled pads allow for short compression, but evidence on their efficacy is still limited, and these pads were not available in our institution at the time of the study.\(^3\)

The Rotterdam Radial Access Research (R-RADAR) study introduced novel noninvasive ultrasound imaging technology in the space of transradial access. Its relatively small sample size precludes any firm conclusions, yet we believe the findings in terms of arterial injury and healing after transradial access are original, refine current understanding and should spur further research to optimize planning, execution, and postprocedural management of transradial procedures.

References

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Francesco Costa, Joost Daemen, Roberto Diletti, Floris Kauer, Robert-Jan van Geuns, Jurgen Ligthart, Karen Witberg, Felix Zijlstra, Marco Valgimigli, Nicolas M. Van Mieghem and Maarten A.H. van Leeuwen

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