

Our study was not meant to focus on patients with diabetes because there is no evidence or biological premises suggesting that the off-target effects of ticagrelor might be enhanced in this population. Yet, randomization was stratified based on diabetes, and our pre-specified subgroups analyses did not show that diabetes is a treatment modifier with respect to our primary endpoint measure or adenosine levels. Our sample size calculation was based on published information on test-retest reliability of pulse amplitude tonometry measures of vascular endothelial function (2). Our assumptions in terms of expected endothelial function values and reproducibility were met, and actual study power, based on the final number of patients who completed all study measures, was in excess of 90% for a 10% relative difference between ticagrelor versus prasugrel and clopidogrel. Hence, claiming that the null findings of our study were justified by lack of power is an artificial argument. Flow-mediated dilatation was restricted to a subset of patients and did not prove to be significantly better either in ticagrelor sequences as compared with both the clopidogrel and prasugrel ones. As detailed in the paper, there was no signal of a true carryover effect of ticagrelor during other P2Y₁₂ inhibitor sequences, and the selected P2Y₁₂ inhibitor before inclusion had no measurable impact on study results (1). As previously detailed (3), all precautions were taken in order to properly measure circulating adenosine, including an AstraZeneca supervised and certified central core lab for the analyses and the use of pre-filled syringes containing a stop-solution for blood sampling.

We did not measure interleukin-6 or tumor necrosis factor- α . We did measure, however, C-reactive protein, which is highly correlated to interleukin-6, and which was unaffected by the P2Y₁₂ inhibitor sequences.

Dr. Jeong and colleagues claim that our results were inconsistent with previous studies, but are actually referring only to their own study: a previous large and multicenter trial that assessed a large set of vascular and inflammatory biomarkers, including interleukin-6 and tumor necrosis factor- α , and failed to observe any difference between ticagrelor and clopidogrel (4).

We remain open to follow the lessons provided by Albert Einstein, who noted that if the facts do not fit the theory, the latter and not the former should be changed.

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TO THE EDITOR

Superficial Femoral Artery Recanalization via Transradial Access or a Combined Radial-Pedal Access Strategy



We read with interest the paper by Ruzsa et al. (1), which corroborates the feasibility of transradial access and a combined radial-pedal access strategy in superficial femoral artery (SFA) recanalization, as we previously described (2-5). We have the following technical comments.

First, the investigators did not specify how many of the 22 patients undergoing a radial-pedal access strategy had unfavorable femoral access features. As we previously published, we reserve the combined radial-pedal access strategy for patients with both complex SFA disease and no reasonable transfemoral option, that is, patients with features that make crossover femoral recanalization and/or antegrade crossing unfavorable: 1) complex aortoiliac anatomy; 2) ostial SFA occlusion without a stump; or 3) severely diseased and calcified distal reconstitution (2,3). In the latter cases, retrograde access is readily required, and controlled antegrade-retrograde tracking is frequently needed, which may justify the tibiopedal

TABLE 1 Useful Devices in Transradial Superficial Femoral Artery Interventions in the United States

6-F, 125-cm multipurpose guiding catheter (Cordis, Miami Lakes, Florida), which functions as a long 5-F slender sheath
6-F, 120- and 150-cm straight-tip slender sheaths (Terumo, Tokyo, Japan)
Guidewires: 450-cm, 0.035-inch stiff-shaft and soft-shaft Glidewires (Terumo); 475-cm, 0.014-inch Viper guidewire (Cardiovascular Systems, New Brighton, Minnesota)
Balloons: 200-cm, 0.035-inch monorail balloons (Terumo); 200-cm, 0.014-inch monorail balloons (Bard, Tempe, Arizona); 180-cm, 0.018-inch over-the-wire balloons (Pacific Plus, Medtronic, Minneapolis, Minnesota)
Atherectomy: 220-cm orbital atherectomy catheter (1.25-, 1.5-, and 1.75-mm burrs) (Cardiovascular Systems)

access. In fact, in our reports of the combined radial-pedal access strategy, 9 of 17 patients required reverse controlled antegrade-retrograde tracking (2,3,5). We try to limit the use of tibiopedal access and the potential injury of small, calcified tibiopedal arteries, especially in patients with single-vessel runoff. This gains additional importance during a radial-pedal strategy because the tibiopedal access often becomes the primary device delivery access, generally mandating a 5-F slender pedal sheath.

In complex SFA occlusions with favorable antegrade crossing features, we prefer a transfemoral approach and, if needed, a transfemoral re-entry device or a combined femoral-pedal strategy. In the latter case, a 2.9-F pedal sheath may suffice.

Second, the investigators mentioned the use of a 6-F pedal sheath. We do not place pedal sheaths larger than 4-F or 5-F slender. The latter sheaths allow delivery of crossing devices, most atherectomy devices, drug-coated balloons, and specific stent brands. Self-expanding stents may also be delivered sheathlessly.

Third, the investigators did not comment on the length of the guidewires used across the SFA. Guidewires ≥ 400 cm in length are ideally required for safe device exchanges during transradial SFA procedures. The investigators did not comment on the transradial use of support catheters, and we surmise that they used the 180-cm, 0.018-inch balloon catheter to support crossing. This represents a limitation of transradial recanalization, as the frequently required 0.035-inch catheters are available only in 150-cm length.

Finally, we list devices available in the United States that may be used in stand-alone transradial SFA recanalization (Table 1). As we previously described, the left radial-to-distal SFA distance grossly approximates the patient's height; this helps with procedural planning (4).

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REPLY: Superficial Femoral Artery Recanalization Via a Transradial Access or a Combined Radial-Pedal Access Strategy



We would like to thank you for the opportunity to respond to the comments by Drs. Hanna and Prout concerning our paper (1).

Combined transfemoral and transpedal approach first has been published as a "bail out" strategy during failed antegrade recanalizations (2), but in cases when the femoral access is not possible or it carries high risk, many authors have suggested the radial-pedal approach for femoral artery interventions (1).

Currently, we use the radial-pedal approach as a primary access method, not only in patients with unfavorable femoral access. Femoral is the secondary access site, which is utilized in patients with difficult puncture or device passage. Difficult puncture can be prevented with routine vascular ultrasound examination (nonpalpable or severely calcified radial artery, radial artery tortuosity, radial artery loop).

Many companies have developed special transradial devices with a long delivery system. In our study population, a 260- to 300-cm-long 0.018-inch