TABLE 1 Comparison of Outcomes at 6 Months Based on BMI

Ambulatory Blood Pressure, mm Hg	Denervation	Sham	p Value
BMI >38 kg/m^2	n = 87	n = 30	
SBP	−8.20 ± 15.93	−9.79 ± 15.91	0.64
DBP	−5.13 ± 9.50	−6.05 ± 9.92	0.65
BMI ≥30 to ≤38 kg/m^2	n = 151	n = 86	
SBP	−6.56 ± 15.41	−3.28 ± 18.91	0.17
DBP	−3.94 ± 9.73	−2.58 ± 10.77	0.32
BMI <30 kg/m^2	n = 87	n = 42	
SBP	−5.64 ± 13.73	−4.50 ± 14.20	0.66
DBP	−3.34 ± 7.95	−2.06 ± 8.67	0.41
BMI >27 to <30 kg/m^2	n = 42	n = 23	
SBP	−2.13 ± 14.63	−3.22 ± 14.79	0.78
DBP	−2.42 ± 8.58	−1.24 ± 8.97	0.60

Values are mean ± SD.

BMI = body mass index; DBP = diastolic blood pressure; SBP = systolic blood pressure.

sham groups (Table 1). We did observe a smaller, albeit nonsignificant, fall in ambulatory blood pressure among lean compared with obese subjects in both treatment groups.

The adipocyte produces aldosterone, so we investigated the effect of spironolactone according to BMI (3). Spironolactone use produced no significant differences in ambulatory blood pressure endpoints between obese and normal weight patients. Moreover, among the denervation subgroup receiving spironolactone at baseline, there was no difference in blood pressure change between the obese (n = 26; BMI >38 kg/m^2) and the lean (n = 21; BMI <30 kg/m^2) patients (−8.3 ± 12.5 mm Hg vs. −10.4 ± 13.7 mm Hg; p = 0.59). Additionally, spironolactone in obese sham subjects (n = 14) failed to provide a significant drop in blood pressure compared with lean sham subjects receiving spironolactone (n = 8; −9.4 ± 15.7 mm Hg vs. 0.3 ± 19.5 mm Hg; p = 0.22).

Given the overall neutral results of SYMPLICITY HTN-3 (4,5), it is difficult to draw any meaningful conclusions from these data. Additional post-hoc analysis of SYMPLICITY HTN-3 data by our group have proposed several potential factors, including those involving procedural factors, medication adherence, and patient subgroups. These analyses further highlight the importance of well-designed, randomized, sham-controlled clinical trials to clarify our understanding of the potential role for renal denervation in the management of uncontrolled hypertension in obese and lean patients.

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Aspiration Thrombectomy

Timing Should Be Considered

We read the recent report by Thiele et al. (1) with great interest. The investigators performed a multicenter, randomized trial to compare the adjunctive aspiration thrombectomy (AT) with conventional percutaneous coronary intervention (PCI) in patients with non-ST-segment elevation myocardial infarction (NSTEMI). Patients presented within 72 h after symptom onset and with thrombus over culprit lesion demonstrated by angiography were enrolled.

Although 75% of patients in the AT group yielded macroscopic thrombus material, the associated microvascular obstruction assessed by magnetic resonance imaging within 4 days was not different from that of the control. The investigators conclude that adjunctive AT does not lead to an improvement of myocardial reperfusion and infarct size in patients with NSTEMI. This conclusion, however, is arguable because an important confounding factor was left out from the analysis, namely the time from symptom onset to PCI.

In the report from Thiele et al. (1), the time from symptom onset to PCI was extended to 72 h, much longer than the time limit used in previous AT trials (<12 h in most AT trials in STEMI, and <24 h in the earliest trial proving feasibility of AT in NSTEMI [2]). The duration from symptom onset to PCI is associated with the change in composition of thrombus material (3). As thrombi "age," the proportion of fresh thrombotic material decreases whereas organized material increases. Therefore, the effectiveness of AT in restoring brisk coronary flow will be reduced if done late. In addition, irreversible injury also progresses in the jeopardized, but salvageable, myocardium as critical ischemia continues. This timing difference in the effect of AT on myocardial reperfusion in STEMI patients has been shown in previous studies (4,5). In our previous study, the benefit of AT is most significant in STEMI patients treated within 4 to 8 h after symptom onset, compared with patients treated within 0 to 4 h or 8 to 12 h. It is possible that within 4 h from onset the thrombi are so soft that they may respond similarly to either conventional PCI or AT. On the other hand, when AT was done later than 8 h from onset, the thrombi are too organized to be removed completely. In addition, as there is minimal myocardium left to be salvaged late in the course, the benefit of AT will be mitigated. The changes in thrombus composition and loss of salvageable myocardium as time lapsed may thus result in an optimal "time window" for AT to be effective. We believe, therefore, the timing of AT after symptom onset should be considered and analyzed accordingly in all future AT studies.

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REPLY: Aspiration Thrombectomy

Timing Should Be Considered

We thank Dr. Hung and colleagues for their considerations on timing of thrombectomy. In the TATORT-NSTEMI (Thrombus Aspiration in Thrombus Containing Culprit Lesions in Non-ST-Elevation Myocardial Infarction) trial, the inclusion criterion was indeed last symptoms <72 h, which is longer than in previous ST-segment elevation myocardial infarction (STEMI) trials in which primary PCI is usually performed <12 h after symptom onset, although the recent TAPAS trial (Thrombus Aspiration during Percutaneous coronary intervention in Acute myocardial infarction Study) had a 24-h inclusion criterion (1,2). However, in non-STEMI (NSTEMI), it is usually difficult to define the exact symptom onset and also the last symptom occurrence because symptoms are often stuttering. Therefore, the inclusion criterion of last symptoms has been chosen in multiple previous NSTEMI trials ranging from 24 to 72 h (3). Although the 72 h inclusion criterion in the TATORT-NSTEMI trial was in the upper range in comparison to other NSTEMI trials, the time from last symptoms to angiography (TATORT-NSTEMI: 10.5 h thrombectomy vs. 10.0 h control) was similar to previous trials ranging from 8 to 10 h in a timing trial (3) and even shorter in comparison to another trial with approximately 30 h until invasive angiography (4).

Thrombus age may play a role on thrombectomy success in STEMI patients. Currently, there is conflicting evidence that aspiration thrombectomy