SUPPLEMENTAL MATERIAL

Safety and Efficacy of Remote Ischemic Preconditioning in Patients with Severe Carotid Artery Stenosis Prior to Carotid Artery Stenting: a Proof-of-concept, Randomized Controlled Trial

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Supplemental Table 1: Type of stents and EPDs

	RIPC group N=52	Control group N=56	Sham group N=54	p
Type of stents				
Wallstent *	12 (23.1)	12 (21.4)	10 (18.5)	0.843
Protégé †	10 (19.2)	9 (16.1)	12 (22.2)	0.714
Acculink ‡	9 (17.3)	10 (17.9)	9 (16.7)	0.986
Precise §	21 (40.4)	25 (44.6)	23 (42.6)	0.905
Type of EPDs				
FilterWire *	15 (28.8)	14 (25.0)	10 (18.5)	0.452
Spider †	22 (42.3)	30 (53.6)	29 (53.7)	0.404
Accunet ‡	6 (11.5)	4 (7.1)	5 (9.3)	0.733
Angioguard §	9 (17.3)	8 (14.3)	10 (18.5)	0.828

Data are number (%). RIPC indicates remote ischemic preconditioning; and EPDs, embolic protection devices.

* produced by Boston Scientific Corp (Natick, MA, USA);

† produced by EV3 (Plymouth, MN, USA);

‡ produced by Abbott Vascular (Santa Clara, CA, USA);

§ produced by Cordis (Miami Lakes, FL, USA).

Supplemental Table 2: Stents sizes

	RIPC group N=52	Control group N=56	Sham group N=54	p
Length (mm)				
30	12 (23.1)	14 (25.0)	9 (16.7)	0.542
40	37 (71.2)	39 (69.6)	44 (81.5)	0.309
50*	3 (5.8)	3 (5.4)	1 (1.9)	0.547
Diameter (mm)				
6	1 (1.9)	0	1 (1.9)	--
7	10 (19.2)	5 (8.9)	5 (9.3)	0.187
8	12 (23.1)	10 (17.9)	17 (31.5)	0.243
9	20 (38.5)	25 (44.6)	19 (35.2)	0.587
10	2 (3.8)	5 (8.9)	3 (5.6)	0.534
Tapered stent †	7 (13.5)	11 (19.6)	9 (16.7)	0.690

Data are number (%). RIPC indicates remote ischemic preconditioning.

* All the stents were Wallstent, Boston Scientific Corp, Natick, MA, USA.

† All the stents were 7.0mm-10.0mm taper.

Supplemental Table 3: Plasma NSE (ng/L)

	RIPC group N=52	Control group N=56	Sham group N=54	p
Baseline	12.83±3.07	12.51±2.93	12.12±2.76	0.449
Pre-CAS	12.63±3.77	12.85±3.59	12.56±2.71	0.901
1h	13.00±2.85	13.18±3.98	13.01±4.32	0.962
24h	12.65±2.78	12.97±4.28	12.77±3.05	0.892

Data are mean±SD; RIPC indicates remote ischemic preconditioning; CAS, carotid artery stenting; 1 h, 1 hour after CAS; and 24 h, 24 hours after CAS.

Supplemental Table 4: Plasma S-100B (pg/ml)

	RIPC group N=52	Control group N=56	Sham group N=54	p
Baseline	49.64±15.74	50.14±17.04	50.42±13.62	0.966
Pre-CAS	49.70±16.25	50.75±16.79	51.24±13.30	0.874
1h	50.99±20.21	51.19±22.40	51.79±19.42	0.979
24h	51.40±16.16	52.94±24.34	52.02±19.71	0.926

Data are mean±SD; RIPC indicates remote ischemic preconditioning; CAS, carotid artery stenting; 1h, 1 hour after CAS; and 24h, 24 hours after CAS.

Supplemental Table 5: Per-protocol analysis of the incidence of new DWI lesion

	RIPC group N=52	Control group N=56	Sham group N=54	RR(96%CI)	p
At least one new lesion	10 (19.23)	26 (46.43)	23 (42.59)	0.41 (0.15-0.85) * 0.45 (0.17-0.90) † 1.09 (0.70-1.69) ‡	0.007

Data are number (%). RIPC indicates remote ischemic preconditioning; RR, relative risk; and CI, confidence interval. * comparison between the RIPC group and the control group; † comparison between the RIPC group and the sham group; ‡ comparison between the sham group and the control group. New lesion was only diagnosed if increased signal intensity was visible in diffusion-weighted imaging (DWI) and corresponding decreased signal intensity was detected in apparent diffusion coefficient (ADC), and if the lesion was not seen on pre-treatment scan.

Table 5 shows the incidence of new lesion. A total of 27 subjects who did not completely finished the post-CAS MRI follow-up were excluded from the analysis (11 in RIPC, 7 in control and 9 in sham), the final analysis included 52 in the RIPC group, 56 in the control group, and 54 in sham group. We found that the incidence of new DWI lesion in the RIPC group was significantly lower than the other two groups.

Supplemental Table 6: Per-protocol analysis of clinical events within 6 months

	RIPC group N=48	Control group N=50	Sham group N=49	p
Stroke/TIA	1 (2.08)	2 (4.00)	3 (6.12)	0.603
Hemorrhage or hyperperfusion	0	1 (2.00)	0	--
All-cause death and ischemic cardiovascular events	0	0	0	--

Data are number (%). RIPC indicates remote ischemic preconditioning; TIA, transient ischemia attack.

Table 6 shows clinical events with 6 months. A total of 42 subjects who did not complete the 6 months follow-up were excluded from the analysis (15 in the RIPC group, 13 in the control group and 14 in the sham group), the final analysis included the subjects were 48 in RIPC, 50 in control, and 49 in sham groups. But we found no statistic difference among three groups.

Supplemental Table 7: Plasma hs-CRP (mg/L)

	Baseline	Pre-CAS	1 h post-CAS	24 h post-CAS
RIPC group N=52	1.13 (0.70-4.69)	0.97 (0.56-3.71)	1.60 (0.65-3.65)	6.76 (3.17-11.81)
Control group N=56	1.20 (0.63-2.03)	1.16 (0.61-1.99)	1.30 (0.65-3.57)	7.85 (3.73-13.33)
Sham group N=54	1.35 (0.82-2.27)	1.31 (0.52-2.36)	1.31 (0.76-3.68)	6.56 (3.48-9.24)
p	0.731	0.936	0.835	0.251

Data are medians (IQR); RIPC indicates remote ischemic preconditioning; hs-CRP, hypersensitive C-reactive protein; CAS, carotid artery stenting; 1 h, 1 hour after CAS; and 24 h, 24 hours after CAS.