**Supplement materials 3**

**eAppendix 1**

***Eligibility criteria:***Carotid ultrasound examinations (at least one side IMT≥1.0 mm, and both side IMT≤1.5 mm) were required for eligibility before inclusion. To be considered eligible, patients had to comply with the following: Age: 20 -70 years old; Volunteer to take part in the study and signed informed consent form; Good understanding of the trail; Without any other treatment for atherosclerosis in the past 2 weeks (i.e., asprin, plavix, fibrates, statins etc.).

***Exclusion criteria:*** Risk of 10 years’ cardio-cerebrovascular disease≥20%; History of acute cerebrovascular events, or severe trauma or major surgery, other serious diseases; Mental disorders; Skin diseases and bleeding disorders; Fear of acupuncture; Pregnant women or lactating women; Severe diabetes, skin irritation, or acute skin lesion.

**eAppendix 2**

|  |  |
| --- | --- |
| **Table 3. Acupuncture Point Positioning Criteria** | |
| Acupoints | Locations |
| *NEIGUAN* (PC6) | On the palmar side of the forearm, 2 inches superior to the transverse crease of the wrist, between the palmaris longus tendon and the radial wrist flexor tendon. |
| *RENYING* (ST9) | Lateral to the laryngeal prominence of the cervical region, the anterior margin of the sternocleidomastoid, at the fluctuation site of the common carotid artery. |
| *BAIHUI* (DU20) | On the median line of the head, 5 inches superior to the anterior hairline, at approximately the middle of the connecting line between the two auricular tips. |
| *YINTANG* (EX-HN3) | At the midpoint between the two eyebrows on the forehead. |
| *YANGLINGQUAN* (GB34) | On the lateral side of the shank, in the depression anterior and inferior to the head of the fibula. |



**Figure 4.** Acupuncture Point Location diagram



**Figure 5.** Park Sham Device Applied in True Acupuncture and Sham Acupuncture

**eAppendix 3**

**Figure 6.** Baseline Characteristics outcomes between TA and SA group (including age, waistline, gender, BMI, blood pressure etc.)





**Figure 7.** Baseline changes of PWV over 12 weeks between TA and SA group







**Figure 8.** IMT changes over 12 weeks between TA and SA group



**Figure 9.** changes of lipid level over 12 weeks between TA and SA group



**Figure 10.** changes of Apoa and FIB, PLT over 12 weeks between TA and SA group



**eAppendix4**

|  |  |  |  |
| --- | --- | --- | --- |
| **Table 3. Changes of the Outcomes** | | | |
|  | | | |
| Outcomes | Acupuncture Group  (n = 21) | Sham acupuncture Group  (n = 20) | *P* Value |
| Changes of primary outcome | | | |
| Changes of BS, right,, m/s |  |  |  |
| Week 4, median (IQR) | 0.000(-0.163, 0.891) | 0.178(0.000, 0.447) | .958 |
| Week 8, median (IQR) | 0.600(-0.328, 1.700) | -0.052(-0.555, 0.677) | .092 |
| Week 12, median (IQR) | 1.097(-0.425, 1.653) | -0.158(-0.919, 0.550) | .006 b |
| Changes of ES, right, m/s |  |  |  |
| Week 4, mean (SD) | 0.336 (1.7179) | 0.353 (1.5934) | .974 |
| Week 8, median (IQR) | 1.345(0.031, 3.218) | 0.604(-1.219, 1.741) | .148 |
| Week 12, mean (SD) | 1.454 (1.7780) | 0.085 (1.9091) | .022 b |
| Changes of, BS, left, m/s |  |  |  |
| Week 4, median (IQR) | 0.033(-0.925, 0.900) | 0.000(-0.873, 0.500) | .075 |
| Week 8, mean (SD) | 0.238 (1.2659) | -0.203 (1.4502) | .306 |
| Week 12, median (IQR) | 0.893(-0.005, 1.498) | -0.319(-0.930, 0.598) | .015 b |
| Changes of ES, left, m/s |  |  |  |
| Week 4, median (IQR) | 0.617(0.000, 1.789) | 0.000(-0.748, 1.003) | .998 |
| Week 8, median (IQR) | 0.377(-0.135, 1.825) | 0.137(-0.339, 1.398) | .540 |
| Week 12, mean (SD) | 1.425 (1.4923) | 0.336 (1.5315) | .041 b |
| Changes of secondary outcome |  |  |  |
| Changes of IMT, right, mm |  |  |  |
| Week 4, median (IQR) | 0.00(0.00, 0.00) | 0.00(0.00, 0.00) | .408 |
| Week 8, median (IQR) | 0.00(0.00, 0.00) | 0.00(0.00, 0.00) | .123 |
| Week 12, median (IQR) | 0.00(0.00, 0.05) | 0.00(0.00, 0.00) | .788 |
| Changes of IMT, left, mm |  |  |  |
| Week 4, median (IQR) | 0.00(0.00, 0.00) | 0.00(0.00, 0.00) | .876 |
| Week 8, median (IQR) | 0.00(0.00, 0.10) | 0.00(0.00, 0.00) | .485 |
| Week 12, median (IQR) | 0.00(0.00, 0.10) | 0.00(0.00, 0.08) | .323 |
| Changes of HDL, mmol/L |  |  |  |
| Week 4, mean (SD) | 0.012 (0.1472) | -0.017 (0.1302) | .518 |
| Week 8, mean (SD) | 0.020 (0.1523) | -0.004 (0.1868) | .667 |
| Week 12, mean (SD) | -0.021 (0.1735) | -0.019 (0.1592) | .978 |

a TC: Cholestenone; TG: Triglyceride; HDL: High-density Lipoprotein cholesterol;

b A statistical between-group difference with the change of PWV at week 12 (P<.05).

**eAppendix 5**

**Figure 10.** Anatomical structures difference and Potential Mechanisms of acupuncture on arterial elasticity



**Figure 10.** Anatomical structures difference of both-side carotids could lead to different hemodynamic flow patterns. As patients accepted acupuncture treatment, autonomic nerves system (ANS) activity was stimulated. Subsequently, astrocyte linked neurons and endothelial cells, activating pressure sensors and regulating arterial hemodynamic responses, thus improved arterial elasticity.