**SUPPLEMENTARY FILE 1: HOW OUTCOME MEASURES WILL BE MEASURED**

| **Outcome Measure** | **Measurement or operationalized definition** |
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| **Feasibility Outcomes** | **All measured at the point of randomization as well as at 1-month (including only randomized patients)** |
| Adherence – the number of sessions completed (maximum 30±2); good adherence defined as ≥80% completion | Determined by automated real-time recording of the RIC device. Study staff will print out the recording from the device at the time of follow-up. defined as the percentage of sessions completed (number of sessions completed / [number of sessions per day x number of scheduled days of therapy]. If the patient discontinues therapy prior to the 30 days, the denominator scheduled days of therapy will be defined as 30. |
| Discontinuation rate | Defined as:<br>1. Patient declares unwillingness to proceed with the intervention, OR<br>2. Patient develops serious adverse event deemed by attending physician to merit cessation of RIC. |
| **Safety and Tolerability Outcomes** | **All measured at the point of randomization as well as at 1-month (including only randomized patients)** |
| Any serious adverse event deemed by attending physician to merit cessation of RIC. | Will include arm tissue or neurovascular injury or upper extremity deep venous thrombosis. |
| Objective signs of tissue or neurovascular injury resulting from RIC treatment | Inspection by observers blinded to the study protocol which will include palpation of distal radial pulses, visual inspection for local edema, erythema, skin breakdown and/or other skin lesions, and palpation for tenderness. |
| Development of symptomatic upper extremity deep vein thrombosis | As demonstrated on extremity ultrasound, to be obtained only if clinically indicated by the attending physician based on follow-up examination of the upper limb. |
| Pain or discomfort | Rated on follow-up assessments using the Numeric Rating System NRS which requires participants to self-report an |

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| | integer ranging from 0 (no pain) to 10 (worst imaginable pain).[45] To help participants choose the appropriate pain level, the Wong Baker FACES Pain scale[46] will be displayed along with the NRS. The Wong Baker scale has been validated in persons with cognitive impairment[47]. "Intolerable pain" will be defined as intra-subject mean NRS>8, corresponding with "hurts a whole lot" on the Wong Baker FACES Pain scale. |
| **Efficacy Outcomes** | **All measured at 1-month and 3-months** |
| Change in cerebral blood flow | Change in cerebral gray matter blood flow on arterial spin-label (ASL) MRI. |
| Change in MRI WMH volume | MRI FLAIR images will be processed for WMH volume using semi-automated Quantomo software (Cybertrials, Inc) at the University of Calgary Stroke Core Imaging Lab. A single blinded rater qualified by the Stroke Core Imaging Lab will measured WMH volume on the three scans from each trial subject, blinded to scan order. |
| Change in MRI DTI PSMD | A single assessor from the Stroke Core Imaging Lab will determine PSMD[42] on each scan, using the processing pipeline described at http://www.psmd-marker.com/, blinded to treatment status. |
| New brain infarct | A single neurologist or neuroradiologist qualified by the Stroke Core Imaging Lab will review each scan for chronic infarcts and new infarcts. Recent small subcortical infarcts and lacunar infarcts will be defined according to Standards for Reporting Vascular Changes on Neuroimaging (STRIVE)[2]. Cortical infarcts will be defined as areas of focal enchephalomalacia with T1 hypointensity and T2 hyperintensity in the distribution of a vascular territory. Small (<5 mm) cortical infarcts will be defined according to recent consensus criteria for "microinfarcts"[48]. |
| New DWI positive lesion | A single neurologist or neuroradiologist qualified by the Stroke Core Imaging Lab will review each scan for DWI |

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| | positive lesions. Apparent Diffusion Coefficient (ADC) maps will be reviewed to exclude confounding T2 shine through from chronic lesions, but ADC hypointensity is not required to be present. Small DWI positive lesions (< 5 mm) will be defined according to recent consensus criteria for acute "microinfarcts"[48]. |
| Cognitive decline | Change in scores from pre- to post-treatment:<br>1. Mean change in total MoCA scores.<br>2. Proportion with decline in total MoCA ≥2 points.<br>3. Mean change in MoCA visuospatial/executive subscore.<br>4. Mean change in Trail-Making Test A and B scores. |
| Functional decline | Change in BADLS total score[41]. |
| Change in neuropsychiatric symptoms | Change in total score on the MBI Tracking Tool, adapted from the MBI Checklist[44]. |
| Candidate Biomarkers | All measured in venous blood:<br>1. Homocysteine<br>2. Circulating nitrite<br>3. Interleukin-10<br>4. Matrix metalloproteinase 2 and 9<br>5. TNF-alpha<br>6. Interferon gamma<br>7. MicroRNA-144<br>8. SDF-1-alpha<br>9. Heat shock protein 27 |