

## SUPPLEMENTARY TABLES

**Supplementary Table 1. Association between CMBs and cortical thickness**

|                                 | Global cortical thickness mean difference (95%CI) | Region specific cortical thickness, mean difference (95%CI) |                                |   |                                |   |                                |
|---------------------------------|---|---|--------------------------------|---|--------------------------------|---|--------------------------------|
|                                 |   | Frontal   | Parietal                       | Temporal                                      | Occipital                      | Limbic  | Insula                         |
| Presence of strictly lobar CMBs | -0.04 (-0.25, 0.17)<br>p=0.705                    | 0.08 (-0.14, 0.30)<br>p=0.473                               | -0.12 (-0.33, 0.09)<br>p=0.261 | -0.06 (-0.27, 0.15)<br>p=0.597                | -0.09 (-0.03, 0.12)<br>p=0.406 | 0.03 (-0.19, 0.24)<br>p=0.813                 | 0.15 (-0.07, 0.37)<br>p=0.175  |
| Presence of strictly deep CMBs  | 0.01 (-0.33, 0.35)<br>p=0.974                     | -0.02 (-0.37, 0.33)<br>p=0.910                              | 0.04 (-0.30, 0.38)<br>p=0.807  | 0.07 (-0.26, 0.41)<br>p=0.678                 | -0.14 (-0.47, 0.19)<br>p=0.397 | -0.04 (-0.38, 0.30)<br>p=0.808                | 0.04 (-0.31, 0.39)<br>p=0.808  |
| Presence of mixed-location CMBs | -0.26 (-0.53, 0.02)<br>p=0.064                    | <b>-0.29 (-0.57, -0.01)</b><br><b>p=0.042</b>               | -0.09 (-0.37, 0.18)<br>p=0.512 | <b>-0.29 (-0.56, -0.02)</b><br><b>p=0.035</b> | -0.16 (-0.43, 0.11)<br>p=0.245 | <b>-0.35 (-0.63, -0.08)</b><br><b>p=0.011</b> | -0.23 (-0.51, 0.05)<br>p=0.107 |

All values adjusted for age, gender, intracranial volume, hypertension, hyperlipidemia and diabetes

Bold values represent statistically significant associations at p =0.05

\* Statistically significant after Bonferroni correction (0.05/6 ~ 0.0083)

# Statistically significant after further adjusting for white matter hyperintensities volume, presence of lacunes and total enlarged perivascular spaces (n=328) (p<0.05)

**Supplementary Table 2. Association between CMBs and subcortical structures volume.**

|                                 | Accumbens Mean difference (95%CI)             | Amygdala Mean difference (95%CI) | Lentiform Mean difference (95%CI)             | Thalamus Mean difference (95%CI)          | Hippocampus Mean difference (95%CI) | Brainstem Mean difference (95%CI)                          |
|---------------------------------|---|----------------------------------|---|---|-------------------------------------|--|
| Presence of strictly lobar CMBs | -0.04 (-0.24, 0.16)<br>p=0.175                | -0.16 (-0.35, 0.03)<br>p=0.105   | <b>-0.32 (-0.52, 0.12)</b><br><b>p=0.002*</b> | -0.08 (-0.26, 0.10)<br>p=0.385            | -0.21 (-0.40, -0.02)<br>p=0.034     | -0.04 (-0.22, 0.14)<br>p=0.683                             |
| Presence of strictly deep CMBs  | -0.03 (-0.35, 0.29)<br>p=0.848                | 0.10 (-0.20, 0.41)<br>p=0.500    | 0.08 (-0.24, 0.41)<br>p=0.622                 | 0.09 (-0.20, 0.38)<br>p=0.542             | 0.11 (-0.20, 0.42)<br>p=0.483       | -0.16 (-0.45, 0.13)<br>p=0.272                             |
| Presence of mixed-location CMBs | <b>-0.30 (-0.56, -0.04)</b><br><b>p=0.024</b> | -0.08 (-0.33, 0.16)<br>p=0.511   | <b>0.41 (0.15, 0.67)</b><br><b>p=0.002*</b>   | -0.22 (-0.45, 0.02)<br>0.068 <sup>#</sup> | -0.05 (-0.30, 0.20)<br>p=0.702      | <b>-0.35 (-0.58, -0.12)</b><br><b>p=0.003*<sup>#</sup></b> |

All values adjusted for age, gender, intracranial volume, hypertension, hyperlipidemia and diabetes mellitus

Bold values represent statistically significant associations at p =0.05

\* Significant after Bonferroni correction (0.05/5 ~0.010)

# Statistically significant after further adjusting for white matter hyperintensities volume, presence of lacunes and total enlarged perivascular spaces (n=328) (p<0.05)

**Supplementary Table 3. Association between CMBs and white matter volume.**

|                                 | Total white matter volume (ml) mean difference (95%CI) | Lobe specific white matter volume (ml), mean difference (95%CI) |                                |  |  |
|---------------------------------|--|---|--------------------------------|--|--|
|                                 |  | Frontal   | Parietal                       | Temporal                                     | Occipital                                  |
| Presence of strictly lobar CMBs | -0.18 (-0.36, 0.01)<br>p=0.060                         | -0.16 (-0.35, 0.03)<br>p=0.096                                  | -0.16 (-0.34, 0.03)<br>p=0.107 | <b>-0.20 (-0.38, 0.02)</b><br><b>p=0.030</b> | -0.16 (-0.35, 0.04)<br>p=0.109             |
| Presence of strictly deep CMBs  | <b>0.26 (-0.03, 0.56)</b><br><b>p=0.0081</b>           | 0.20 (-0.10, 0.49)<br>p=0.198                                   | 0.19 (-0.11, 0.50)<br>p=0.209  | 0.29 (-0.01, 0.58)<br>p=0.055                | <b>0.34 (0.04, 0.65)</b><br><b>p=0.027</b> |
| Presence of mixed-location CMBs | 0.10 (-0.14, 0.34)<br>p=0.422                          | 0.04 (-0.20, 0.28)<br>p=0.721                                   | 0.04 (-0.20, 0.28)<br>p=0.736  | 0.19 (-0.05, 0.42)<br>p=0.121                | 0.07 (-0.18, 0.31)<br>p=0.584              |

All values adjusted for age, gender, intracranial volume, hypertension, hyperlipidemia and diabetes mellitus

Bold values represent statistically significant associations at p =0.05

\* Statistically significant after Bonferroni correction (0.05/4 ~ 0.013)

# Statistically significant after further adjusting for white matter hyperintensities volume, presence of lacunes and total enlarged perivascular spaces (n=328) (p<0.05)