**Effects of Anosognosia on Static and Dynamic Amplitudes of Low Frequency Fluctuation in Mild Cognitive Impairment**

**Supplementary materials**

**Table S1** Brain areas with significant dALFF difference among three groups in other window sizes with 1TR as window step

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Region | Cluster | MNI Coordinate | | | Peak |
|  |  | Voxels | X | Y | Z | Intensity |
| 14TR | Left ACC | 16 | -3 | 18 | -9 | 8.92 |
| 26TR | Left precuneus | 13 | -3 | -51 | 69 | 9.73 |
| 33TR | Left ITG | 15 | -57 | -48 | -24 | 13.2 |
| Left precuneus | 12 | -3 | -51 | 69 | 11.29 |

To test the reliability of the dALFF variance results, we also examined the results with window sizes of 14, 26, 33TR (1TR as window step) between NC/MCI-NA/MCI-A groups (voxel P<0.01, cluster P<0.05, controlling for age, sex, education and grey matter volume, GRF corrected). **Abbreviations:** ACC=anterior cingulate cortex; ITG=inferior temporal gyrus; PCL=paracentral lobule; MNI=Montreal Neurological Institute;

**Table S2** Brain areas with significant sALFF and dALFF variance (20TR window size) difference among three groups after correcting the head motion

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Regions | Cluster | MNI Coordinate | | | Peak |
|  | Voxels | X | Y | Z | Intensity |
| sALFF |  |  |  |  |  |  |
|  | Left precuneus | 41 | -12 | -33 | 66 | 10.89 |
|  | Left ACC | 32 | -3 | 15 | -12 | 8.73 |
|  | Left ITG | 21 | -57 | -48 | -24 | 12.35 |
| dALFF variance | |  |  |  |  |  |
|  | Left precuneus | 12 | -6 | -48 | 66 | 8.82 |
|  | Right ACC | 12 | 3 | 30 | -3 | 8.97 |

The difference of sALFF and dALFF variance between NC/MCI-NA/MCI-A groups (voxel P<0.01, cluster P<0.05, controlling for age, sex, education, grey matter volume and head motion, GRF corrected). **Abbreviations:** sALFF=static amplitudes of low-frequency fluctuation; dALFF=dynamic amplitudes of low-frequency fluctuation; MNI=Montreal Neurological Institute; ACC=anterior cingulate cortex; ITG=inferior temporal gyrus;

**Table S3** Brain areas with significant dALFF difference among three groups in different window sizes with different window steps

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Window step | Window size | Region | Cluster | MNI Coordinate | | | Peak |
|  | Voxels | X | Y | Z | Intensity |
| 2TR | 14TR | Right ACC | 20 | 3 | 30 | -3 | 8.73 |
| 20TR | Left precuneus | 12 | -6 | -48 | 66 | 10.22 |
| Left ITG | 12 | -57 | -48 | -24 | 12.22 |
| 26TR | Left precuneus | 13 | -6 | -48 | 66 | 10.02 |
| 33TR | Left precuneus | 17 | -3 | -51 | 69 | 11.06 |
| Left ITG | 11 | -57 | -48 | -24 | 12.94 |
| 3TR | 14TR | Right ACC | 20 | 3 | 27 | -6 | 8.68 |
| 20TR | Left precuneus | 14 | -6 | -48 | 66 | 10.86 |
| 26TR | Left precuneus | 13 | -6 | -48 | 66 | 9.71 |
| 33TR | Left precuneus | 16 | -3 | -51 | 69 | 10.73 |
| Left ITG | 16 | -57 | -48 | -24 | 13.48 |

**Abbreviations:** dALFF=dynamic amplitudes of low-frequency fluctuation; MNI=Montreal Neurological Institute; ACC=anterior cingulate cortex; ITG=inferior temporal gyrus;

**Table S4** shows the subject IDs of ADNI

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| ID | Research Group | ID | Research Group | ID | Research Group | ID | Research Group |
| 002\_S\_2043 | MCI | 014\_S\_4401 | CN | 037\_S\_4706 | MCI | 136\_S\_4408 | MCI |
| 002\_S\_2073 | MCI | 016\_S\_4952 | CN | 041\_S\_4427 | CN |  |  |
| 002\_S\_4171 | MCI | 018\_S\_2133 | MCI | 041\_S\_4510 | MCI |  |  |
| 002\_S\_4213 | CN | 018\_S\_2138 | MCI | 041\_S\_4874 | MCI |  |  |
| 002\_S\_4229 | MCI | 018\_S\_4313 | CN | 053\_S\_4578 | CN |  |  |
| 002\_S\_4237 | MCI | 018\_S\_4349 | CN | 053\_S\_4661 | MCI |  |  |
| 002\_S\_4262 | CN | 018\_S\_4400 | CN | 068\_S\_4067 | MCI |  |  |
| 002\_S\_4447 | MCI | 018\_S\_4597 | MCI | 068\_S\_4340 | CN |  |  |
| 002\_S\_4473 | MCI | 018\_S\_4809 | MCI | 068\_S\_4424 | CN |  |  |
| 002\_S\_4521 | MCI | 018\_S\_4868 | MCI | 068\_S\_4431 | MCI |  |  |
| 002\_S\_4654 | MCI | 018\_S\_4889 | MCI | 082\_S\_2121 | MCI |  |  |
| 002\_S\_4746 | MCI | 019\_S\_4285 | MCI | 082\_S\_4428 | CN |  |  |
| 002\_S\_4799 | MCI | 019\_S\_4293 | MCI | 094\_S\_4649 | CN |  |  |
| 005\_S\_4185 | MCI | 019\_S\_4367 | CN | 098\_S\_4003 | CN |  |  |
| 006\_S\_4346 | MCI | 019\_S\_4548 | MCI | 099\_S\_4076 | CN |  |  |
| 006\_S\_4357 | CN | 019\_S\_4680 | MCI | 100\_S\_2351 | MCI |  |  |
| 006\_S\_4363 | MCI | 021\_S\_4276 | CN | 100\_S\_4512 | MCI |  |  |
| 006\_S\_4449 | CN | 022\_S\_2379 | MCI | 100\_S\_4556 | MCI |  |  |
| 006\_S\_4485 | CN | 022\_S\_5004 | MCI | 116\_S\_4855 | CN |  |  |
| 006\_S\_4679 | MCI | 027\_S\_2219 | MCI | 127\_S\_2234 | MCI |  |  |
| 006\_S\_4713 | MCI | 027\_S\_4869 | MCI | 127\_S\_4197 | MCI |  |  |
| 006\_S\_4960 | MCI | 027\_S\_4919 | MCI | 127\_S\_4301 | MCI |  |  |
| 007\_S\_2394 | MCI | 029\_S\_2395 | MCI | 127\_S\_4604 | CN |  |  |
| 007\_S\_4516 | CN | 029\_S\_4384 | CN | 129\_S\_4220 | MCI |  |  |
| 007\_S\_4611 | MCI | 031\_S\_2018 | MCI | 129\_S\_4287 | MCI |  |  |
| 010\_S\_4345 | CN | 031\_S\_2022 | MCI | 129\_S\_4396 | CN |  |  |
| 010\_S\_4442 | CN | 031\_S\_4005 | MCI | 130\_S\_4294 | MCI |  |  |
| 011\_S\_4105 | CN | 031\_S\_4029 | MCI | 130\_S\_4405 | MCI |  |  |
| 011\_S\_4547 | MCI | 031\_S\_4032 | CN | 130\_S\_4415 | MCI |  |  |
| 012\_S\_4012 | MCI | 031\_S\_4042 | MCI | 130\_S\_4468 | MCI |  |  |
| 012\_S\_4026 | CN | 031\_S\_4149 | MCI | 130\_S\_4542 | MCI |  |  |
| 012\_S\_4128 | MCI | 031\_S\_4194 | MCI | 130\_S\_4605 | MCI |  |  |
| 012\_S\_4188 | MCI | 031\_S\_4218 | CN | 130\_S\_4817 | MCI |  |  |
| 013\_S\_4395 | MCI | 031\_S\_4476 | MCI | 130\_S\_4883 | MCI |  |  |
| 013\_S\_4579 | CN | 031\_S\_4721 | MCI | 130\_S\_4925 | MCI |  |  |
| 013\_S\_4580 | CN | 031\_S\_4947 | MCI | 135\_S\_4598 | CN |  |  |
| 013\_S\_4595 | MCI | 032\_S\_2119 | MCI | 135\_S\_4722 | MCI |  |  |
| 013\_S\_4616 | CN | 033\_S\_4176 | CN | 135\_S\_4723 | MCI |  |  |
| 013\_S\_4791 | MCI | 037\_S\_4028 | CN | 136\_S\_4189 | MCI |  |  |
| 013\_S\_4917 | MCI | 037\_S\_4308 | CN | 136\_S\_4269 | CN |  |  |

**Table S5** Correlation between the ECOG discrepancy score and neuropsychological scale

|  |  |  |
| --- | --- | --- |
|  | ECOG discrepancy score | |
|  | correlation  coefficient | p-value |
| MMSE | 0.099 | 0.286 |
| IST | 0.251 | 0.006 |
| DST | 0.293 | 0.001 |
| AVLT | 0.155 | 0.094 |
| SVF | -0.020 | 0.831 |
| TMT-A | -0.079 | 0.396 |
| TMT-B | -0.049 | 0.600 |
| CDT | 0.062 | 0.505 |

No significant correlation is found between the discrepancy score and MMSE score with the partial correlation after correcting age, sex and education (p>0.05). **Abbreviations:** ECOG= Everyday Cognition questionnaire; MMSE=Mini-Mental State Exam; AVLT=Auditory Verbal Learning Test; IST=Immediate Story Recall; DST=Delayed Story Recall; TMT-A=Trail-Making Test Part A; TMT-B=Trail-Making Test Part B; CDT=Clock-Drawing Test; SVF=Semantic Verbal Fluency;

**Table S6** The ECOG score in NC and MCI-NA groups

|  |  |  |  |
| --- | --- | --- | --- |
|  | NC | MCI-NA |  |
| n | 39 | 42 |  |
| ECOG-PT | 1.84(0.56) | 2.67(0.67) |  |
| ECOG-SP | 1.19(0.24) | 1.74(0.50) |  |
| ECOG discrepancy score | 0.64(0.46) | 0.93(0.57) |  |

**Abbreviations:** ECOG= Everyday Cognition questionnaire; PT= Participant Self-Report score; SP=Study Partner Report score; discrepancy score= PT-SP.

**Figure S1** ANCOVA results of dALFF variance in other window sizes with 1TR as window step



**A** **represents** ANCOVA results of dALFF variance among NC, MCI-NA and MCI-A in 14TR window size; **B represents** ANCOVA results of dALFF variance in 26TR window size; **C represents** ANCOVA results of dALFF variance in 33TR window size (voxel P<0.01, cluster P<0.05, controlling for age, sex, education and grey matter volume, GRF corrected).

**Figure S2** Box and whiskers illustrate the dALFF variance differences among three groups in other window sizes with 1TR as window step



**A** **represents** the dALFF variance differences in ACC (14TR); **B represents** the dALFF variance differences in precuneus (26TR); **C represents** the dALFF variance differences in precuneus (33TR); **D represents** the dALFF variance differences in ITG (33TR); \*, \*\*, \*\*\* represents p < 0.05, p < 0.01, p < 0.001 after post-hoc analysis, meaning MCI-A significantly different compared with MCI-NA and NC.

**Figure S3** illustrates the dALFF variance differences among three groups in different window sizes with different window steps. Specifically, A, B, C, D represents differences in 14TR, 20TR, 26TR, 33TR window size with 2TR as window step. E, F, G, H represents differences in 14TR, 20TR, 26TR, 33TR window size with 3TR as window step.

