Online supplementary appendix to:

Auditory localisation should be considered as a sign of minimally conscious state based on multimodal findings

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Supplementary X. fMRI results: statistical values of the clusters obtained by the comparisons of LOCA patients and HCS, and NO-LOCA patients and HCS for the auditory, default mode and fronto-parietal networks, and the comparison of LOCA and NO-LOCA, for the fronto-parietal network only.
Supplementary XI. List of all pharmacological agents acting on the nervous system, taken by the two groups of UWS patients (LOCA and NO-LOCA).

I. Inclusion criteria.

Patients were admitted to the Hospital University of Liege in Belgium between 2010 and 2018 for a multimodal assessment of the level of consciousness and they were included in the study if the following criteria were met:

- ≥18 years old
- > 28 days post-injury (prolonged DOC)
- At least five repeated assessments with the Coma Recovery Scale-Revised
- Diagnosis of UWS, MCS or EMCS
- Absence of previous neurological or psychiatric conditions
| Patient | Gender | Age | Etiology | Time since injury | Best CRS-R total score | Outcome at 2 years post-evaluation (GOS-E) | tMRI | fDG-FDG-PET | hdEEG | Sedation for fMRI |
|---------|--------|-----|----------|------------------|------------------------|---------------------------------------------|-----|------------|-------|-----------------|
| UWS-loca1 | M | 41 | CA | 2 years | 5 | 3 | X | X | Yes |
| UWS-loca2 | F | 21 | TBI | 9 months | 5 | 1 | X | X | No |
| UWS-loca3 | M | 32 | CA | 14 years | 7 | 2 | X | X | Yes |
| UWS-loca4 | F | 40 | CA | 2 years | 5 |  | X | X | Yes |
| UWS-loca5 | M | 26 | TBI | 15 months | 7 | 3 | X | X | Yes |
| UWS-loca6 | F | 46 | CA | 2 months | 3 |  | X | X | Yes |
| UWS-loca7 | M | 31 | TBI | 3 years | 5 | 1 | X | X | No |
| UWS-loca8 | M | 23 | Anoxia | 15 months | 7 | 2 | X | X | Yes |
| UWS-noloca1 | F | 53 | Hemorrhage | 1 month | 5 | 1 | X | X | No |
| UWS-noloca2 | F | 46 | Anoxia | 6 months | 6 | 1 | X | X | No |
| UWS-noloca3 | M | 56 | Anoxia | 8 months | 5 | 2 |  |  |  |
| UWS-noloca4 | F | 48 | Anoxia | 1 year | 6 | 1 | X | X | No |
| UWS-noloca5 | F | 36 | Anoxia | 4 years | 5 | 1 |  | X | No |
| UWS-noloca6 | M | 43 | Anoxia | 1 month | 5 | 1 | X | X | No |
| UWS-noloca7 | M | 67 | CA | 1 month | 3 | 1 | X | X | No |
| UWS-noloca8 | M | 43 | Anoxia | 2 months | 5 | 1 | X | X | No |
| UWS-noloca9 | M | 56 | CA | 6 months | 6 | 1 | X | X | No |
| UWS-noloca10 | M | 53 | Meningitis | 2 months | 5 | 1 | X | Yes |  |
| UWS-noloca11 | F | 34 | SAH | 1 year | 5 |  | X | X | Yes |
| UWS-noloca12 | F | 24 | TBI | 2 years | 6 | 1 | X | X | No |
| UWS-noloca13 | M | 20 | TBI | 10 months | 6 |  | X | X | Yes |
| UWS-noloca14 | F | 59 | CA | 3 years | 6 | 1 |  | X | No |
| UWS-noloca15 | F | 73 | Stroke | 1 month | 7 | 1 | X | X | No |
| UWS-noloca16 | F | 68 | Anoxia | 1 month | 5 |  | X | X | No |
| UWS-noloca17 | F | 68 | Anoxia | 1 year | 6 | 1 | X | X | Yes |
| UWS-noloca18 | F | 65 | TBI | 7 months | 7 | 1 | X | X | No |
| UWS-noloca19 | F | 74 | CA | 1 month | 5 | 1 | X | X | Yes |
| UWS-noloca20 | F | 48 | CA | 4 months | 4 | 1 | X | X | No |
| UWS-noloca21 | M | 39 | TBI | 1 year | 5 | 1 | X | X | No |
| UWS-noloca22 | F | 47 | CA | 6 months | 5 | 1 | X | X | Yes |
| UWS-noloca23 | M | 41 | Anoxia | 11 months | 5 | 2 | X | X | Yes |
| UWS-noloca24 | F | 31 | TBI | 13 months | 6 | 3 |  |  |  |
| UWS-noloca25 | M | 30 | Anoxia | 5 years | 6 | 2 | X | X | X | No |
| UWS-noloca26 | F | 38 | Anoxia | 11 months | 5 | 2 | X | X | No |
| UWS-noloca27 | M | 39 | TBI | 13 months | 5 | 1 | X | X | Yes |
| UWS-noloca28 | F | 44 | Anoxia | 3 months | 6 | 1 | X | X | Yes |
| UWS-noloca29 | M | 31 | Anoxia | 15 months | 6 | 1 | X | Yes |  |
| UWS-noloca30 | M | 28 | Anoxia | 2 years | 7 | 2 | X | X | X | No |
| UWS-noloca31 | M | 73 | CA | 3 months | 6 | 1 | X |  |  |
| UWS-noloca32 | M | 35 | CA | 19 years | 7 | 1 | X |  |  |
| UWS-noloca33 | M | 65 | Anoxia | 5 months | 6 | 1 | X |  |  |
| UWS-noloca34 | M | 62 | CA | 2 years | 5 | 1 | X |  |  |
| UWS-noloca35 | M | 49 | Anoxia | 8 years | 6 | 1 | X |  |  |

**II. Demographic and clinical data of patients in UWS and MCS minus with at least one paraclinical assessment.**

| Patient | Gender | Age | Etiology | Time since injury | Best CRS-R total score | Outcome at 2 years post-evaluation (GOS-E) | tMRI | fDG-FDG-PET | hdEEG | Sedation for fMRI |
|---------|--------|-----|----------|------------------|------------------------|---------------------------------------------|-----|------------|-------|-----------------|
| MCSixminus1 | F | 40 | Stroke | 7 months | 9 | X | X | X | Yes |
| MCSixminus2 | F | 49 | TBI | 7 months | 7 | 3 | X | X | Yes |
| MCSixminus3 | M | 26 | TBI | 17 months | 8 |  | X | X | Yes |
| MCSixminus4 | M | 47 | Anoxia | 4 years | 13 | 3 | X | X | Yes |
| MCSixminus5 | F | 59 | Anoxia | 1 month | 9 | 1 |  | X | X |
| MCSixminus6 | F | 26 | CA | 2 years | 7 | 2 | X | X | Yes |
| MCSixminus7 | M | 28 | TBI | 2 months | 7 | 2 | X | X | Yes |
| MCSixminus8 | M | 21 | TBI | 6 months | 7 | 2 | X | X | Yes |
| MCSixminus9 | M | 53 | Anoxia | 1 month | 15 | 1 |  |  |  |
| MCSixminus10 | M | 24 | TBI | 11 months | 10 | 3 | X | X | X | No |
| MCSixminus11 | F | 36 | TBI | 4 years | 10 | 2 | X | X | No |
| MCSixminus12 | M | 19 | TBI | 3 years | 9 |  | X | X |  |
| MCSixminus13 | F | 47 | Anoxia | 15 months | 7 | 3 | X | X | X | Yes |
| MCSixminus14 | M | 41 | TBI | 29 years | 14 |  |  |  |  |
| MCSixminus15 | F | 45 | TBI | 8 months | 7 | 1 | X | X | No |
| MCSixminus16 | M | 22 | TBI | 8 years | 13 | 3 | X | X | Yes |
| MCSixminus17 | M | 60 | TBI | 5 years | 13 |  |  |  |  |
| MCSixminus18 | F | 24 | TBI | 11 months | 10 |  | X | X | Yes |
| MCSixminus19 | M | 53 | Anoxia | 5 months | 13 |  | X | Yes |  |
| MCSixminus20 | M | 30 | CA | 20 months | 13 | 3 | X | Yes |  |
| MCSixminus21 | M | 66 | Stroke | 1 month | 12 |  | X | No |  |
| MCSixminus22 | M | 28 | TBI | 7 months | 10 |  | X | Yes |  |
| MCSixminus23 | M | 49 | Anoxia | 3 years | 12 |  | X | Yes |  |
| MCSixminus24 | M | 37 | Anoxia | 9 months | 9 | 1 | X | Yes |  |
| MCSixminus25 | M | 57 | TBI | 1 month | 7 | 8 | X | No |  |
III. Demographic data summary of MCS minus patients and comparison with UWS LOCA and NO-LOCA patients.

|                      | 18F-FDG-PET | fMRI | hEEG |
|----------------------|-------------|------|------|
|                      | p-value     | p-value | p-value |
|                      | (vs LOCA)   | (vs NO-LOCA) | (vs NO-LOCA) |
| Number of participants | 19          | 20     | 11    |
| Mean age ± SD         | 38±13       | 38±13  | 33±13 |
| Gender (women/men)    | 8/11        | 7/13   | 4/7   |
| Etiology (TBI/NTBI)   | 11/8        | 12/8   | 7/4   |
| Median time since injury in months (range) | 11 (1-359) | 10 (1-110) | 11 (1-110) |

Abbreviations: FDG-PET=fluorodeoxyglucose positron emission tomography; fMRI=functional magnetic resonance imaging; hEEG=high-density electroencephalography; SD=standard deviation; TBI=traumatic brain injury; NTBI=non-traumatic brain injury. *statistically significant

IV. Behavioral acquisitions using the Coma Recovery Scale-Revised.

For each CRS-R evaluation, experienced clinicians assessed all the items of the CRS-R, which ensured to evaluate the auditory localisation every time for each patient. The auditory localisation was assessed as indicated in the CRS-R guidelines: an auditory stimulus was presented for five seconds by the assessor standing behind and out of view of the patient, for a total of four trials, two on each side. Auditory localisation was considered present when an orientation of the head or the eyes towards the stimulus could be observed on both trials for at least one side. Importantly, the CRS-R was systematically performed on the day of the PET, MRI and EEG examinations. The own name was used as it has been shown to elicit more responses than neutral sound.(Cheng et al., 2013)

V. 18F-FDG-PET, MRI and EEG data acquisition parameters, preprocessing and analysis.

**FDG-PET:** The scan started 30 minutes after an intravenous injection of the tracer (approximately 150-300 MBq of FDG) and lasted 12 minutes. 18FDG-PET images were reconstructed with standard 2x2x2 mm³ voxels using iterative list mode time-of-flight algorithm and corrections for attenuation, dead-time, random and scatter events were applied. Images for each subject were manually reoriented using Statistical Parametric Mapping (SPM 12, www.fil.ion.ucl.ac.uk/spm). They were then preprocessed including spatial normalization, smoothing (with an isotropic 14 mm FWHM Gaussian filter) and proportional scaling.

Some patients required light sedation during the scanning to prevent excessive movements but this does not affect the results.

**MRI:** Functional MRI included an Echo Planar Imaging sequence (32 slices, repetition time = 2000 ms, echo time = 30 ms, field of view = 192x192 mm², flip angle = 78 degrees, voxel size = 3x3x3 mm³) and the structural MRI included a T1-weighted 3D gradient echo images (120 slices, repetition time = 2300 ms, echo time = 2.47 ms, voxel size = 1x1x1.2 mm³, flip angle = 9°, field of view = 256x256 mm²). Data preprocessing consisted of slice-time correction, realignment, co-registration of functional on structural data, spatial normalization and smoothing with Gaussian isotropic kernel (8mm of full-width-at-half-maximum). For the normalization procedure we used a study-specific template created with DARTEL obtained from patients and HCS.(Ashburner, 2007) (Di Perri et al., 2013) (Peelle et al., 2012) This template was used to minimize normalization difficulty as it decreases the degree of warping necessary for patient brains in the normalization step and reduces the likelihood of misclassification and normalization errors that can occur during the voxel-based morphometry process. For BOLD noise reduction, we used the anatomical component-based noise correction method(Behzadi et al., 2007) as implemented in the CONN functional connectivity toolbox(Whitfield-Gabrieli and Nieto-Castanon, 2012). A temporal band-pass filter of 0.008-0.09 Hz was applied on the time series as classically performed in seed-correlation analysis(Greicius et al., 2003; Fox et al., 2005). Regarding
motion correction, we used the artefact detection toolbox (ART; http://nitrc.org/projects/artifact_detect) as described elsewhere(Aubinet et al., 2018), using a composite motion measure. With this approach, a volume was defined as an outlier (artifact) if the largest voxel movement detected was above the specified thresholds. Specifically, an image was defined as an outlier (artifact) image if the head displacement in x, y or z direction was greater than 0.5 mm from the previous frame, or if the rotational displacement was greater than .02 rad from the previous frame, or if the global mean intensity in the image was greater than 3 SD from the mean image intensity for the entire resting scan. Outliers in the global mean signal intensity and motion were subsequently included as nuisance regressors (i.e., one regressor per outlier within the first-level general linear model). In doing so, the temporal structure of the data was not disrupted.

For some patients, a light sedation was required to reduce the severity of movement artefact during the fMRI data acquisition (6/8 LOCA patients and 9/25 NO LOCA patients).

EEG: The recording was acquired while patients were lying in bed, with the eyes open. Data were preprocessed using the following steps: band-pass filtering at 0.05 to 48Hz, baseline correction, independent component analysis to discard the noise components, interpolation of bad channels, average re-referencing and down-sampling to 250Hz. dwPLI is considered as the measure of asymmetry of phase differences between two EEG signals. The participation coefficient measures the between-module connectivity strength as a property of global network integration. Broadly, regions with a high participation coefficient have strong connections to many modules.(Baum et al., 2017)

Electrodes used for each brain region:
- Left_frontal: {24, 28, 29, 30, 33, 34, 35, 36, 37, 38, 39, 40, 41, 46, 47, 48, 49, 54, 55};
- Right_frontal: {1, 2, 3, 4, 5, 10, 11, 12, 13, 18, 19, 20, 21, 23, 24, 25, 26, 27};
- Left_central: {42, 43, 44, 50, 51, 52, 53, 56, 57, 58, 59, 65};
- Right_central: {144, 182, 183, 184, 185, 195, 196, 197, 204, 205, 206, 212};
- Left_temporal: {62, 63, 64, 68, 69, 70, 71, 74, 75, 83, 84, 94, 95};
- Right_temporal: {178, 179, 180, 190, 191, 192, 193, 202, 203, 210, 211, 219};
- Left_parietal: {60, 66, 72, 76, 77, 78, 79, 85, 86, 87, 88, 97, 98, 99};
- Right_parietal: {141, 142, 143, 152, 153, 154, 155, 161, 162, 163, 164, 171, 172, 173};
- Left_occipital: {6, 7, 8, 9, 14, 15, 16, 17, 20, 21, 22, 23, 25, 26, 27, 32, 186};
- Right_occipital: {140, 150, 159, 160, 169};
- Upper_midline: {6, 7, 8, 9, 14, 15, 16, 17, 20, 21, 22, 23, 25, 26, 27, 32, 186};
- Lower_midline: {80, 81, 89, 90, 100, 101, 110, 117, 118, 119, 124, 125, 126, 127, 128, 129, 130, 131, 137, 138, 139, 149}

VI. Seeds coordinates used for fMRI analyses, for the auditory, default mode and fronto-parietal networks.

| Networks (reference) | Seeds | MNI coordinates (x, y, z) |
|----------------------|-------|--------------------------|
| Auditory network(Maudoux et al., 2012) | Anterior cingulate cortex | 6, -7, 43 |
| | Left precentral gyrus | -53, -6, 8 |
| | Right precentral gyrus | 58, -6, 11 |
| | Left superior temporal Gyrus | 44, -6, 11 |
| | Right superior temporal Gyrus | 44, -6, 11 |
| | Right visual cortex | 6, -88, 37 |
| | Left visual cortex | -6, -88, 37 |
| Default mode network(Raichle et al., 2001) | Left cerebellum | -25, -81, -33 |
| | Right cerebellum | 25, -81, -33 |
| | Left inferior temporal gyrus | -61, -24, -9 |
| | Right inferior temporal gyrus | 58, -24, -9 |
| | Left lateral parietal cortex | -46, -66, 30 |
| | Right lateral parietal cortex | 49, -63, 33 |
| | Medial prefrontal cortex | -1, 54, 27 |
| | Posterior cingulate cortex | 0, -52, 27 |
| | Thalamus | 0, -12, 9 |
| Fronto-parietal network(Fair et al., 2009) | Left dorsolateral prefrontal cortex | -43, 22, 34 |
| | Right dorsolateral prefrontal cortex | 43, 22, 34 |
| | Left premotor | -41, 3, 36 |
| | Right premotor | 41, 3, 36 |
VII. Outcome data of the whole sample of patients (n=125/186)

|                  | Survival | Death | Improvement | Stability | Decline | Missing |
|------------------|----------|-------|-------------|-----------|---------|---------|
| **UWS**          |          |       |             |           |         |         |
| LOCA (n=8)       | 4/7 (57%)| 3/7   | 2/7 (28%)   | 2/7 (28%) | NA      | 1/8     |
| NO-LOCA (n=56)   | 16/38 (42%)| 23/38 (60%)| 3/38 (8%)  | 13/38 (34%)| NA      | 17/56   |
| **MCS-**         |          |       |             |           |         |         |
| LOCA (n=15)      | 5/7 (72%)| 2/7   | 0/7 (0%)    | 4/7 (57%) | 1/7 (14%)| 6/13    |
| NO-LOCA (n=15)   | 8/11 (73%)| 3/11  | 1/11 (9%)   | 4/11 (36%)| 3/11 (27%)| 4/15    |
| **MCS+**         |          |       |             |           |         |         |
| LOCA (n=44)      | 25/30 (84%)| 5/30  | 1/3 (3%)    | 22/30 (73%)| 2/30 (6%)| 14/44   |
| NO-LOCA (n=27)   | 13/19 (69%)| 6/19  | 0/19 (0%)   | 10/19 (53%)| 3/19 (16%)| 8/27    |
| **EMCS**         |          |       |             |           |         |         |
| LOCA (n=18)      | 10/10 (100%)| 0/10  | 1/10 (10%)  | 3/10 (30%)| 6/10 (60%)| 8/18    |
| NO-LOCA (n=5)    | 2/3 (67%)| 1/3   | 0/3 (0%)    | 1/3 (33%) | 1/3 (33%)| 2/5     |
| **Total (%)**    |          |       |             |           |         |         |
| LOCA (n=83)      | 44/54 (81.5%)| 10/54 | 4/54 (9%)   | 36/54 (67%)| 4/47 (8.5%)| 29/83 (35%)|
| NO-LOCA (n=103)  | 39/71 (56%)| 11/71 | 4/71 (6%)   | 29/71 (41%)| 6/33 (18%)| 32/103 (31%)|

Abbreviations: NA= not applicable
Survival: GOSE ≠ 1; Improvement: for UWS GOSE > 2, MCS GOSE > 3, EMCS GOSE > 4; Stability: for UWS GOSE = 2, for MCS GOSE = 3, for EMCS GOSE = 4; Decline: for MCS GOSE = 2; EMCS GOSE = 2 or 3.

VIII. \(^{18}\)FDG-PET results. Statistical values of the clusters obtained by the direct comparisons of LOCA and NO-LOCA patients with HCS, as well as LOCA and NO-LOCA with MCS minus patients.

| Contrast          | Set     | Cluster | Peak | MNI coordinates |
|-------------------|---------|---------|------|-----------------|
|                   | p      | c      | P(FWE-corr) | equiv k | p(unc) | P(FDR-corr) | p(eq) | T | equiv Z | p(unc) | x,y,z [mm] |
| LOCA-HCS          | 0.263  | 7      | 0.000 | 23190 | 0.000 | 0.000 | 0.000 | 7.89 | 6.6 | 0.000 | -2 | -38 | 34 |
|                   | 0.004  | 0.000 | 5.28 | 4.8 | 0.000 | 16 | -60 | 16 |
|                   | 0.022  | 0.001 | 4.74 | 4.38 | 0.000 | -10 | -58 | 10 |
|                   | 0.546  | 855    | 0.153 | 0.000 | 0.000 | 6.04 | 5.37 | 0.000 | -6 | -14 | 8 |
|                   | 0.002  | 0.000 | 5.49 | 4.97 | 0.000 | 2 | -14 | 6 |
|                   | 0.310  | 0.006 | 3.77 | 3.57 | 0.000 | -22 | 4 | 4 |
|                   | 0.955  | 122    | 0.599 | 0.128 | 0.003 | 4.13 | 3.88 | 0.000 | 24 | 14 | 4 |
|                   | 0.966  | 92     | 0.654 | 0.969 | 0.034 | 2.77 | 2.69 | 0.004 | -26 | 46 | 38 |
|                   | 0.991  | 010    | 0.908 | 0.980 | 0.038 | 2.71 | 2.63 | 0.004 | -52 | -68 | 28 |
|                   | 0.994  | 01979  | 0.983 | 0.040 | 2.69 | 2.61 | 0.005 | 12 | 2 | 2 |
|                   | 0.985  | 30     | 0.818 | 0.987 | 0.042 | 2.65 | 2.57 | 0.005 | 0 | 58 | -4 |
| NO-LOCA-HCS       | 0.000  | 77435  | 0.000 | 0.000 | 0.000 | 14.27 | Inf | 0 | 0 | 0 | -40 | 34 |
|                   | 0.000  | 0.000 | 13.02 | Inf | 0.000 | -6 | -68 | 34 |
|                   | 0.000  | 0.000 | 11.47 | Inf | 0.000 | -38 | 8 | 56 |
|                   | 0.000  | 0.000 | 10.39 | Inf | 0.000 | -26 | 26 | 50 |
|                   | 0.000  | 0.000 | 9.90 | 7.72 | 0.000 | -6 | -14 | 8 |
|                   | 0.000  | 0.000 | 9.82 | 7.68 | 0.000 | -46 | -58 | 48 |
IX. fMRI results. Comparaison between LOCA and HCS (on the left) and between NO-LOCA and HCS (on the right) of the correlation between the auditory (first row), default mode (second row) and fronto-parietal (third row) networks and the time series from all other brain voxels. The blue spots show significantly decreased functional connectivity between patients and HCS. Statistical maps are thresholded at p<0.05 false discovery rate corrected at non-parametric cluster-mass with clusters made of voxels surviving a p<0.001 (whole-brain level).

X. fMRI results: Statistical values of the clusters obtained by the comparisons of LOCA patients and HCS, and NO-LOCA patients and HCS for the auditory, default mode and fronto-parietal networks; and the comparison of LOCA and NO-LOCA, for the fronto-parietal network only.
| Auditory | LOCA < HCS | 1088 | 5,078 | 64 | 2 | 0 | Superior Temporal Gyrus, anterior division |
|----------|------------|------|-------|----|---|---|----------------------------------|
|          |            | 4,843 | 66   | 4  | 20|   | Precentral Gyrus |
|          |            | 4,799 | 42   | -2|-6 |   | Insular Cortex |
|          |            | 412   | 4,972 | -62|-4 |18 | Precentral Gyrus |
|          |            | 3,559 | -62  | -26|10|   | Planum Temporale |
|          |            | 167   | 4,951 | 0  |-4 |60| Juxtapositional Lobule Cortex (formerly Supplementary Motor Cortex) |
|          |            | 110   | 4,685 | 42  |-10|34| Precentral Gyrus |
|          |            | 118   | 4,409 | 10  |-86|28| Cuneal Cortex |
|          |            | 156   | 4,274 | 12  |-64|-12| Lingual Gyrus |
|          |            | 234   | 4,195 | 30  |-34|60| Postcentral Gyrus |
|          |            | 3,685 | 40   |-18|70|   | Precentral Gyrus |
| NO-LOCA < HCS | 6025 | 7,794 | 16  |-82|34| Lateral Occipital Cortex, superior division |
|            |            | 6,397 | 4   |-86|18|   | Cuneal Cortex |
|            |            | 5,933 | 16  |-56|-12| Lingual Gyrus |
|            |            | 4902  | 7,083 | 42  |-8 |8 | Lingual Cortex |
|            |            | 6,789 | 60   | -2 |0 |   | Planum Polare |
|            |            | 6,338 | 42   |-14|34| Postcentral Gyrus |
|            |            | 5085  | 6,581 | 46  |4 |   | Planum Polare |
|            |            | 6,258 | 50   | -8 |28|   | Precentral Gyrus |
|            |            | 6,150 | -54  |-28|10| Planum Temporale |
|            |            | 639   | 5,490 | -18 |-64|-14| Lingual Gyrus |
|            |            | 2409  | 5,441 | 30  |-34|58| Postcentral Gyrus |
|            |            | 5,395 | 4    |-8 |60| Juxtapositional Lobule Cortex (formerly Supplementary Motor Cortex) |
|            |            | 4,195 | -6   |-14|42| Cingulate Gyrus, anterior division |
| Default mode | LOCA < HCS | 1125 | 6,597 | 4  |-58|30| Precuneus Cortex |
| NO-LOCA < HCS | 822 | 5,304 | -48  |-64|30| Lateral Occipital Cortex, superior division |
|            |            | 3,831 | -42  |-70|50| Lateral Occipital Cortex, superior division |
|            |            | 430   | 4,847 | 0   |50 |24| Paracingulate Gyrus |
|            |            | 4,143 | 0    |-46|4 | Cingulate Gyrus, anterior division |
|            |            | 451   | 4,748 | 58  |-56|28| Angular Gyrus |
|            |            | 3,901 | 42   |-64|46| Lateral Occipital Cortex, superior division |
| NO-LOCA < HCS | 2076 | 9,312 | 4   |-52|28| Cingulate Gyrus, posterior division |
|            |            | 3,842 | -4   |-68|18| Precuneus Cortex |
|            |            | 1314  | 6,818 | -48 |-64|30| Lateral Occipital Cortex, superior division |
|            |            | 5,386 | -38  |-74|46| Lateral Occipital Cortex, superior division |
|            |            | 3,347 | -64  |-62|18| Angular Gyrus |
|            |            | 3220  | 6,727 | 0   |50 |4 | Paracingulate Gyrus |
|            |            | 5,937 | 0    |50 |26| Paracingulate Gyrus |
|            |            | 5,377 | 18   |32 |48| Superior Frontal Gyrus |
|            |            | 963   | 6,414 | 58  |-56|28| Angular Gyrus |
|            |            | 4,445 | 42   |-64|48| Lateral Occipital Cortex, superior division |
|            |            | 369   | 5,768 | -38 |16|52| Middle Frontal Gyrus |
|            |            | 206   | 4,877 | -56 |4  |32| Temporal Pole |
|            |            | 4,370 | -44  |16  |-44| Temporal Pole |
|            |            | 249   | 4,835 | 66  |-2 | -24| Middle Temporal Gyrus, anterior division |
|            |            | 3,796 | 56   | 4  |-42| Temporal Pole |
|            |            | 90    | 4,481 | -18 |-26|-12| Parahippocampal Gyrus, posterior division |
| Fronto-parietal | LOCA < HCS | 407  | 4,891 | 66  |-34|-6 | Middle Temporal Gyrus, posterior division |
|            |            | 417   | 4,760 | -14 |-88|-24| Occipital Fusiform Gyrus |
|            |            | 120   | 4,497 | -66 |-44|-2 | Middle Temporal Gyrus, temporooccipital part |
|            |            | 113   | 4,387 | 28  |14|66| Superior Frontal Gyrus |
|            |            | 261   | 4,285 | 52  |-46|52| Supramarginal Gyrus, posterior division |
|            |            | 3,450 | 50   |-58|36| Angular Gyrus |
| NO-LOCA < HCS | 182 | 5,650 | 66   |-38|-2 |Middle Temporal Gyrus, temporooccipital part |
|            |            | 884   | 5,358 | 48  |-50|54| Angular Gyrus |
|            |            | 3,696 | 64   |-48|42| Angular Gyrus |
|            |            | 164   | 4,990 | 6   |-10|10| Right Thalamus |
|            |            | 477   | 4,829 | -50 |-52|54| Supramarginal Gyrus, posterior division |
|            |            | 3,760 | -32  |-64|54| Lateral Occipital Cortex, superior division |
| LOCA>N-LOCA | 323 | 5,055 | -34  |-84|26| Occipital pole |
|            |            | 4,155 | -18  |-94|18| Lateral occipital cortex |
XI. List of all pharmacological agents acting on the nervous system, taken by the patients who underwent neuroimaging/electrophysiological examinations

| UWS-loca1  | Depakine, Rivotril |
| UWS-loca2  | Amantadine          |
| UWS-loca3  | /                   |
| UWS-loca4  | Lormetazepam, Phenytoin, Lamictal, Keppra, Rivotril, Diazepam |
| UWS-loca5  | Keppra, Lamictal, Lorazepam |
| UWS-loca6  | Depakine, Dafalgan, Keppra, Gardenal |
| UWS-loca7  | Mantadix, Rivotril  |
| UWS-loca8  | Amantadine, Citalopram, Gabapentine |
| UWS-noloca1 | Keppra             |
| UWS-noloca2 | /                  |
| UWS-noloca3 | Hydromorphone, Fentanyl, Amantadine, Levetiracetam, Clonidine, Escitalopram |
| UWS-noloca4 | Keppra             |
| UWS-noloca5 | Depakyn            |
| UWS-noloca6 | Morphine           |
| UWS-noloca7 | /                  |
| UWS-noloca8 | /                  |
| UWS-noloca9 | Keppra, Amantadine, Trazodone, Depakine |
| UWS-noloca10 | Keppra        |
| UWS-noloca11 | Depakine, Levetiracetam, Tegretol, Amantadine |
| UWS-noloca12 | /                  |
| UWS-noloca13 | /                  |
| UWS-noloca14 | Lexomil, Lyrica, Contrainal |
| UWS-noloca15 | /                  |
| UWS-noloca16 | Epanutin, Keppra  |
| UWS-noloca17 | Seroxat, Rifotril, Tegretol |
| UWS-noloca18 | Keppra, Tegretol  |
| UWS-noloca19 | Depakine          |
| UWS-noloca20 | Trazolan, Durogesic |
| UWS-noloca21 | Amantadine, Valium |
| UWS-noloca22 | Lysanxia          |
| UWS-noloca23 | Valium            |
| UWS-noloca24 | Keppra, Amantadine, Dominal |
| UWS-noloca25 | Diphatonine, Lioresal, Diazepam, Lysanxia, Depakine |
| UWS-noloca26 | Keppra, Amantadine |
| UWS-noloca27 | Amantadine        |
| UWS-noloca28 | Keppra, Lysanxia, Zolpidem, Trazolan |
| UWS-noloca29 | Keppra, Rivotril, Cerebrolysin, Piracetam |
| UWS-noloca30 | Gardenal, Keppra, Amantadine, Diphatonine |
| UWS-noloca31 | Prolopa           |
| UWS-noloca32 | /                  |
| UWS-noloca33 | Clonazepam        |
| UWS-noloca34 | Keppra            |
| MCSminus1  | Oxynorm instant, Spralex, Durogesic |
| MCSminus2  | Amantadine        |
| MCSminus3  | Keppra            |
| MCSminus4  | /                  |
| MCSminus5  | Xanax             |
| MCSminus6  | OXazepam, Depakine, Valium |
| MCSminus7  | Valium, Serlawn   |
| MCSminus8  | /                  |
| MCSminus9  | Dominal forte, Rivotril |
| MCSminus10 | Keppra            |
| MCSminus11 | Xanax, Midazolam  |
| MCSminus12 | Keppra, Valproate |
| MCSminus13 | Transtec, Trazolan, Loramet, Lysanxia |
| MCSminus14 | Keppra, Diphatonine |
| MCSminus15 | Depakine          |
| MCSminus16  | /                  |
| MCSminus17  | Keppra, Spralex   |
| MCSminus18  | Depakine, Keppra  |
| MCSminus19  | Prazepam, Keppra, Amantadine |
| MCSminus20  | Amantadine, Seroxat, Theralene |
| MCSminus21  | /                  |
| MCSminus22  | Keppra, Spralex, Trazolan, Amantadine, Lysanxia |
| MCSminus23  | Rivotril, Diphatonine, Keppra |
| MCSminus24  | Epanutin          |
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