

Supplementary Materials

| Num | State | Sex, Age | Etiology | Delay (d) | Neurotropic med | CRS-r A/V/M/O/C/A | NCS-r M/V/F | ASR | NAR | NTAR | Outcome |
|-----|--------|----------|------------|-----------|-----------------|-------------------|-------------|-----|-----|------|-----------|
| 1 | VS/UWS | M,71 | anoxia | 77 | ZNS, VPA, LEV | 6:1/0/2/1/0/2 | 3:2/0/1 | IN | no | no | MCS |
| 2 | VS/UWS | F,34 | hypogly | 38 | LEV | 4:1/0/1/1/0/1 | 1:1/0/0 | IN | no | no | Death |
| 3 | VS/UWS | M,66 | PRESS | 40 | - | 7:1/1/2/1/0/2 | 3:2/0/1 | IN | no | no | Death |
| 4 | VS/UWS | M,67 | epilepsy | 120 | ZNS, VPA Benzo | 8:2/1/2/1/0/2 | 4:2/0/2 | EX | yes | no | Death |
| 5 | VS/UWS | F,50 | anoxia | 52 | LEV | 5:1/0/1/1/0/2 | 3:2/0/1 | IN | no | no | Death |
| 6 | VS/UWS | F,40 | stroke | 30 | LEV | 3:0/0/2/0/0/1 | 2:2/0/0 | abs | no | no | Conscious |
| 7 | VS/UWS | M,43 | anoxia | 73 | Benzo | 7:1/0/2/2/0/2 | 6:2/2/2 | EX | no | no | VS/UWS |
| 8 | VS/UWS | F,41 | hypogly | 13 | - | 2:0/0/1/0/0/1 | 1:1/0/0 | IN | no | no | Death |
| 9 | VS/UWS | M,78 | anoxia | 46 | LEV | 5:1/0/2/1/0/1 | 3:2/0/1 | EX | no | no | Death |
| 10 | VS/UWS | M,49 | anoxia | 24 | LCM,Benzo | 4:1/0/1/1/0/1 | 1:1/0/0 | IN | no | no | Death |
| 11 | VS/UWS | F,29 | dys.enc | 97 | LCM | 6:1/0/2/1/0/2 | 4:2/0/2 | IN | no | no | Conscious |
| 12 | VS/UWS | F,61 | anoxia | 17 | Morphine | 6:1/1/2/1/0/1 | 2:1/0/1 | IN | no | no | Death |
| 13 | VS/UWS | M,60 | stroke | 48 | LEV, LCM, | 6:1/1/2/1/0/1 | 4:2/0/2 | EX | no | no | Death |
| 14 | VS/UWS | M,56 | anoxia | 62 | SCP | 6:1/0/2/1/0/2 | 1:1/0/0 | IN | no | no | Conscious |
| 15 | VS/UWS | M,57 | stroke | 15 | LEV | 6:1/1/2/1/0/1 | 3:2/0/1 | EX | no | no | Conscious |
| 16 | VS/UWS | M,21 | anoxia | 44 | Morphine | 7:1/1/2/1/0/2 | 2:2/0/0 | EX | no | no | Death |
| 17 | VS/UWS | F,47 | stroke | 707 | LEV | 5:1/0/2/1/0/1 | 3:2/0/1 | EX | no | no | VS/UWS |
| 18 | VS/UWS | M,53 | stroke | 26 | VPA | 7:1/1/2/1/0/2 | 3:2/0/1 | EX | no | no | Death |
| 19 | VS/UWS | M,49 | anoxia | 22 | LEV | 6:0/1/2/1/0/2 | 2:2/0/0 | IN | no | no | Death |
| 20 | VS/UWS | F,64 | anoxia | 23 | LEV | 3:0/0/1/1/0/1 | 1:1/0/0 | abs | no | no | Death |
| 21 | VS/UWS | M,37 | anoxia | 372 | LEV, Xenazine | 6:1/0/2/1/0/2 | 4:2/0/2 | EX | no | no | Death |
| 22 | VS/UWS | M,55 | hypogly | 56 | SCP | 6:1/0/2/1/0/2 | 3:2/0/1 | IN | no | no | Death |
| 23 | VS/UWS | M,28 | TBI | 43 | Morphine | 5:1/0/1/1/0/2 | 1:1/0/0 | IN | no | no | Death |
| 24 | VS/UWS | F,58 | stroke | 51 | LEV | 3:0/1/1/1/0/0 | 1:1/0/1 | abs | no | no | VS/UWS |
| 25 | MCS- | F,41 | anoxia | 5852 | LEV | 10:1/0/5/2/0/2 | 3:2/0/1 | abs | no | no | MCS |
| 26 | MCS- | F,31 | anoxia | 27 | ZNS,LEV | 10:2/3/2/1/0/2 | 6:3/1/2 | EX | yes | yes | Conscious |
| 27 | MCS- | F,59 | anoxia | 13 | - | 14:2/3/5/2/0/2 | 4:2/0/3 | EX | yes | yes | Conscious |
| 28 | MCS- | M,21 | stroke | 299 | Morphine | 9:2/3/2/1/0/1 | 5:2/0/3 | IN | no | no | Death |
| 29 | MCS- | M,68 | stroke | 25 | - | 11:2/2/5/1/0/1 | 5:3/0/2 | EX | yes | yes | Conscious |
| 30 | MCS- | F,53 | infectious | 68 | LEV | 14:2/3/5/2/0/2 | 8:3/2/3 | EX | yes | yes | Conscious |
| 31 | MCS- | F,48 | dys.enc | 11 | ESC | 9:1/1/5/1/0/1 | 6:3/1/2 | IN | no | no | Conscious |
| 32 | MCS- | M,63 | stroke | 28 | - | 10:2/3/2/1/0/2 | 4:2/0/2 | EX | no | no | Conscious |
| 33 | MCS- | F,45 | dys.enc | 79 | - | 11:2/3/2/2/0/2 | 5:2/1/2 | EX | yes | yes | Conscious |
| 34 | MCS- | F,61 | anoxia | 33 | - | 13:2/3/5/1/0/2 | 4:2/0/2 | EX | no | no | MCS |
| 35 | MCS- | F,51 | anoxia | 12 | LEV | 11:2/3/3/1/0/2 | 6:3/1/2 | EX | yes | no | Death |
| 36 | MCS- | M,21 | TBI | 124 | LEV,Benzo | 8:1/3/1/1/0/2 | 2:1/0/1 | IN | no | no | Death |
| 37 | MCS- | F,25 | TBI | 544 | LTG | 12:2/3/4/1/0/2 | 5:3/0/2 | EX | yes | yes | MCS |
| 38 | MCS- | M,34 | TBI | 245 | SCP | 9:1/1/4/1/0/2 | 5:3/0/2 | EX | yes | yes | MCS |
| 39 | MCS- | F,36 | infectious | 76 | - | 9:2/2/2/1/0/2 | 4:2/0/2 | EX | no | no | MCS |
| 40 | MCS- | M,33 | TBI | 120 | GBP,Benzo | 10:2/3/2/1/0/2 | 4:2/0/2 | EX | no | no | Conscious |
| 41 | MCS- | M,55 | anoxia | 17 | - | 7:1/0/5/1/0/0 | 4:2/0/2 | EX | no | no | Conscious |
| 42 | MCS+ | M,56 | infectious | 56 | Benzo | 19:3/5/5/2/1/3 | 6:3/1/2 | EX | yes | yes | Conscious |
| 43 | MCS+ | M,61 | infectious | 51 | - | 11:3/3/2/1/0/2 | 5:2/1/2 | EX | yes | yes | Conscious |
| 44 | MCS+ | M,50 | infectious | 46 | - | 14:3/3/5/1/0/2 | 5:3/0/2 | EX | no | no | Conscious |
| 45 | MCS+ | F,54 | anoxia | 42 | ZNG | 12:3/3/3/1/0/2 | 5:3/0/2 | IN | yes | yes | Death |
| 46 | MCS+ | F,73 | infectious | 140 | SCP, Morphine | 14:3/3/4/1/0/3 | 8:3/3/2 | EX | yes | yes | Death |
| 47 | MCS+ | M,19 | anoxia | 156 | Benzo | 16:4/3/4/2/0/3 | 7:3/2/2 | EX | yes | yes | Death |
| 48 | MCS+ | M,59 | TBI | 219 | Benzo,AML | 13:3/4/2/2/0/2 | 4:2/0/2 | EX | yes | yes | Death |
| 49 | MCS+ | F,59 | anoxia | 23 | Benzo | 12:4/3/2/1/0/2 | 5:2/1/2 | EX | yes | yes | Conscious |
| 50 | MCS+ | M,52 | anoxia | 37 | LEV,ZNG,Benzo | 15:3/5/2/1/1/3 | 4:2/0/2 | EX | yes | yes | Death |
| 51 | MCS+ | F,71 | infectious | 97 | LEV,LCM,Benzo | 19:3/5/5/2/1/3 | 6:2/2/2 | EX | yes | yes | Death |
| 52 | MCS+ | M,56 | TBI | 478 | AML | 15:3/4/5/1/0/2 | 5:3/0/2 | EX | yes | yes | Conscious |
| 53 | EMCS | M,18 | TBI | 124 | LCM,Benzo | 22:4/5/6/2/2/3 | 7:3/2/2 | EX | yes | yes | Conscious |
| 54 | EMCS | M,34 | TBI | 109 | AML | 23:4/5/6/3/2/3 | 7:3/2/2 | EX | yes | yes | Conscious |
| 55 | EMCS | M,28 | epilepsy | 106 | LTG,VPA | 19:4/5/5/1/1/3 | 7:3/2/2 | IN | yes | yes | Conscious |
| 56 | EMCS | M,80 | TBI | 88 | - | 19:3/4/6/2/1/3 | 8:3/3/2 | EX | yes | yes | Death |
| 57 | EMCS | M,63 | stroke | 64 | CPZ | 19:3/4/6/2/1/3 | 8:3/3/2 | EX | yes | yes | Conscious |

Supplementary Table 1. Patient characteristics Sex, Age, Aetiology, Delay of DoC in days, Sedative or neurotropic medications, CRS-r (A:Auditory, V: Visual, M: Motor,O: Oromotor, A: Arousal, C: Communication subscales) , NCS-r (M: Motor, V:Verbal, F:Facial subscales); auditory startle reflexe (IN : inextinguishable, EX ; extinguishable, abs : absent), NTAR ,NAR and 6 months outcome. Abbreviations: epilepsy = Epileptic encephalopathy, dys.enc.=Dysimmune PRESS= posterior reversible encephalopathy syndrome, TBI: Traumatic brain injury. Encephalitis, infectious= infectious encephalitis, Hypogly=Hypoglycemia, AML= Mantadix, Benzo= benzodiazepine, ESC= escitalopram, GBP= Gabapentine, LCM = Lacosamide, LEV=Keppra, LTG= Lamotrigine, SCP= Scopolamine, ZNS=Zonergan, VPA =Depakine

| Num | State | NAR | NTAR | Local effect | Global effect | CNV | Outcome |
|-----|--------|-----|------|--------------|---------------|-----|-----------|
| 1 | VS/UWS | no | no | No | no | no | MCS |
| 2 | VS/UWS | no | no | no | no | no | Death |
| 3 | VS/UWS | no | no | yes | no | no | Death |
| 4 | VS/UWS | yes | no | yes | yes | no | Death |
| 5 | VS/UWS | no | no | no | no | no | Death |
| 6 | VS/UWS | no | no | no | yes | yes | Conscious |
| 7 | VS/UWS | no | no | no | no | no | VS/UWS |
| 8 | VS/UWS | no | no | - | - | - | Death |
| 9 | VS/UWS | no | no | yes | no | no | Death |
| 10 | VS/UWS | no | no | no | no | no | Death |
| 11 | VS/UWS | no | no | no | no | no | Conscious |
| 12 | VS/UWS | no | no | no | no | no | Death |
| 13 | VS/UWS | no | no | yes | no | yes | Death |
| 14 | VS/UWS | no | no | yes | no | no | Conscious |
| 15 | VS/UWS | no | no | no | no | no | Conscious |
| 16 | VS/UWS | no | no | no | no | yes | Death |
| 17 | VS/UWS | no | no | yes | yes | no | VS/UWS |
| 18 | VS/UWS | no | no | yes | yes | yes | Death |
| 19 | VS/UWS | no | no | yes | yes | no | Death |
| 20 | VS/UWS | no | no | yes | no | no | Death |
| 21 | VS/UWS | no | no | no | no | no | Death |
| 22 | VS/UWS | no | no | no | no | yes | Death |
| 23 | VS/UWS | no | no | yes | no | yes | Death |
| 24 | VS/UWS | no | no | yes | no | no | VS/UWS |
| 25 | MCS- | no | no | yes | no | no | MCS |
| 26 | MCS- | yes | yes | yes | yes | no | Conscious |
| 27 | MCS- | yes | yes | yes | no | yes | Conscious |
| 28 | MCS- | no | no | no | no | no | Death |
| 29 | MCS- | yes | yes | yes | no | yes | Conscious |
| 30 | MCS- | yes | yes | yes | no | no | Conscious |
| 31 | MCS- | no | no | yes | no | no | Conscious |
| 32 | MCS- | no | no | yes | no | yes | Conscious |
| 33 | MCS- | yes | yes | yes | no | yes | Conscious |
| 34 | MCS- | no | no | no | no | yes | MCS |
| 35 | MCS- | yes | no | yes | no | no | Death |
| 36 | MCS- | no | no | yes | yes | no | Death |
| 37 | MCS- | yes | yes | yes | no | no | MCS |
| 38 | MCS- | yes | yes | yes | yes | yes | MCS |
| 39 | MCS- | no | no | yes | no | no | MCS |
| 40 | MCS- | no | no | yes | yes | yes | Conscious |
| 41 | MCS- | no | no | no | no | no | Conscious |
| 42 | MCS+ | yes | yes | no | no | no | Conscious |
| 43 | MCS+ | yes | yes | no | no | no | Conscious |
| 44 | MCS+ | no | no | no | no | no | Conscious |
| 45 | MCS+ | yes | yes | yes | no | no | Death |
| 46 | MCS+ | yes | yes | no | no | yes | Death |
| 47 | MCS+ | yes | yes | yes | no | yes | Death |
| 48 | MCS+ | yes | yes | no | no | yes | Death |
| 49 | MCS+ | yes | yes | yes | no | no | Conscious |
| 50 | MCS+ | yes | yes | yes | no | yes | Death |
| 51 | MCS+ | yes | yes | yes | yes | no | Death |
| 52 | MCS+ | yes | yes | no | no | yes | Conscious |
| 53 | EMCS | yes | yes | yes | yes | yes | Conscious |
| 54 | EMCS | yes | yes | yes | yes | yes | Conscious |
| 55 | EMCS | yes | yes | yes | no | yes | Conscious |
| 56 | EMCS | yes | yes | yes | no | yes | Death |
| 57 | EMCS | yes | yes | - | - | - | Conscious |

Supplementary Table 2. NAR, ERP signatures of the ‘local-global’ auditory paradigm and 6 months outcome.