

Supplementary Table S1. Comparison between the different neuropsychological assessments (pre-surgical intervention, post-edema, follow-up) in patient 1

| | Pre-STN-DBS | Post-STN-DBS | | | |
|---|-------------|--------------|---------|----------|-----------|
| Test | 6 months | 1 week | 3 weeks | 2 months | 10 months |
| Screening | | | | | |
| Mini-Mental State Examination (/30) | 30 | 20* | 27 | / | 29 |
| Attention and Working Memory | | | | | |
| Visual Attention Test (/50) | 48 | 26 | 42 | / | 39 |
| Trial Making Test | | | | | |
| - Test A sec. | 44 | n.a. | / | / | 34 |
| - Test B sec. | 95 | n.a. | / | / | 202 |
| - B-A sec. | 51 | n.a. | / | / | 168 |
| Short-term Memory | | | | | |
| Digit Span Forward | 5 | 5 | 5 | 5 | 7 |
| Digit Span Backward | 4 | 2* | 3 | 3 | 4 |
| Corsi Block Span Forward | 5 | 3* | 4 | 4 | 4 |
| Corsi Block Span Backward | 4 | 2* | 4 | 4 | 4 |
| Verbal Long-term Memory | | | | | |
| Babcock (/28) | 14,5 | 10,5 | / | 15,5 | 21,5 |
| Associate learning (/22,5) | 9 | / | / | / | 15 |
| FCSRT (/12) | 12 | 9 | / | / | / |
| Visuo-Spatial Long-term Memory | | | | | |
| Rey Figure – differed recall (/36) | 15,5 | 11 | 10 | / | 13,5 |
| Visuo-spatial Supraspan | | | | | |
| - Immediate recall (/29,16) | 7,1 | / | / | / | n.a. |
| - Differed recall (/1,62) | 0,53 | / | / | / | n.a. |
| Visuo-spatial Functions | | | | | |
| Rey Figure - copy (/36) | 35 | 22 | 35 | / | 32 |
| Judgment of Line Orientation Test (/30) | 15 | n.a. | / | 16 | 19 |
| Clock DrawingTest (/10) | / | 0* | 1* | 10 | |
| VOSP | | | | | |
| - Pre-test (/20) | 19 | / | / | / | 19 |
| - Incomplete Letters(20) | 20 | / | / | / | 19 |
| - Silhouettes (30) | 24 | / | / | / | 23 |
| - Object Decision (/20) | 17 | / | / | / | 18 |
| - Progressive Silhouette (/20) | 8* | / | / | / | 11* |
| - Dot counting (/10) | 10 | / | / | / | 10 |
| - Position Discrimination (/20) | 20 | / | / | / | 19 |
| - Number Location (/10) | 6* | / | / | / | 6* |
| - Cube Analysis (/10) | 9 | / | / | / | 9 |
| Language | | | | | |
| Phonemic Fluency | 49 | 20 | 33 | / | 49 |
| Semantic Fluency | 48 | 26* | 39 | / | 46 |
| WAIS IV - Similarity (/36) | 26 | 17 | / | / | 15 |
| Visual Naming | | | | | |

| | | | | | |
|---|------|------|----|-----|------|
| - Not Livings (/32) | 32 | 30 | / | / | 32 |
| - Livings (/32) | 32 | 30 | / | / | 27 |
| Executive functions | | | | | |
| Raven CPM 47 (/36) | 33 | 15* | / | / | 29 |
| FAB (/18) | 18 | 8* | 16 | | 18 |
| Stroop | | | | | |
| - Time interference sec. | 20,5 | n.a. | / | 28 | 19,5 |
| - Error interference (/30) | 0 | n.a. | / | 0 | 0 |
| Time And Weight Estimation Task (STEP) | | | | | |
| - Time total (/30) | 21 | 21 | / | 20 | 25 |
| - Weight total (/30) | 21 | 11* | / | 13* | 24 |
| - Time + Weight total (/60) | 42 | 32* | / | 33* | 49 |
| - Time – Weight total (/60) | 0 | 10* | / | 7 | 1 |
| Modified Wisconsin Card Sorting Test - MCST | | | | | |
| - Categories (/6) | 6 | / | / | / | 6 |
| - Errors (/47) | 7 | / | / | / | 2 |
| - Perseverative Errors (/47) | 4 | / | / | / | 1 |
| Mental health screening | | | | | |
| Hospital Anxiety and Depression Scale - HADS | | | | | |
| - Anxiety (/21) | 6 | / | / | / | 7 |
| - Depression (/21) | 6 | / | / | / | 8 |
| Activities of Daily Living | | | | | |
| - ADL (/6) | 6 | / | 6 | / | 6 |
| - IADL (/8) | 8 | / | 7 | / | 8 |

Abbreviations: Activities of daily living (ADL); Instrumental activities of daily living (IADL); frontal assessment battery (FAB).

Supplementary Table S2. Unilateral spatial hemineglect assessment in patient 1

| Test | post edema STN-DBS | 3 weeks later |
|---------------------------------|--------------------|---------------|
| Apples Cancellation Task | | |
| Left Omissions (/20) | 14 | 0 |
| Right Omissions (/20) | 0 | 0 |
| Accuracy (total Omissions) | 15* | 0 |
| Egocentric Asymmetry (/20) | 14* | 0 |
| Total False positives | 3 | 0 |
| Allocentric Asymmetry (/20) | 1 | 0 |
| Total time (sec.) | 250 | 100 |

Supplementary Table S3. Comparison between the different neuropsychological assessments (pre-surgical intervention, post-edema, follow-up) in patient 2

| Pre-STN-DBS | | Post-STN-DBS | | | |
|---|----------|--------------|---------|----------|----------|
| Test | 6 months | 1 week | 6 weeks | 4 months | 7 months |
| Screening | | | | | |
| Mini-Mental State Examination (/30) | 29 | 25 | 30 | / | 29 |
| Attention and Working Memory | | | | | |
| Visual attention Test (/50) | 45 | 9* | 41 | / | 41 |
| Trial Making Test | | | | | |
| - Test A sec. | 38 | n.a. | 69 | 43 | 40 |
| - Test B sec. | 75 | n.a. | 167 | 150 | 129 |
| - B-A sec. | 37 | n.a. | 98 | 107 | 89 |
| Short-term memory | | | | | |
| Digit Span Forward | 6 | / | 6 | / | 6 |
| Digit Span Backward | 4 | / | 4 | / | 4 |
| Corsi Block Span Forward | 5 | 3* | 4 | / | 5 |
| Corsi Block Span Backward | 6 | 2* | 4 | / | 4 |
| Verbal long-term memory | | | | | |
| Babcock (/28) | 18,5 | / | 16 | / | 20,5 |
| Associate learning (/22,5) | 13,5 | / | / | / | 10 |
| FCSRT-16-free | | | | | |
| - Tot. Immediate Free Recall (/48) | 32 | / | / | / | 33 |
| - Riev. Differed Free Recall (/16) | 13 | / | / | / | 10 |
| Visuo-spatial long-term Memory | | | | | |
| Rey – differed recall (/36) | 19,5 | 9* | 12 | 19 | 16,5 |
| Visuo-spatial Supraspan | | | | | |
| - Immediate recall (/29,16) | 11,18* | / | / | / | 8,84* |
| - Differed recall (/1,62) | 1,4 | / | / | / | 0* |
| Visuo-spatial Functions | | | | | |
| Rey Figure – Copy (/36) | 34 | 12* | 23,5* | 33 | 24* |
| Judgment of Line Orientation Test (/30) | 25 | / | 24 | / | 25 |
| Clock Drawing Test (0/10) | / | 4,5* | 7 | / | / |
| VOSP | | | | | |

| | | | | | |
|---|-----|------|------|---|----|
| - Pre-test (/20) | 18 | / | / | / | 20 |
| - Incomplete Letters (20) | 20 | / | / | / | 19 |
| - Silhouettes (30) | 23 | / | / | / | 22 |
| - Object decision (/20) | 16 | / | / | / | 16 |
| - Progressive Silhouette (/20) | 15 | / | / | / | 16 |
| - Dot counting (/10) | 5* | / | / | / | 10 |
| - Position Discrimination (/20) | 20 | / | / | / | 18 |
| - Number location (/10) | 10 | / | / | / | 8 |
| - Cube Analysis (/10) | 10 | / | / | / | 8 |
| Language | | | | | |
| Phonemic Fluency | 55 | / | 49 | / | 39 |
| Semantic Fluency | 46 | / | 30 | / | 44 |
| WAIS IV -Similarity (/36) | 30 | / | / | / | 26 |
| Visual Naming | | | | | |
| - Not Livings (/32) | 32 | / | 32 | / | 32 |
| - Livings (/32) | 32 | / | 32 | / | 31 |
| Executive functions | | | | | |
| Raven CPM 47 (/36) | 31 | n.a. | 28 | / | 28 |
| FAB (/18) | 18 | 13* | 16 | | 15 |
| Stroop | | | | | |
| - Time interference sec. | 20 | / | 36,5 | / | 34 |
| - Error interference (/30) | 0 | / | 1 | / | 3 |
| Time And Weight Estimation Task (STEP) | | | | | |
| - Time total (/30) | 23 | / | / | / | 21 |
| - Weight total (/30) | 16* | / | / | / | 23 |
| - Time + Weight total (/60) | 39* | / | / | / | 44 |
| - Time – Weight total (/60) | | / | / | / | / |
| Modified Wisconsin Card Sorting Test - MCST | | | | | |
| - Categories (/6) | 4 | / | / | / | 6 |
| - Errors (/47) | 12 | / | / | / | 15 |
| - Perseverative errors (/47) | 4 | / | / | / | 4 |

| Mental health screening | | | | | |
|--|---|---|---|---|---|
| Hospital Anxiety and Depression Scale - HADS | | | | | |
| - Anxiety (/21) | 2 | / | / | / | 3 |
| - Depression (/21) | 3 | / | / | / | 2 |
| Activities of Daily Living | | | | | |
| - ADL (/6) | 6 | / | / | / | 6 |
| - IADL (/5) | 8 | / | / | / | 5 |

Abbreviations: Activities of daily living (ADL); Instrumental activities of daily living (IADL); frontal assessment battery (FAB)

Supplementary Table S4. Unilateral spatial hemineglect assessment in patient 2

| Test | post edema STN-DBS | 6 weeks later | 4 months later |
|-----------------------------------|--------------------------|----------------|----------------|
| Apples Cancellation Task | | | |
| Left Omissions (/20) | 20 | 1 | 0 |
| Right Omissions (/20) | 5 | 4 | 0 |
| Accuracy (total omissions) | 33* | 8* | 0 |
| Egocentric Asymmetry (/20) | 15* | 3* | 0 |
| Total False positives | 4 | 4 | 0 |
| Allocentric Asymmetry (/20) | 2* | 4* | 0 |
| Total time (sec.) | 300 | 146 | 130 |
| Line bisection test (/3) | 0* Slight right shift | 3 Normality | / |
| Symbols cancellation test | | | |
| Left Omissions (/15) | 15 | 1 | / |
| Rigth Omissions (/15) | 7 | 0 | / |
| Central Omissions (/5) | 5 | 2 | / |
| Total Omissions | 27* | 3 | / |
| Omissions Difference (right-left) | 8* | 1 | / |
| Visual extinction | Absent | / | / |
| Letters cancellation test | | | |

| | | | |
|-----------------------------------|-----|---|---|
| Left Omissions (/53) | 53 | 0 | / |
| Rigth Omissions (/51) | 32 | 0 | / |
| Total Omissions | 85* | 0 | / |
| Omissions Difference (right-left) | 21* | 0 | / |

Supplementary Table S5. Comparison between the different neuropsychological assessments (pre-surgical intervention, post-edema, follow-up) in patient 3

| | Pre-STN-DBS | Post-STN-DBS | |
|---------------------------------------|-------------|--------------|----------|
| Test | 16 months | 1 week | 6 months |
| Screening | | | |
| Mini-Mental State Examination (/30) | 28 | 21* | 29 |
| Attention and Working Memory | | | |
| Visual Attention Test (/50) | 42 | 19* | 42 |
| Trial Making Test | | | |
| - Test A sec. | 49 | 264* | 44 |
| Short-term Memory | | | |
| Digit Span Forward | 5 | 5 | 5 |
| Digit Span Backward | 5 | 3 | 3 |
| Corsi Block Span Forward | 5 | 2* | 4 |
| Corsi Block Span Backward | 5 | 2* | 4 |
| Verbal Long-term Memory | | | |
| Babcock (/28) | 16 | 11,5 | 15,5 |
| FCSRT (/16) | 9 | / | / |
| Visuo-Spatial Long-term Memory | | | |
| Rey Figure – differed recall (/36) | 16 | 14 | 19 |
| Visuo-spatial Supraspan | | | |
| - Immediate recall (/29,16) | 21,07 | / | / |
| - Differed recall (/1,62) | 1,62 | / | / |
| Visuo-spatial Functions | | | |
| Rey Figure - copy (/36) | 33 | 24* | 36 |
| Clock DrawingTest (/10) | | 0* | 7 |
| VOSP | | | |
| - Pre-test (/20) | 20 | / | / |
| - Incomplete Letters(20) | 18 | / | / |
| - Silhouettes (30) | 23 | / | / |
| - Object Decision (/20) | 14 | / | / |
| - Progressive Silhouette (/20) | 12* | / | / |
| - Dot counting (/10) | 9 | / | / |
| - Position Discrimination (/20) | 20 | / | / |
| - Number Location (/10) | 10 | / | / |
| - Cube Analysis (/10) | 9 | / | / |
| Language | | | |

| | | | |
|--|------|-----|----|
| Phonemic Fluency | 16 | 9* | 19 |
| Semantic Fluency | 35 | 19* | 35 |
| Visual Naming | | | |
| - Not Livings (/32) | 28 | / | / |
| - Livings (/32) | 31 | / | / |
| Executive functions | | | |
| Raven CPM 47 (/36) | 30 | 17* | 27 |
| FAB (/18) | 16 | 9* | 15 |
| Stroop | | | |
| - Time interference sec. | 22,5 | 49* | 17 |
| - Error interference (/30) | 0 | 0 | 0 |
| Modified Wisconsin Card Sorting Test – MCST | | | |
| - Categories (/6) | 6 | 6 | / |
| - Errors (/47) | 16 | 6 | / |
| - Perseverative Errors (/47) | 5 | 3 | / |
| Mental health screening | | | |
| Hospital Anxiety and Depression Scale – HADS | | | |
| - Anxiety (/21) | 14* | / | / |
| - Depression (/21) | 10* | / | / |

Abbreviations: Activities of daily living (ADL); Instrumental activities of daily living (IADL); frontal assessment battery (FAB).

Supplementary Table S6. Unilateral spatial hemineglect assessment in patient 3

| Test | post edema STN-DBS | 6 months later |
|---------------------------------|--------------------|----------------|
| Apples Cancellation Task | | |
| Left Omissions (/20) | 12 | 1 |
| Right Omissions (/20) | 9 | 3 |
| Accuracy (total omissions) | 28* | 4 |
| Egocentric Asymmetry (/20) | 3* | 2 |
| Total False positives | 0 | 0 |
| Allocentric Asymmetry (/20) | 0 | 0 |
| Total time (sec.) | 142 | 85 |