

**Supplementary Table 1 Location of electrode contacts active at presentation**

Pat. no.	Electrode type	Impulse generator	Past complications	Left GPI			Right GPI				
				contacts*	x	y	z	contacts*	x	y	z
1	3387	Kinetra ®	Recurring ulceration of lead necessitating complete system removal and reimplantation	1-, C+	-19.2	5.7	-1.9	4-, 5-, 6-, C+	22.5 23.1 23.6	3.8 4.8 6.3	-6.8 -4.1 -1.5
2	3387	Kinetra ®		1-, 3-, C+	-16.8 -18.2	4.1 5.7	-3.7 1.9	4-, C+	19.7	6.5	-2.4
3	3387	Kinetra ®		0-, 1-, C+	-19.4 -19.5	4.1 5.6	-5.2 -2.6	5-, 6-, C+	18.9 19.2	7 8.9	-1.9 0.5
4	3387	Kinetra ®		0-, 1-, C+	-17 -17.8	3.2 4.3	-6 -3.2	4-, 5-, C+	17.5 18.0	2.4 3.2	-7.1 -4.3
5	3387	Activa RC ®		0-, 1-, C+	-20.4 -20.2	3.9 6.2	-1.5 0.4	4-, 5-, C+	20.9 20.7	2.6 4.2	-2.2 0.3
6	3387	Kinetra ®		0-, C+	-18.9	4.9	-5.8	4-, C+	21.3	7.3	-5.3
7	3387	Kinetra ®		1-, C+	-19.8	4	-3.9	5-, C+	19.8	4.4	-4.8
8	3387	Solettra ®		2-, C+	-20.7	7.4	2.1	6-, C+	20.3	7.4	1.4
9	3387	Kinetra ®		1-, 2+	-21.1 -21	4.8 6.6	-3.5 -1.1	5-, 6+	20.6 21.0	4.9 6.6	-1.9 0.6
10	3387	Activa RC ®		0-, 1- C+	-17 -17.3	3.7 5.1	-4.8 -2	5-, C+	19.5	6.3	-1.4
11	3387	Kinetra ®	recurring infection, explantation and reimplantation	0-, 1+	-15.9 -15.9	3 3.9	-8.2 -6.1	6-, 7+	21.9 22.4	4.3 6.0	-1.7 0.8
12	3387	Kinetra ®		1-, 2+	-20.3 -20.2	5 7	-7.8 -5.6	5-, 6+	20.2 20.3	4.7 6.7	-6.3 -4
13	3387	Solettra ®		1-, 2+	-19.8 -19.7	5.6 6.5	-3.9 -1.1	4-, 5+	20.1 20.3	4.1 5.4	-4.0 -2.0
14	3387	Kinetra ®		1-, 3+	-21 -21.9	8.3 10.8	-4.3 1.1	5-, 7+	21.9 23.1	5.8 8.1	-4.0 1.5
15	3387	Kinetra ®		1-, C+	-19.1	3.4	0.4	6-, C+	18.6	5.3	0.6
16	3387	Kinetra ®		2-, C+	-21.7	7	-2.2	6-, C+	21.0	7.4	2.0
17	3387	Kinetra ®		1-, 2+	-20.4 -20.5	4.8 6	-6.2 -3.5	5-, 6+	19.7 20.2	5.1 6.3	-6 -3.3
18	3387	Activa PC ®		0-, 1-, C+	-19.2 -19.6	5.8 6.6	-4 -1.9	4-, 5-, C+	20.1 20.5	5.1 6.2	-4.3 -2.3
19	3387	Kinetra ®		1-, C+	-20.1	2.6	-3.1	5-, C+	19.4	5.0	-3.3
20	3387	Activa RC ®	Perioperative bleeding on right side with postoperative leftsided hemiparesis	0-, 1-, C+	-18.7 -18.7	3.5 4.4	-6.8 -4.6	5-, C+	19.3	4.6	-3.6
21	3387	Kinetra ®		2-, C+	-20.8	7.7	-1.9	4-, 5-, C+	22.6 22.8	1.7 3.8	-4.6 -2.5
22	3387	Kinetra ®		0-, C+	-21.5	0.0	1.9	4-, C+	19.7	4.4	-1.0
23	3387	Kinetra ®		0-, C+	-16.2	6.7	1.2	5-, C+	18.2	8.3	-4.0
24	3387	Kinetra ®		0-, 1-, C+	n.a.	n.a.	n.a.	5-, C+	n.a.	n.a.	n.a.

\*note that lead contacts have been numbered in a standardized fashion from 0 to 4 (left, bottom to top) and 4 to 7 (right, bottom to top) regardless of generator system

**Supplementary Table 2 Stimulation settings**

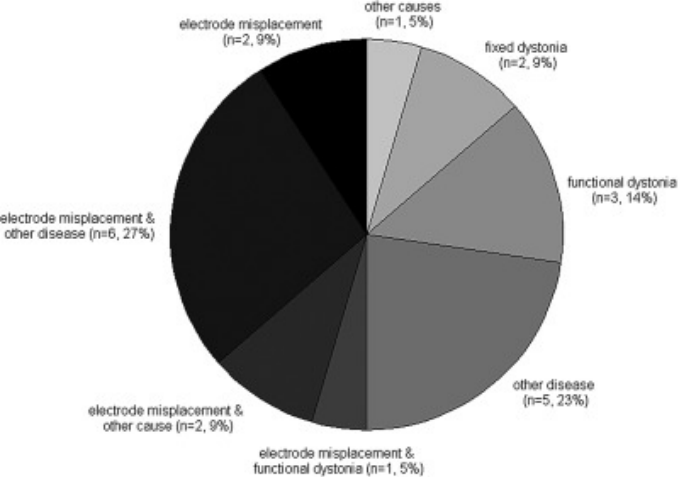
Pat. no.	Left GPI						Right GPI					
	active contacts*	amplitude (V)	duration (µs)	frequency (Hz)	therapeutic impedance (Ohm)	stimulation energy (µJ)	active contacts*	amplitude (V)	duration (µs)	frequency (Hz)	therapeutic impedance (Ohm)	stimulation energy (µJ)
1	1-, C+	2	90	130	792	59.1	4-,5-,6-, C+	0.6	210	130	792	12.4
2	1-, 3-, C+	1	210	130	660 (contact 2: >4000 Ohm)	41.4	4-, C+	1	210	130	953	28.6
3	0-, 1-, C+	1.5	120	145	650	60.2	5-, 6-, C+	3	120	145	980	159.8
4	0-, 1-, C+	2	150	210	681	185.0	4-, 5-, C+	2	150	210	681	185.0
5	0-, 1-, C+	1.45	60	125	901	17.5	4-,5-, C+	1.8	60	125	1020	23.8
6	0-, C+	3.7	90	150	737	250.8	4-, C+	4.7	120	150	835	476.2
7	1-, C+	2.2	210	130	501	263.7	5-, C+	2	210	130	612	178.4
8	2-, C+	2.5	210	185	895	271.3	6- C+	3	180	130	767	274.6
9	1-, 2+	5.5	210	130	1029	802.6	5-, 6+	5.5	210	130	928	889.9
10	0-, 1- C+	2.95	120	125	923	141.4	5-, C+	3	120	125	962	140.3
11	0-, 1+	2.5	180	130	998	146.5	6-, 7+	3	180	130	1203	175.1
12	1-, 2+	4.5	240	180	959	912.2	5-, 6+	4.5	240	180	959	912.2
13	1-, 2+	4.7	210	130	910	662.7	4-,5+	4.3	210	130	931	542.2
14	1-, 3+	3.8	210	130	1154	341.6	5-, 7+	3.8	210	130	1787	220.6
15	1-, C+	2.7	210	210	551	583.5	6-, C+	2.7	210	210	551	583.5
16	2-, C+	3.8	150	210	525	866.4	6-, C+	1.8	150	210	635	160.7
17	1-, 2+	6.3	240	130	960	1289.9	5-,6+	6.3	240	130	1353	915.2
18	0-, 1-, C+	1.4	120	125	1400	21.0	4-,5-, C+	1.5	120	125	1650	20.5
19	1-, C+	1.8	210	130	919	96.2	5-, C+	1.8	210	130	919	96.2
20	0-, 1-, C+	0.75	60	125	2716	1.6	5-, C+	0.9	60	125	2020	3.0
21	2-,C+	3.8	120	130	700	321.8	4-,5- C+	3.8	120	130	1000	225.3
22	0-, C+	3	120	180	797	243.9	4-, C+	4	120	180	1069	323.3
23	0-, C+	3	90	130	789	133.5	5-, C+	3	90	130	789	133.5
24	0-, 1-, C+	3.3	90	167	1395	117.3	5-, C+	2.6	90	167	1395	72.8
mean	n=1.7	3.0	150.0	150.3	960.1	326.3	n=1.6	3.0	155.5	147.8	1057.3	281.4

\*note that lead contacts have been numbered in a standardized fashion from 0 to 3 (left, bottom to top) and 4 to 7 (right, bottom to top) regardless of generator system

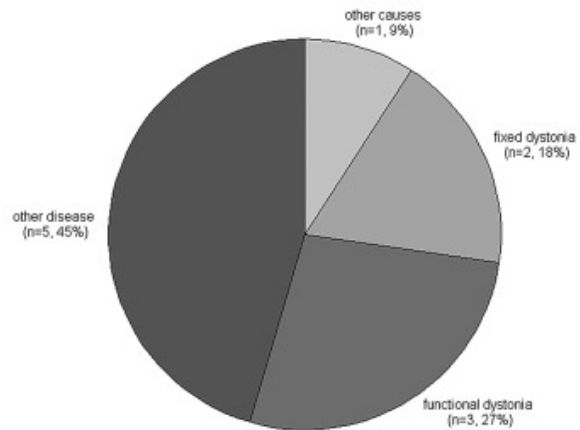
**Supplementary Table 3 Additional diagnostic findings**

Pat. no.	Brain MRI	L-Dopa test	CSF and other findings	Copper & coeruloplasmin	Acanthocytes	EEG	Cognitive testing		
							DRS-2	DemTect	MMST
1	normal	negative		normal	negative	normal	141	15	30
2	normal	negative	pathological DaT-Scan	normal	negative	normal	134	18	30
3	Flair hyperintensities	negative		normal	negative	normal	143	17	30
4	normal	positive (tremor)	normal DaT-Scan	normal	negative	normal	142	13	29
5	normal	negative	GAD-autoantibodies in serum and CSF, isolated motor polyneuropathy	normal	negative	normal	143	18	n.a.
6	normal	negative		normal	negative	normal	144	18	n.a.
7	normal	negative		normal	negative	normal	144	15	30
8	marked brain atrophy with maximum frontally, otherwise normal, no basal ganglia pathology	negative		Cu 32,5	negative	normal	127	12	29
9	slight brain atrophy, otherwise normal	positive (3min)	CSF normal	normal	3x2/1000 Eryt.	normal	130	16	30
10	normal	negative		normal	negative	normal	139	15	25
11	normal	negative		normal	negative	normal	134	9	28
12	multiple T2 hyperintense white matter lesions bilaterally	negative	CSF type II oligoclonal bands	normal	negative	normal	142	17	30
13	normal	negative		normal	negative	normal	144	14	30
14	normal	negative		normal	negative	normal	138	18	28
15	T2 hyperintense putaminal lesions bilaterally	negative	pathological DaT-Scan	normal	1x1/1000 Eryt.	normal	*	*	*
16	normal	negative		normal	negative	normal	139	10	n.a.
17	normal	negative		normal	negative	normal	139	14	29
18	normal	negative		normal	negative	normal	135	10	28
19	T2-hyperintense lesion right crus cerebri (post thalamotomy)	negative		normal	negative	normal	143	14	30
20	normal	negative	CSF normal	normal	negative	normal	141	16	29
21	normal	limited response		normal	negative	n.a.	132 (preop.)	n.a.	n.a.
22	normal	negative	CSF normal	normal	negative	n.a.	130 (preop.)	n.a.	n.a.
23	normal	n.a.	CSF normal	n.a.	n.a.	normal	128	7	30
24	normal	n.a.		n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
mean							138.5	14.3	29.1

\* standard testing not possible due to anarthria, Benton-Test 12/15



(a) cause of nonresponse for all cases (n=22)



(b) causes after exclusion of electrode misplacement (n=11)