							1	-	1		1			1	
Patient	Age	Male (M)	Dystonia	Age at	Distribution of dystonia	Phenotype:	Inherited,	Aetiology-	Imaging	Medication at time of surgery	Duration of	Proportion of Life	Baseline	1 year	% Improvement
	at	or Female	Group	onset		Fixed or Phasic	Acquired,				Dystonia (years)	Lived with dystonia	BFMDRS	BFMDRS	at 1 year
	DBS	(F)		(vears)			Idiopathic						motor score	motor score	
1	12.0	(=)	Duimour	10.0	Conomised Neels trunk and	Dhasia	Inhonited	DVT1 positivo	Normal	None (movieus either	2	0.22	57	22	50.6
1	13.9	IVI	Primary	10.9	Generalised. Neck, trunk and	Phasic	Innerited	DY 11 positive	Normai	None (previous either	3	0.22	57	25	39.0
					all 4 limbs					ineffective or side effects)					
2	11.8	М	Primary	8	Generalised, particularly both	Fixed	Inherited	DYT1 positive	Normal	Co-Careldopa	3.8	0.32	59.5	10	83.2
					legs and left arm										
3	73	F	Primary	63	Generalised particularly both	Fixed	Inherited	DVT1 positive	Normal	Tribeyyphenidyl	1	0.14	50	6	88.0
5	7.5	1	1 minary	0.5		1 IACU	Innerited	DTTTpositive	Ttoffilar	micxyphemayr	1	0.14	50	0	00.0
					legs and right arm										
4	10.8	М	Primary	3.5	Generalised	Fixed	Idiopathic	Idiopathic	Normal	None	7.3	0.68	75	26.5	64.7
								(DYT1, DYT5 and							
								PANK2 negative)							
5	13.9	М	Primary	11.5	Generalised	Fixed	Inherited (positive	Idionathic	Normal	Diazenam	24	0.17	48	15.5	67.7
5	13.7	111	1 minur y	11.5	Generalised	TIXCU		lalopathe	Ttoffilar	Diazepain	2.4	0.17	-10	15.5	07.7
							family history)								
6	12.9	М	Primary (plus)	2.9	Generalised – particularly face	Phasic	Inherited	DYT11	Normal	None	10	0.78	30	9.5	68.3
					and upper limbs										
7	17.1	F	Primary (plus)	14.1	Predominantly right upper limb	Phasic	Inherited	Idiopathic	Normal	None	3	0.18	8	1	87.5
			· · · ·					(DYT11 and TITE1							
								negative)							
8	12.2	F	Primary (plus)	0.2	Generalised	Phasic	Idiopathic	Idiopathic	Normal	None	12	0.98	34	35	-2.9
9	8.9	М	Primary (plus)	0.5	Generalised	Fixed	Idiopathic	Unknown	Normal	Baclofen	8.4	0.94	64.5	55.5	14.0
										Trihexyphenidyl					
10	15.9	F	Primary (plus)	0.6	Generalised	Phasic	Idionathic	Unknown	Normal	None	15.3	0.96	59	N/A *	N/A *
10	13.7	I E	P i i i i i i i i i i i i i i i i i i i	0.0		T liasic	luiopaulie	Unknown			15.5	0.21	57	70	10/A
11	13.1	F	Primary (plus)	9.1	Generalised	Phasic	Idiopathic	Unknown	Normal	Intrathecal baclofen	4	0.31	89.5	78	12.8
										Trihexiphendidyl					
										Diazepam					
12	17.4	F	Primary (plus)	4.4	Generalised but predominantly	Phasic	Idiopathic	Unknown	Normal basal ganglia.	None	13	0.75	38	16.5	56.6
			247		upper limbs $(\mathbf{R} \setminus \mathbf{I})$ and \mathbf{R} lower		1		Non-specific left Hippocampus						
									Non-specific ient implocampus						
					limb.				abnormality						
13	4.5	М	Primary (plus)	0.8	Generalised	Phasic	Idiopathic	Unknown	Normal basal ganglia.	Lorazepam	3.7	0.82	88.5	96.5	-9.0
									Non-specific left frontal arachnoid	Tizanidine					
									cyst	Trihexyphenidyl					
14	18.1	м	Primary (nlus)	9	Generalised	Fixed	Idionathic	Unknown	Normal	Sinemet plus	91	0.50	24	31	-29.2
14	10.1	141	Timary (plus)		Generalised	TIXCU	luiopaulie	Ulikilowi	Norman	Sincinet plus	5.1	0.50	27	51	-2).2
15	12.6	F	Secondary static	0.6	Generalised	Fixed	Acquired	Ex-premature 26/40	Thalamus, PVWM	Baclofen		0.95	103	86	16.5
								(Perinatal brain injury)		Nitrazepam	12				
16	7.9	М	Secondary static	0.9	Generalised	Fixed	Acquired	Ex premature 27/40	PVWM	Baclofen	7	0.89	106	109.5	-3.3
								(Perinatal brain injury)		Clonidine					
								(jj))		Tribovinhonidyl Dontrolono					
		_	~		~										
17	6.1	F	Secondary static	0.1	Generalised	Phasic	Acquired	Ex-premature 24/40	PVWM	Trihexiphenidyl		0.98	106.5	97	8.9
								(Perinatal brain injury)			6				
18	10.6	М	Secondary static	0	Generalised	Fixed	Acquired	Ex-premature 25 /40	Normal	Trihexiphenidyl	10.6	1.00	87.5	84	4.0
								(Perinatal brain injury)							
10	0.2	М	Cocon domy statio	0.2	Conomised	Dhasia	Acquired	Ex. promoture 22/40 train	Cional change and volume loss in	Clanaganam	0	0.08	100.5	101.5	7.2
19	9.2	101	Secondary static	0.2	Generalised	Fliasic	Acquireu	Ex-premature 52/40 twill,	Signal change and volume loss m	Cionazepani	9	0.98	109.5	101.5	7.5
								twin-twin transfusion	Globi pallidi and PVWM						
								donor, neonatal sepsis							
								(Perinatal brain injury)							
20	5.5	F	Secondary static	0	Generalised	Phasic	Acquired	Ex premature 25/40 twin	White matter volume loss + Focal	None	5.5	1.00	110	111	-0.9
			,					(Perinatal brain injury)	right cerebellar cortical dyenlasia						
	10.1			0.1		301 1				D 1.0	10	0.00	114-7	106	
21	12.1	М	Secondary static	0.1	Generalised	Fixed	Acquired	(Perinatal brain injury)	Basal gangla normal	Bacloten	12	0.99	114.5	106	7.4
								Ex-premature 28/40	Minimal white matter volume loss,	Trihexiphenidyl Nitrazepam,					
								G6PD deficiency leading		Haloperidol					
								to hyperbilirubinaemia							
22	16.8	F	Secondary static	0.8	Generalised	Phasic	Acquired	Term HIF	Gliosis of thalami lentiform nuclei	Trihexinhenidyl	16	0.95	107	110	-2.8
	10.0	1	Secondary state	0.0	Schermised	1 mole	riequireu			21 montphonicity1	10	0.75	107		2.0
								(Perinatal brain injury)	and periorolandic cortex.						

23	13.7	М	Secondary static	1.7	Generalised	Fixed	Acquired	Term HIE	Gliosis of thalami, lentiform nuclei	Trihexiphenidyl	12	0.88	102.5	93	9.3
								(Perinatal brain injury)	and periorolandic cortex	Baclofen					
24	17.8	F	Secondary static	0.8	Generalised	Phasic	Acquired	Term HIE	Gliosis of thalami, lentiform nuclei	Baclofen	17	0.96	72	73	-1.4
								(Perinatal brain injury)	and periorolandic cortex						
25	7.2	М	Secondary static	0	Generalised	Phasic	Acquired	Term kernictuerus	Gliotic change in Globi pallidi	None	7.2	1.00	66	77.5	-17.4
								(Perinatal brain injury)	consistent with previous elevated						
									bilirubin						
26	3.5	М	Secondary static	0	Generalised	Fixed	Acquired	Term kernictuerus	Gliotic change in Globi pallidi	Trihemiphenidyl	3.5	1.00	98	106.5	-8.7
								(Crigler-Najjar)	consistent with previous elevated	Nitrazepam					
								(Perinatal brain injury)	bilirubin						
27	12.3	М	Secondary static	0	Generalised	Fixed	Acquired	Term kernictuerus	Signal change in Globus pallidi	Baclofen,	12.3	0.98	111.5	107	4.0
								(Perinatal brain injury)		Trihexiphenidyl					
										Co-careldopa					
28	10.6	F	Secondary static	0.6	Generalised	Fixed	Inherited – inborn	Glutaric aciduria type 1	Gliotic change and volume loss in	Baclofen	10	0.94	112.5	95.5	15.1
							error of metabolism	(Toxic/metabolic)	basal ganglia and white matter	Chloral hydrate					
										Diazepam					
										Clonazepam Tetrabenazine					
29	15.7	М	Secondary static	1.7	Generalised	Fixed	Inherited – inborn	Glutaric aciduria type 1	Gliotic change and volume loss in	Diazepam	14	0.89	114.5	105.5	7.9
							error of metabolism	(Toxic/metabolic)	basal ganglia and white matter	Baclofen					
										Trihexyphenidyl					
30	10.4	F	Secondary static	3	Left hemidystonia	Phasic	Acquired	Focal infarct	Infarct right caudate and pallidum	None	7.4	0.71	30.5	16.5	45.9
			-					(Vascular)							
31	3.3	М	Secondary static	1.3	Generalised	Fixed	Inherited – Acquired	Bilateral nigrostriatal	Bilateral nigrostriatal necrosis	Diazepam	2	0.61	102.5	74	27.8
			2					necrosis, Aicardi Goutieres		Baclofen					
								type 6		Trihexiphenidyl					
								ADAR1 positive							
32	6.7	М	Secondary static	1.7	Generalised	Fixed	Inherited - Acquired	Bilateral nigro-striatal	Bilateral nigrostriatal necrosis	Baclofen	5	0.75	83	62	25.3
-			, , , , , , , , , , , , , , , , , , ,				· · · · · · · · · · · · · · · · · · ·	necrosis, Aicardi Goutieres		Carbamazepine				-	
								type 6. ADAR1 positive		· · · · · · · · · · · · · · · · · · ·					
33	13.1	F	Secondary static	0.1	Generalised	Phasic	Uncertain	Unknown, Bilateral	Malformation: Perisylvian	Tetrabenazine	13	0.99	104	97	6.7
00	1011	-	Secondary state	0.1		1 maste		perisylvian polymicrogyria	polymicrogyria and cerebellar atrophy	Trihexiphenidyl		0.00	101		
								with epilepsy and dystonia	polymerogyna and coresenar anophy	Timexipheniay					
34	15.7	М	Secondary static	3.7	Generalised but predominantly	Fixed	Probably Acquired	Unknown	Left putaminal reduced volume		12	0.76	80	65.5	18.1
51	15.7		Secondary state	5.7	right sided	Thea	riobuoly required	Childiown			12	0.70		05.5	10.1
35	7.1	М	Secondary static	0.1	Generalised	Fixed	Probably inherited:	Unknown	PVWM	Tetrahenazine	7	0.99	97	101	-4.1
55	7.1		Secondary state	0.1	Generalised	TIACU	affected sister	Clikilowi		Co-careldona	,	0.99		101	7.1
36	80	F	Secondary static	6	Generalised	Dhasic	Probably inherited	Unknown	Normal	Tribevinbenidyl	2.0	0.33	52.5	64	21.0
50	0.7	1	Secondary state	0	Generalised	1 Hasie	1 lobably interfied	Congential neuromuscular	Ttoffilat	Thexiphendyr	2.9	0.55	52.5	04	-21.9
								disorder: I MNA mutation							
37	17.2	F	Secondary	82	Generalised	Fixed	Inherited _ inhorn	NBIA- PANK2 deficiency	Iron deposition in GP and nigro-	None	9	0.52	59.5	78	-31.1
57	17.2	1	prograssiva	0.2	Generalised	Tixed	error of metabolism	NDIA- I ANK2 denciency	striatal tract	None	5	0.52	39.3	78	-51.1
29	7.0	E	Sacondary	5.0	Concretized	Fixed	Inherited inhorn	NDIA DANK2 deficiency	Iron deposition in CD and nigro	Paglofon	2	0.25	64	102	50.4
50	1.9	1.	prograssivo	5.9	Generalised	Tixed	arror of metabolism	NDIA- I ANK2 denciency	stricted treat	Diezonam	2	0.25	04	102	-37.4
			progressive				enor or metabolism		stratar tract.	Tribovinhonidul					
20	10.5	м	Secondary	55	Conorolizad	Fined	Inhonited inhom	NDIA DANKO deficiency	Iron deposition in CD and nigro	Baalafan	5	0.48	08	05.5	26
39	10.5	M	Secondary	5.5	Generalised	Fixed	Innerited – indorn	NBIA- PANK2 denciency	tron deposition in GP and nigro-	Diagona	5	0.48	98	95.5	2.0
10	1.2		progressive	1.5		3771 1	error of metabolism		striatal tract.	Diazepam	2.0	0.65	07.5	DT/A skok	X 7/4 www
40	4.3	M	Secondary	1.5	Generalised	Fixed	Innerited – inborn	NBIA- PANK2 deficiency	Iron deposition in GP and nigro-		2.8	0.65	97.5	N/A **	N/A**
			Progressive				error of metabolism		striatai tract.						
41	10.5			2.6		3 ⁻¹ 3					10	0.74	120	10	05.0
41	13.6	Р	Secondary .	3.6	Generalised	Fixed	Inherited – inborn	NBIA- PANK2 deficiency	Iron deposition in GP and nigro-	Intrathecal bacloten	10	0.74	120	18	85.0
			progressive				error of metabolism		striatal tract.						
42	9.6	F	Secondary	3.1	Generalised	Fixed	Inherited – inborn	NBIA- PANK2 deficiency	Iron deposition in GP and nigro-	Baclofen	6.5	0.68	82.5	85	-3.0
			progressive				error of metabolism		striatal tract.	Trihexiphenidyl					
										Gabapentin					
43	16.4	М	Secondary	4.4	Generalised	Fixed	Inherited – inborn	NBIA- PANK2 deficiency	Iron deposition in GP and nigro-	Diazepam	12	0.73	114	98.5	13.6

			progressive				error of metabolism		striatal tract.	Baclofen					
										Tetrabenazine					
										Clonazepam					
44	6	М	Secondary	2	Generalised	Fixed	Inherited - inborn	NBIA- PANK2 deficiency	Iron deposition in GP and nigro-	Co-Careldopa,	4	0.67	86.5	107	-23.7
			progressive				error of metabolism		striatal tract.	Trihexiphenidyl					
										Sodium valproate					

Table S1 – Clinical Data for individual patients

PVWM = Periventricular White Matter signal change, GP = Globi pallidi

* patient had DBS electrodes removed 3 months post procedure due to infection

** patient had DBS electrodes removed 1 month post procedure to due brain abscess associated with coincident acute hepatitis A infection which had provoked status dystonicus prior to DBS surgery and followed by nephrotic syndrome after DBS surgery.