



## **Unit of Functional Neurosurgery**

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## **PARKINSON'S APPEAL: Unit of Functional Neurosurgery**

### **Progress Report June 2006**

The Unit of Functional Neurosurgery at the Institute of Neurology (IoN), Queen Square, was established in October 2002 when Professor Marwan Hariz was appointed to the first established University Chair of Functional Neurosurgery (The Edmond J. Safra Chair), and also to the position of Consultant Neurosurgeon at the National Hospital for Neurology and Neurosurgery (NHNN). The Unit of Functional Neurosurgery was established through the generous support of The Parkinson's Appeal, led by Mrs Lyn Rothman. The Unit is dedicated to the treatment of patients with Parkinson's disease and other movement disorders using the technique of Deep Brain Stimulation (DBS), a new technique for correcting abnormal function in brain circuits that control movement.

The mission for the Unit is both to provide a first-rate treatment for patients with Parkinson's disease and other movement disorders, and to carry out extensive research at the Institute of Neurology aimed at understanding, improving and extending the use of DBS as a treatment.

### **Recent Developments in the Unit**

#### **Clinical Activity in the Unit**

As at May 2006, a total of 93 patients have been treated with DBS in the Unit. 32 patients are part of the MRC PD Surgery Trial. 27 patients suffer from dystonia, for which DBS is also a very effective treatment. 2 patients with chronic deafferentation pain also benefited from DBS. The success rate of the Unit remains extremely high.

#### **Current Staff Members in the Unit**

Professor M Hariz (*Edmond J. Safra Chair of Functional Neurosurgery*)  
Mrs P Forsdick (*PA to Professor Hariz*)  
Dr P Limousin (*Consultant Neurologist and Senior Lecturer*)  
Professor M Jahanshahi (*Consultant Neuropsychologist*)  
Mr K Ashkan (*Consultant Neurosurgeon and Senior Lecturer*)  
Dr S Tisch (*Clinical Research Fellow, PhD student*)  
Mr L Zrinzo (*Specialist Registrar and Clinical Research Fellow*)  
Dr L Wilkinson (*Postdoctoral Research Fellow*)  
Ms E Tripoliti (*Speech Therapist, PhD student*)  
Ms E Borrell (*Specialist Movement Disorder Nurse*)

### **Major International Meeting held by the Unit**

UCL Institute of Neurology • National Hospital for Neurology & Neurosurgery • Unit of Functional Neurosurgery (Box 146), Sobell Department, Queen Square • London WC1N 3BG

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On November 18<sup>th</sup> and 19<sup>th</sup> 2004, the Unit of Functional Neurosurgery, Institute of Neurology, hosted an international meeting “**Functional Neurosurgery for Movement Disorders, Pain and Psychiatric Illness**”. This meeting was attended by 120 in all, including all the major international figures in the field of DBS. It was a superb opportunity for the Unit to demonstrate the great progress made by the Unit in both clinical service and research. Another international meeting is being planned for February 2007.

### **New accommodation for the Unit in a new Clinical Neurosciences building, 33 Queen Square**

In September 2006, work will commence on a new £9m Clinical Neuroscience Centre on the site of 33 Queen Square. The new building is a joint development between the National Hospital and the Institute of Neurology. It will accommodate the Unit and its patients on the east side of Queen Square, in close proximity to hospital wards, imaging facilities, operating theatre and the intensive care unit. The Wolfson Foundation has awarded a grant of £1m towards the cost of the new building.

### **National Specialist Advisory Service (NSCAG) Report on the work of the Unit**

The NHS National Specialist Advisory Service (NSCAG) for Deep Brain Stimulation visited Queen Square in September last year to make their assessment of the DBS service here. The Unit subsequently received an excellent report, which endorsed both the quality of the surgical facilities here and the lack of severe complication in the patients treated to date. Our Unit is one of the foremost in the UK in terms of numbers of patients treated with DBS for movement disorders. This report is an excellent commendation of the Unit, coming as it does within two years of the Unit's first operation.

### **DBS Support Group**

With the increasing number of operated patients, and increasing demands on the Unit's personnel, it has been considered helpful to set up a DBS Support Group, to provide patients and their families with extra psychological and emotional support in the immediate pre- and post-operative periods. Professor Jahanshahi and Ms Ellie Borrell are in the process of setting up such a DBS Support Group. Initially, the Support Group will be run from Queen Square, with Professor Jahanshahi and Ms Ellie Borrell having a major input. It is envisaged that, over time, one or more of the patients operated in the Unit of Functional Neurosurgery would take over the running of the Support Group. Membership of the Group will be open to any patient who has been operated in the Unit of Functional Neurosurgery.

### **BBC – “City Hospital” and DANA Centre Event**

Two of our patients, one of whom is a neurologist, featured in the BBC programme, “City Hospital”. This programme followed their progress before, during and after DBS. Our patients also featured in a major event on DBS during Brain Awareness Week 2006 at the DANA Centre in London.

### **Website**

With the enormous help of Martin Westall, the Parkinson's Appeal website has just been completely redesigned and updated: please visit it at <http://www.parkinsonsappeal.com>

**Roger Lemon**  
Director  
Institute of Neurology

**Marwan Hariz**  
Edmond J Safra Chair of Functional Neurosurgery  
Institute of Neurology

June 2006

## Research Grants/Awards

### **Professor Hariz**

- 2005-2007 Improving the Accuracy and Efficiency of Surgical Implantation of Therapeutic DBS Electrodes: Intra-operative Use of Local Field Potentials to Identify the Subthalamic Nucleus  
DANA Foundation Clinical Neuroscience Research Grant: Prof P Brown  
Co-Applicants: Prof M Hariz and Dr P Magill.  
**\$136,000**
- 2006-2008 Effective target volume from DBS and RF electrodes for functional neurosurgery – theoretical and experimental analysis.  
The Swedish Research Council  
Co-Applicants: Prof M Hariz and Prof Karin Waardell (Univ of Linköping, Sweden)  
**1,800,000 SEK**
- 2005- 2010 Functional Connectivity of the motor system in healthy subjects and in patients with Movement disorders or stroke – to test if surgery changes the pattern of functional connectivity in the motor system using transcranial magnetic stimulation methods to detect connections from premotor and parietal areas to the motor cortex  
Medical Research Council: Prof J Rothwell, in collaboration with the Unit  
**£1,031,803**

### **Professor Jahanshahi**

- 2005-2007 Does provision of visual cues through virtual reality glasses improve mobility in Parkinson's disease? A controlled study  
Project Grant from the Parkinson's Disease Society  
Co-applicants: Dr R Greenlaw, Professor N Quinn  
**£98,193**
- 2004-2006 ESRC/MRC Postdoctoral Fellowship for Dr Leonora Wilkinson  
**£61,860**
- 2005-2007 ParkService – Telematics application service for people with Parkinson's disease. A market validation proposal.  
European Commission eTen (Trans-European Telecommunications Networks)  
Co-applicant with OCC, MESTOR, ICCS, PROMITHEAS, PARKAID, GRIGIONI, SCHENECKENHAUS  
**€640,000**

### **Dr Limousin**

- 2005-2010 STN Stimulation – Neural Control of Movement and Posture  
Medtronic  
Co-applicant: Prof Rothwell  
**\$175,000**
- 2006-2009 A therapeutic approach to freezing in Parkinson Disease  
Medical Research Council.  
Co-applicant: Dr Day  
**£309,570**
- 2005-2008 Impact of Deep Brain Stimulation on speech in patients with Parkinson's disease  
Project Grant from the Parkinson's Disease Society  
**£99,698**

2004-2005	Pump priming grant for the position of specialist PD Nurse Parkinson's Disease Society	<b>£40,000</b>
2004-2005	Effect of DBS on speech in Parkinson's disease and dystonia Federation Francaise des Groupements Parkinsoniens	<b>£12,000</b>
2005-2006	Mechanisms by which effective subthalamic nucleus stimulation alters spatial and temporal patterns of motor cortical activity based on the following terms and conditions. NIH/Medtronic Co-applicants: J Rothwell, D Corcos, E Tripoliti	<b>\$175,000</b>
2003-2005	Study of Brain Plasticity following GPi stimulation for dystonia Brain Research Trust.	<b>£55,194</b>
<b>Mr K Ashkan</b>		
2006	Funds from Medtronic to secure equipment for motor cortex stimulation project	<b>200,000 Euros</b>

### **Research Publications from the Unit 2004-2006**

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