Implant in brain offers tremor relief

JIM McLEAN Parkinson's disease hope

A REVOLUTIONARY treatment for Parkinson's disease could lead to the development of a pacemaker for the brain.

Patients with the special implants could, in future, simply attend a doctors' surgery for regular brain stimulation which brings relief from the trembling associated with the condition.

It is hoped that the new treatment will offer long-term benefits for those affected by the disease, which in recent years has hit celebrities including Michael J Fox, the actor, and boxing legend Muhammad Ali.

Volunteers suffering from severe Parkinson's are being invited to take part in trials in the United States.

Parkinson's Disease is a progressive degenerative neurological disease that strikes men and women from all walks of life, but is more prevalent among people over 64.

Doctors hope the alternative surgical treatment will rejuvenate the 20 patients who will undergo chronic deep brain stimulation (DBS).

The 20 will be asked to take part in follow-up observation over three years.

Peter A Pahapill, director of functional, stereotactic and restorative neurosurgery, in the division of neurosurgery at Penn State Hershey Medical Centre in Pennsylvania has received approval from the US Food & Drug Administration, for the study.

He said: "There are thousands upon thousands of patients in the United States alone with terrible qualities of life because of their very advanced Parkinson's disease. Preliminary co-operative studies in the US, Canada and Europe have shown very promising results in these patients with stimulation in specific areas in both sides of the brain.

"Certainly, the procedures seem to be both effective and safe. However, further studies are needed to confirm and even improve further upon the results so far."

DBS is an alternative therapy for Parkinson's disease. It involves the use of electronics and "a pacemaker" for the brain to stimulate and modify brain activity.

Researchers believe DBS is reversible, adjustable and may create less persistent adverse effects than conventional operations that involve the intentional scaring of brain tissue.

Dr Pahapill said DBS involves the insertion of three mechanical components: an electrode lead; an extension; and an implantable pulse generator or IPG.

The lead consists of small insulated wires connected to four electrode contacts. The lead is implanted in the brain, near the site where traditional surgical treatments would call for a permanent lesion to be made, and is connected to the extension cable that connects to the IPG. The IPG is implanted in the subcutaneous tissue below the collarbone.

The IPG operates much like a cardiac pacemaker to generate electronic signals that are delivered to the brain through the extension and electrode lead.

Programming can be done by physicians during office visits and is painless. The doctor programs the IPG to deliver the appropriate stimulation by specifying the intensity, rate and pulse width. The physician can choose which lead contacts receive stimulation.

Studies show that about 90% of Parkinson's sufferers experience complete or nearly complete elimination of the physical tremors or shaking associated with the disease after undergoing DBS treatment.

Preliminary data also shows striking improvements in controlling other debilitating signs and symptoms.

Typical symptoms of Parkinson's disease include tremors, rigidity, slowness of movement, and problems with balance and walking.

Dr Pahapill said: "Parkinson's disease interferes with a person's ability to enjoy a life with independence and dignity."

While DBS neither cures Parkinson's disease nor prevents its progression, Dr Pahapill is convinced that this alternative treatment can minimise the impact of its symptoms and improve the overall quality of life for Parkinson's patients.

Participants being invited to join the DBS study must be diagnosed Parkinson's patients and must be over 18 years of age. They can be male or female.

- Dec 24th

home