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Latest Parkinsonâ??s disease therapies are redefining lives

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Parkinson's disease (PD) usually develops in people over the age of 50 years and the symptoms begin to surface slowly over time. Some of the most obvious symptoms are shaking, rigidity of the limbs, slowness in movement, and difficulty with walking. As the disease advances, patients start developing cognitive and behavioral problems such as depression, anxiety and dementia. PD affects about 6.3 million people worldwide. It is estimated that in India the prevalence rate of Parkinsonism is 33 per 100,000 (crude prevalence) and 76 per 100,000 (age adjusted); rural population has a higher prevalence compared to the urban population; and most studies indicate that the prevalence is lower in women compared to men.

There is no cure for Parkinson's nor treatment that prevents the disease from progressing, but existing treatments can help ease the symptoms and improve quality of life. In the early stages of the disease, patients are usually not prescribed any treatment and are only observed to monitor the progress of the diseases. Only when the symptoms start affecting daily lives making it difficult for patients to carry out simple daily tasks, medication along with physiotherapy, occupational and speech therapy is recommended depending on the symptoms. In the advanced stages when the condition is so severe that it cannot be contained by medication and adjunct therapies.

While there is no cure for Parkinson’s, today, advancements in research and medicine have given us access to therapies that can ease the symptoms and discomfort of patients suffering from Parkinson’s improve the lives of patients with Parkinson’s. One such therapy is called Deep Brain Stimulation (DBS), which is an advanced surgery that helps to treat and ease symptoms associated with movement. It involves implanting a pulse generator, which is a pacemaker like device, near the collarbone. The pulse generator is connected to electrodes that deliver electric current in targeted areas of the brain. This alters the abnormal circuitry in the brain causing the movement symptoms and reduces the symptoms.

The fascinating aspect of this kind of surgery is how precisely the electrodes and the pulse generator are placed in the body resulting in better outcomes. State-of-the-art MRI and CT scanning machines help identify the target area in the brain where the electrodes will be placed with accuracy in millimeters. Advanced neuro-navigation systems are used to choose the right path to the target area to ensure no blood vessels in the brain are damaged. During the surgery, five micro electrodes with a diameter less than 1mm are used to record activity from the neurons in the brain. The recordings help neurosurgeons set the pace of the device as per the neural impulse required to stop the tremors and moderate the other movements.

Many DBS systems consist of one electrode implanted in each hemisphere of the brain, with each electrode having four contacts, and a pulse generator implanted in the chest. An alternative is one where an electrode has eight contacts, with each contact having the ability to be programmed individually to suit a patient's plan of therapy. Through that, it can finely control the size and shape of stimulation with multiple independent current control technology. Unique software solutions with a Clinical Effects Map that captures data over time will visually summarize the progress of individualized patient therapy, and enables physicians to monitor and modify treatment as needed. These novel features allow for programming flexibility, designed to enable better outcomes with fewer side effects.

Today, patients have access to advanced neurostimulator with a long battery life of up to 25 years intended to limit repeat surgeries to change the neurostimulator. Such advanced therapies that can drastically improve the quality of life of patients with PD are available in India today, but there are very few people opting in for such surgeries for various reasons. One, since PD primarily sets in elderly people, there is a reluctance to spend resources on diagnosis and treatment. Second, there is not enough awareness about various treatment options available and the neuro-surgeons who offer this service. Third, many people believe that such surgeries are expensive, but fail to recognize its value to the quality of life people with PD and their families can enjoy in terms of the ability to function normally, being less prone to accidents and return of productivity, despite the disorder.

As life expectancy is improving in India and the population of people above 50 years is on the rise, it is critical that advanced and transformative treatments for neurological and movement disorders become more popular and more and more hospitals offer these services to patients. Both the patients in the above-mentioned cases underwent Deep Brain Stimulation surgery and have experienced improvements in their lives. Their tremors have reduced, reliance on medication has reduced, mobility has improved, and episodes of frozen limbs have reduced. They can now travel independently and their families no longer need to devote as much time and effort to their care and safety.

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