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The Value of Multidisciplinary Care in Parkinson's Disease

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Educational Objectives

1. To recognize the signs and symptoms of Parkinson's disease (PD).
2. To identify key treatment and management strategies for PD.
3. To discuss the importance of multidisciplinary care and the need for individualized treatment of PD.

Overview of Parkinson's Disease

PD is a common chronic neurological disorder that affects over 1.5 million people in the United States (Olanow, Watts, and Koller, 2001). James Parkinson, an English physician for whom the illness is named, first described PD in 1817 as the "shaking palsy." Today, more people suffer from PD than from multiple sclerosis, muscular dystrophy and Lou Gehrig's disease (ALS) combined. PD is primarily a disease of later life. Advancing age is the most significant risk factor in acquiring this illness. The average age of onset is 60; however, over 10% of cases occur in people under the age of 50 (American Parkinson's Disease Association, 1995).

PD is associated with a marked decrease in the normal amount of the neurotransmitter dopamine in the brain. For reasons unknown, the brain cells responsible for producing dopamine begin to die, causing the striatum, the area of the brain responsible for controlling movement and posture, to become unable to properly initiate and control movement.

It is important for educators, practitioners, and researchers working with older adults to familiarize themselves with this complex condition due to its prevalence. PD is highly variable and affects patients differently; therefore, management strategies must be tailored to the particular needs of each patient and his/her family. As the disease progresses, symptoms can become quite challenging to treat and

manage. A firm understanding of the disease process and its management is essential in providing appropriate and quality care.

Signs and Symptoms of Parkinson's Disease

The diagnosis of PD requires two or more of the following primary symptoms, rigidity, tremor, bradykinesia, slowness of movement, and/or poor balance. Because there are a number of conditions and diseases that produce similar symptoms, it is important to be evaluated by a healthcare professional who is knowledgeable about various movement disorders.

In addition to the primary symptoms, people with PD may experience a number of secondary symptoms such as memory changes, stooped posture, speech and swallowing difficulties, depression, and constipation (Marr, 1991).

Case Study

JB is a 72-year-old, World War II veteran, who has had symptoms of PD for 12 years. Currently, he takes Sinemet® 25/100 one tablet every 4 hours, four times a day and pramipaxole 1 mg four times a day. He notes that the benefit of each dose of Sinemet® wears off in about 3 hours. He also complains of bothersome involuntary movements that start shortly after each dose of medication and last for 2 to 3 hours. He is beginning to fall more often, particularly in situations where he tends to be distracted while walking. He needs increasing help with such tasks as buttoning his pants and shirts and cutting food. He is becoming exceedingly slow in dressing and is finding it very difficult to turn in bed at night. He is awakened frequently during the night and has considerable difficulty falling back to sleep. His memory is worsening and on occasion sees things that aren't really there such as squirrels in the house. JB's wife is becoming progressively distressed and is finding it increasingly more difficult to care for her husband.

Treatment Resources:

Living with PD can be difficult for patients and their families. The physical, social, emotional, and financial losses that patients and families may experience can become overwhelming. Despite the progressive nature of PD, most people can maintain relatively healthy and normal lives for a number of years. An interdisciplinary treatment approach that incorporates effective and appropriate medication management, proper nutrition, exercise, support and education is essential to maintain functioning and quality of life. This approach may reduce or at least help to minimize the impact of the losses often associated with PD. Options follow.

Medical Management of PD

One of the most effective strategies used to treat PD is Sinemet® (carbidopa/levodopa). The levodopa enters the brain and converts to dopamine, replacing this neurotransmitter that is in short supply. At first, the reduction of symptoms is usually quite dramatic; however, over time, there is a decline in the steady response to this drug and patients often develop fluctuations in their symptoms. In addition, individuals can also develop a variety of side effects, such as neuropsychiatric complications, including confusion, hallucinations, and involuntary movements or dyskinesias.

To help reduce fluctuations and other side effects associated with Sinemet®, there are a number of other medications that can be used, including dopamine agonists, COMT inhibitors, anticholinergic medications, antidepressants, and antipsychotic medications.

Medication management of PD is considered as much an art as a science. Proper dosing and timing of the medications must be catered to the unique symptoms and susceptibility to side effects of each patient. Healthcare professionals working with PD patients need to be knowledgeable about the medications, the potential side effects, and be mindful of the time specificity of many of the medications.

Health Maintenance and Rehabilitation

Patients with PD may benefit from interventions such as physical, occupational and speech therapy where the treatment and management strategies are aimed at maximizing independence and level of functioning. These interventions do not change the disease progression but can help to increase the safety and functional activity of patients through specialized instruction, equipment, techniques, and therapeutic exercise. Family caregivers are also a focus of these interventions and are taught how they can help their loved ones to be as independent as possible in their activities of daily living and home management. These interventions also allow patients with PD to remain active in their communities.

Surgical Intervention

Chronic levodopa use is associated with a series of motor fluctuations in over 75% of people with PD, as the medications used to control symptoms eventually become less effective (Olanow, Watts, and Koller, 2001). Surgical intervention may be appropriate for those patients whose medications are no longer effective or are causing severe side effects. Deep brain stimulation (DBS), the most commonly performed brain surgery for PD, can be a highly effective treatment for ameliorating the advancing symptoms of PD (Ford, 2000). Patients generally continue to take medication, although in some cases the dose can be reduced.

During the DBS procedure, a thin electrode is placed into one of several locations in the basal ganglia such as the globus pallidus, thalamus or subthalamic nucleus. This electrode is connected to a battery pack inserted under the skin of the chest. The battery pack is referred to as a "stimulator" and looks similar to a pacemaker. It functions like an "off switch" by interrupting the electrical impulses in certain parts of the brain that become over-active in PD.

The electrodes must be placed precisely in the right area in the brain in order to have a desired effect. In addition, patients must come back for regular visits to the clinic to have the device programmed. The DBS surgical procedure, therefore, requires special expertise and comprehensive care. The effects of the stimulator are reversible and can be changed or turned off by a trained healthcare professional. This adjustability and reversibility is a significant improvement over previous surgical techniques such as the pallidotomy and thalamotomy in which certain portions of the brain are destroyed (ablated) or permanently switched off. The DBS procedure should not be performed on patients with considerable

cognitive decline or changes in memory not related to the medication(s) because these symptoms may be worsened by the procedure.

Specialty Care, Support and Education

Disease progression, the range of symptoms, the variation in responses to medication, the development of side effects, and the availability/accessibility to resources contribute to the complexity of the treatment of PD. Optimal treatment and management of PD depend on effective and appropriate medical management. Access to comprehensive specialty care, including neurology care, nursing, psychological and rehabilitation services like that provided at the Richmond/ Southeast PADRECC, is important for patients and their family caregivers.

There are a number of organizations that provide support and educational programs, including the American Parkinson Disease Association (APDA) and the National Parkinson Foundation (NPF), two national non-profit organizations dedicated to fighting this disease. Both of these groups offer a variety of educational materials and support services.

People with PD and their families may also benefit from attending Parkinson's support group meetings. These groups provide an opportunity for people who are experiencing similar symptoms and side effects to come together to discuss common problems, learn new coping strategies, and offer support and encouragement to one another. There are hundreds of Parkinson's disease support groups around the country with over 20 located in Virginia. Although there are no specific support groups for family caregivers of PD, there are a number of respite and friendly visitor programs through local Area Agencies on Aging or Adult Day Care Centers that may be able to help.

Conclusion

Despite the availability of a number of treatment and management strategies, there is still no cure for PD. The underlying cause of the degeneration of dopamine-producing cells remains a mystery. While researchers work to discover the cause, they also work to find more effective treatments to control the symptoms.

Study Questions

1. What are some of the physical and emotional losses experienced by JB and his wife?
2. What are the safety concerns for JB?
3. What other interventions might help improve JB's functional ability?
4. What other interventions might help JB's wife?
5. How would multidisciplinary care be helpful to JB and his wife?

References

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PADRECC Overview

In 2001, the Department of Veterans' Affairs (VA) created six Parkinson's Disease Research, Education and Clinical Centers (PADRECCs) in an effort to improve care for veterans suffering from Parkinson's disease and to pursue a cure for this condition. The centers are located in Philadelphia, Richmond, Houston, Portland/Seattle, San Francisco and West Los Angeles. The PADRECC offers a variety of clinical and educational programs, as well as research opportunities for veterans who have been previously diagnosed with Parkinson's disease or related disorders or have just started to notice symptoms. Veterans have access to innovative strategies and treatment interventions to improve functional ability and life satisfaction, as well as opportunities to participate in cutting edge research intended to lead to more effective treatments and ultimately a cure for Parkinson's disease. Non-veterans have access to many of these same services and programs through the Movement Disorders Program at Virginia Commonwealth University.

Other PADRECC services include but are not limited to multidisciplinary assessment and treatment, clinical trials, physician consultation, medical management, surgical interventions, neuropsychological services, physical and occupational therapy, speech therapy, nursing services, caregiver resources, educational materials, community education programs, patient and family programs, support groups and programs to educate medical professionals.

To learn more about the Richmond/Southeast PADRECC and/or other PD resources, please call Miriam Hirsch at (804) 675-6952 or toll-free (800) 784-8381 ext 6952 or visit the national PADRECC website at www.va.gov/padrecc.