Parkinson’s Disease

What is Parkinson’s Disease?

Parkinson’s Disease (PD) is a progressive, neurological disease that mainly affects movement. Parkinson’s disease results from the destruction of nerve cells in a part of the brain called the basal ganglia.

Different parts of the brain work together by sending signals to each other to coordinate all of our thoughts, movements, emotions, and senses. When we want to move, a signal is sent from the basal ganglia to the thalamus and then to the cerebral cortex, all different parts of the brain. Nerve cells in the brain communicate by using chemicals. A chemical (neurotransmitter) called dopamine is produced in a group of cells called the substantial nigra and is essential for normal movement. When the cells die they can no longer produce and send dopamine so the signal to move doesn’t get communicated. Another chemical in the brain, acetylcholine, is controlled by dopamine. When there is not enough dopamine, there is too much acetylcholine, causing the tremors and muscle stiffness that many people with PD experience.

People with Parkinson’s often exhibit a “shuffling” gait, tremor of the arms and legs, when they are resting, muscle stiffness, and stooped posture. Some individuals also have cognitive (thinking, judgement, memory) problems.

Who Gets Parkinson’s Disease?

Estimates regarding the number of people in the United States with Parkinson’s range from 500,000 to 1,500,000 with 50,000 new cases reported annually. Since Parkinson’s is more common in people 60 years old and older, it is expected that the incidence of Parkinson’s will increase with the aging of the baby boomers. Although PD is more common in older persons, some people do begin to show symptoms before they are 40 years old.

Symptoms

All persons with Parkinson’s do not develop the same symptoms and the symptoms change over time as the disease progresses. The primary symptoms of Parkinson’s disease are:

- **Rigidity or stiffness:** In addition to making movement difficult, stiffness can also cause muscle ache and muscles may tire easily.

- **Tremor:** Of those who develop tremors, only a few develop tremors that are disabling. The tremor is usually most pronounced at rest. Tremors often start on one side of the body - usually with the hand - but may also involve the arms, feet, legs, and chin.
**Slow Movement** (bradykinesia), **Loss of Movement** (akinesia): Some individuals also experience episodes of “freezing” where they cannot move for several seconds or minutes. This is often called an “on-off” symptom.

**Balance and Walking Problems:** These may result in a stooped appearance and shuffling gait and cause falls. Most people do not develop postural problems until many years after they have been diagnosed.

Although there are no specific tests for Parkinson’s disease, there are several ways of making a diagnosis. Usually a diagnosis is based on a neurological exam that covers evaluation of the symptoms and their severity. If symptoms are serious enough, a trial test of anti-Parkinson’s drugs may be used. Brain scans may be made to rule out other diseases whose symptoms resemble Parkinson’s disease. Symptoms usually affect one side the body more than the other side. There are always two primary symptoms present when a diagnosis of Parkinson’s disease is made.

Parkinson’s disease has the following five stages:

- **Stage 1:** Symptoms are only on one side of the body
- **Stage 2:** Symptoms are on both of the sides of the body
- **Stage 3:** Balance is impaired
- **Stage 4:** Assistance is required to walk and other symptoms are severe
- **Stage 5:** Wheelchair bound

People with Parkinson’s may also develop some of the following symptoms:

**Depression.** Approximately 40% of people with PD develop depression, which can be treated with medication and/or counseling. It is important for people with PD and their caregivers to report signs of depression to the physician.

**Memory problems, mental confusion and/or dementia.** Studies have indicated that more than 50% of people with Parkinson’s have mild intellectual changes; about 20% have more substantial cognitive impairment. Memory problems in Parkinson’s are typically milder than in Alzheimer’s disease. In Parkinson’s disease, the person may have difficulty concentrating, learning new information and recalling names.

All medications should be monitored since high doses of some drugs used for Parkinson’s can cause hallucinations or confusion. Individuals with cognitive problems, including dementia, cannot be treated surgically for PD as the surgery can make the cognitive problems worse.

**Speech problems.** A person with PD may speak very softly in a monotone (hypophonia). Speech impairment is referred to as dysarthria and is often characterized as weak, slow, or uncoordinated speaking that can affect volume and/or pitch. The voice may sound hoarse or
come out in short bursts. Often, speech problems worsen over time. Speech problems can be helped with speech therapy.

**Swallowing problems.** At least 50% of people with Parkinson’s develop swallowing problems (dysphagia) that may cause the person to drool, to spill food or liquid from the mouth or to send food to the back of the throat before it is ready to be swallowed. People with Parkinson’s and their caregivers should take care to watch for signs of choking, food stuck in the throat, or increased congestion after eating. Due to difficulty coughing and clearing the lungs, people with Parkinson’s also run an increased risk of developing pneumonia. Swallowing problems can be helped with speech therapy.

**Additional symptoms may include:**

- Restlessness
- Eyelid closure
- Difficulty writing
- Skin problems
- Anxiety
- Urinary tract infections
- Excessive sweating
- Lack of Facial Expression
- Sexual problems
- Sleep disorders
Drug Therapy & Research

If the disease progresses beyond minor symptoms, drug treatment may be indicated. Drug therapy for Parkinson’s typically provides relief for 10-15 years or more. The most commonly prescribed medication is L-dopa (levodopa) which helps replenish some of the lost dopamine in the brain. Sinemet, a combination of the drugs levodopa and carbidopa, is the drug most doctors use to treat Parkinson’s disease. Other drugs are also used and new drugs are continually being tested. It is common for multiple drugs to be prescribed because many of them work well together to control symptoms and reduce side effects.

It may take several weeks or months before a drug begins to work. Many Parkinson’s drugs can also “wear off” in between doses during the day so people with PD need to pay close attention to the times they take their medications and to plan their activities carefully.

Side effects of medications can also be a problem. For some medications the side effects are most severe when the person first begins taking the drug and gradually disappear or lessen. For other medications, side effects may appear after several years. For example, long term levodopa use may result in large uncontrolable movements (nodding, twitching or jerking) called “dyskenesias,” or “on-off” attacks where the person will become frozen (can’t move) for a few seconds or minutes. Confusion may develop as a side effect after about eight years.

Surgery

Surgery for treatment of Parkinson’s is used when symptoms become very disabling and are not responding to drug therapy. Additionally, people that undergo surgery must be in good health overall, younger than 70, and mentally competent (no cognitive symptoms or dementia). Different symptoms are improved depending on the area of the brain that is targeted.

Parkinson’s and Dementia

People with PD who develop dementia tend to be older and to have developed the disease later in life. It is very important to have the dementia diagnosed accurately. Depression, which is common in people with PD, can sometimes cause the same symptoms as dementia. Also some of the medications used for PD can cause hallucinations. These medications can also make the symptoms of dementia worse. In older people, the dementia may not be a symptom of PD but could be a symptom of Alzheimer’s disease. Therefore it is important for the person with PD and the family caregiver to work closely with his or her physician to rule out other possible causes for the changes in behavior and thinking.

Some of the signs of dementia in PD include slowed thinking, a more passive personality, memory problems, and trouble with decision-making.
Care for people with Parkinson’s includes a well-balanced diet and regular exercise. Physical, occupational or speech therapy may be indicated for some people. Physical therapy and muscle strengthening exercises can be a key part of managing Parkinson's disease. A physical therapist can help develop and monitor a home exercise program. A good exercise routine should include strengthening and flexing all limbs, stretching legs and feet, walking, facial and breathing exercises, and specific exercises to gain better control in swallowing. An occupational therapist can help with walking and accomplishing everyday activities. People with PD learn how to think about their movements and to plan their movements one step a time. "Move it or lose it" is a phrase that most people with PD learn to live by.

A speech therapist can help improve voice volume, quality, and articulation. Therapeutic exercises, including verbalizations and tongue movements, often can make a difference. In some cases where speech is severely impaired, a machine or computer generated voice can be used. It also may be important for families to learn new strategies to help the person to communicate. If the person is confused, for example, it may be necessary to use verbal cues to understand or assist. The inability to articulate can be very frustrating. Offer reassurance and support. This may alleviate some of the person’s anxiety over not being able to express a thought or need.

Diet also plays an important role in keeping a person with PD healthy and as active as possible. Choose foods that are easy to eat when someone is having problems swallowing.

It is also important that people get enough nourishment. Some physicians recommend that people taking levodopa eat foods that are lower in protein because protein can make the levodopa less effective. It is also very important for the person with PD and his or her caregivers to take care of themselves emotionally. Support groups can be extremely helpful.
### Parkinson’s Post Test

1. True or False  
   Parkinson’s disease (PD) is a progressive, neurological disease that mainly affects movement.

2. True or False  
   People with Parkinson's often exhibit a “shuffling” gait, tremors and muscle stiffness.

3. True or False  
   Only older persons can develop Parkinson’s disease.

4. True or False  
   Tremors often start on one side of the body and are most pronounced at rest.

5. True or False  
   Balance and walking problems may result in a stooped appearance, a shuffling gait can cause falls.

6. True or False  
   Depression and dementia never develop in the patient with Parkinson’s disease.

7. True or False  
   Speech impairment is referred to as dysarthria and swallowing problems are referred to as dysphagia.

8. True or False  
   People with Parkinson’s and their caregivers should take care to watch for signs of choking and increased congestion after eating.

9. True or False  
   People with Parkinson’s disease are at high risk for developing pneumonia.

10. True or False  
    There are many drug therapies that are effective as a cure for Parkinson’s disease.

11. True or False  
    Multiple drug therapies are not prescribed in the treatment of Parkinson’s disease.

12. True or False  
    Long-term drug therapy may result in large uncontrollable movements called dyskenesias.

13. True or False  
    Surgical procedures are another form of treatment for Parkinson’s disease when the patient’s symptoms become disabling and they are in good overall health, younger than 70, and mentally competent.

14. True or False  
    Depression, which is common in people with (PD) can sometimes cause the same symptoms as dementia.

15. True or False  
    A well balanced diet and regular exercise are not important in the care for patients with Parkinson’s disease.

16. True or False  
    Working with a speech therapist has no effect on voice volume, quality and articulation.

17. True or False  
    Foods that are high in protein can make the medication, Levodopa, less effective.

18. True or False  
    “Move it or lose it” is a phrase that most people with Parkinson’s disease learn to live by.

19. True or False  
    In some cases where speech is severely impaired, a machine or computer generated voice can be used.

20. True or False  
    It is not very important for a person with Parkinson’s and his or her caregivers to take care of themselves emotionally.