Review on Parkinson's Disease (Causes, Symptoms, Diagnosis, Treatment)

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Abstract: In fact this review about genetically diseases, a number of diseases are transmitted genetically and through genes from parents to children, and some other diseases appear due to immunodeficiency, and some of them appear temporarily or chronically, and perhaps knowing the family history of genetic diseases contributes greatly to facilitating the process of diagnosing genetic diseases, so that the doctor can provide The best treatment for the patient, so that he gets the best outcomes of the treatment process as possible, as there are a good number of common diseases that are genetically transmitted, some of them are simple and easy to treat, and some are serious and threaten the patient's life. Genetic Diseases Genetic diseases differ among themselves in the way and form in which these genetic disorders are transmitted from parents to children, and the following can be mentioned some types of genetic diseases depending on the ways in which disease genes are transmitted. Parkinson's disease, also known as Parkinson's disease, is a degenerative disorder of the central nervous system that primarily affects the motor system. Symptoms start slowly at the beginning of the disease, the most obvious symptoms are tremor, constriction, lack of movement and distorted gait. Thinking and behaviour problems may also occur. Dementia also becomes common in the advanced stages of the disease. Depression and anxiety are also common symptoms that occur in more than a third of people with Parkinson's disease. Sensory symptoms include sleep disturbance and emotional problems. The main motor symptoms are collectively called "parkinsonism", or "parkinsonism syndrome". The cause of Parkinson's disease is not generally known, but it is believed to involve both genetic and environmental factors. There is also an increased risk in people exposed to certain pesticides and among those who have had head injuries, while there is a lower risk in tobacco smokers and those who drink coffee or tea. The motor symptoms of the disease result from the death of cells in the substantia nigra, an area of the midbrain. This leads to insufficient dopamine in these areas. The reason for cell death is not understood, but it involves the accumulation of proteins in Lewy bodies in neurons. Diagnosis of typical cases is based mainly on symptoms, with tests such as neuroimaging used to rule out other diseases. There is no cure for Parkinson's disease. Initial treatment is usually levodopa antiparkinson medication with a dopamine agonist. As the disease progresses, nerve cells remain lost, so these drugs become less effective. Diet and some forms of rehabilitation have shown some effectiveness in improving symptoms. Neurosurgery to place microelectrodes to stimulate the brain has been used to reduce loco motor symptoms in severe cases when medications are ineffective.

Keywords: Parkinson's disease; hereditary diseases; Neurosurgery

1. Introduction

In 2015, Parkinson's disease affected 6.2 million people and resulted in approximately 117,400 deaths globally. Genetic diseases differ in their transmission to the fetus, as there are some diseases that require both parents to be carriers of the gene for the disease to be transmitted to the child. While there are other diseases, if one of the parents is a carrier of the gene, there is a risk of the child developing the disease.

Autosomal recessive disorders: There must be two copies of the abnormal gene for the disease to develop. To have a child who carries two copies of the gene and has the disease. There is a 50% chance of having a child who has a copy of each gene but does not have the disease (like its parents). Autosomal dominant disorders: These disorders are less common than autosomal recessive disorders. For a child to inherit an autosomal dominant disorder there must be one copy of the abnormal gene. In cases where one of the spouses is a carrier of the gene, there is a 50% chance that the children will have the disease, and the other 50% will be the children who are carriers of the gene but are not affected. X-linked disorders: These disorders are always inherited from the mother who carries the gene. Male children (XY) who carry the abnormal X chromosome from the mother, develop the disease more severely compared to female children who carry the normal X chromosome from the father.
and the abnormal X chromosome from the mother. They are less affected by disease. 50% of male children will have the disease and 50% will carry the gene but will not have the disease, as for men with a disease caused by a defect in the X chromosome, their female children will be obligatory carriers of the disease because one of the X chromosomes will be inherited from the affected father. Parkinson’s disease usually occurs in people over the age of 60 years. Males are more affected than females. When the disease affects people under 50, it is called juvenile Parkinson’s disease. Life expectancy after diagnosis of Parkinson’s disease is between 7 and 14 years. The disease was discovered by the English physician James Parkinson, who published the first detailed description in an article on shaking paralysis, in 1817. Public awareness campaigns include World Parkinson’s Day (on James Parkinson’s birthday, 11 April) and the use of a red tulip as a symbol of the disease. Among the people who have suffered from Parkinson’s disease and have contributed to raising public awareness of the condition are actor Michael J. Fox, Olympic cyclist Davis Finney, and the late boxer Muhammad Ali.

2. Parkinson’s disease in young people

Parkinson’s disease is a chronic progressive disorder of the nervous system that impairs motor abilities. Parkinson’s disease develops gradually, initially as a slight tremor or tremor in one hand. Although fibrillation is the most common symptom of Parkinson’s disease, it can also present with stiffness and slowness of movement. In the early stages of Parkinson’s disease, the face appears expressionless or with little expression, and sometimes the arms may not swing while walking. Speech can sometimes become slurred, slurred, and unclear. Parkinson’s disease symptoms usually gradually worsen over time. Although there is no cure for Parkinson’s disease, medications can significantly improve a patient’s symptoms. Parkinson’s disease in young adults results when nerve cells lose what is called the substantia nigra in part of the brain. This leads to a lack of synthesis of a chemical called dopamine. As dopamine plays a key role in regulating body movements, dopamine deficiency is responsible for many of the symptoms of Parkinson’s disease. There is no clear definitive reason why neurons lose this dark matter, but most scientists believe that the cause is a combination of genetic and environmental factors. The vast majority of Parkinson’s patients are usually over the age of 60, so the disease is often neglected when it affects young adults. This causes many cases of Parkinson’s disease in young people to go undiagnosed or a doctor may mistake it for an extended period of time. However, the development of the condition in young people after diagnosis is much slower compared to the progression of the disease in older people, because young people generally have much fewer other health problems than older people. During a medical exam, a doctor can determine whether Parkinson’s disease occurs primarily while at work or during breaks. The doctor will also check for coordinating tremors or any loss of sensation, weakness, muscle atrophy, or decreased reflexes. A detailed family history may indicate whether or not Parkinson’s disease is inherited. Blood and urine tests can also reveal abnormalities in the thyroid gland and other metabolic causes. These tests also help identify causes that contribute to tremors, such as a drug reaction, chronic alcoholism, or other conditions or diseases. Imaging tests, such as a CT scan or an MRI, may also help determine whether the tremor is caused by a defect in the body’s structure or by a brain disorder. Young people with Parkinson’s disease have a more obvious family history of the disease than do late-onset Parkinson’s disease, and they have a longer life expectancy after disease onset than older adults. Young people with Parkinson’s disease may experience:

- Parkinson’s disease symptoms develop more slowly.
- More side effects of medication.
- Dystonia (cramps and abnormal postures) such as bowed feet are more common in young adults.

2.1. Causes of Parkinson’s disease

When treated, young Parkinson’s patients are more likely to have: Slowness in movement or involuntary movements as a side effect of carbidopa/levodopa (medicines commonly prescribed to patients with Parkinson’s disease). Movement fluctuations when taking levodopa. If you’ve been diagnosed with Parkinson’s disease and are a young adult, it’s important to seek treatment from a neurologist with experience in movement disorders. Each patient has their own treatment and the patient’s condition and symptoms may need to make multiple changes and adjustments. There is also a surgical option for young Parkinson’s patients called deep brain stimulation. Deep brain stimulation consists of implanting electrodes in specific parts of the brain. These electrodes produce electrical impulses to regulate turbulent impulses, or to affect certain cells and certain chemicals within the brain. The amount of stimulation in DBS is controlled by a pacemaker-like device implanted under the skin in the upper chest, and a wire under the skin connects the device to electrodes in the brain. Parkinson’s disease is a progressive disorder of the nervous system that affects movement. Symptoms begin gradually, sometimes beginning with an unnoticed tremor in one hand, and then worsening over time. Although tremors are common, the strike also frequently causes stiffness and slowed movement. In the early stages of Parkinson’s disease, your face may show few or no expressions. Your arms may not swing while walking. Your speech may become weak or slurred. Parkinson’s disease symptoms get worse as your condition worsens over time. Although Parkinson’s disease cannot be cured, symptoms may improve significantly with medication. Sometimes, your doctor may suggest surgery to regulate specific areas of the brain and improve symptoms. People with Parkinson’s disease slowly destroy or die certain nerve cells (neurons) in the brain. Many symptoms are caused by a loss of nerve cells in your brain that produce the neurotransmitter dopamine. Low levels of dopamine cause abnormal brain activity, which in turn leads to dyskinesia as well as other symptoms of Parkinson’s disease. The cause of Parkinson’s disease is unknown, but several factors appear to play a role, including:

- Genes: Researchers have identified specific genetic mutations that may cause Parkinson’s disease. But this is uncommon except in rare cases in which several family members have Parkinson’s disease. However, certain genetic changes appear to increase the risk of developing Parkinson’s disease, but with a relatively small risk of developing the disease for each of these genetic markers.
B-Environmental stimuli: Exposure to certain toxic substances or environmental factors may increase the risk factor for developing late-stage Parkinson’s disease, but the risk is relatively small. Researchers also note several changes in the brains of people with Parkinson’s disease, although it’s not clear why these changes occur. These changes include:

- **A-Presence of Lewy particles**: Clumps of certain substances in brain cells are microscopic signs of Parkinson’s disease. They are called Lewy bodies, and researchers believe that these particles hold an important clue to the cause of Parkinson’s disease.

- **B-Presence of alpha-synuclein present in Lewy bodies**: Although there are many substances in Lewy bodies, scientists believe that the most important is a natural and widespread protein called alpha-synuclein. It is present in all Lewy bodies in the form of clumps that cells cannot break down. This is an important area of focus currently among researchers specializing in Parkinson’s disease. Parkinson’s disease risk factors may include:

  - **Age**: Parkinson’s disease rarely occurs in young adults. The disease usually begins in middle or old age, and the risk increases with age. The disease usually appears around age 60 or older.

  - **Genetics**: Having a relative with Parkinson’s disease increases your risk of developing the disease. However, your risk of developing the disease is small unless you have many close relatives with Parkinson’s disease.

  - **Sex**: Parkinson’s disease develops more often in men than in women. Exposure to toxins- Continued exposure to herbicides and pesticides may slightly increase your risk of Parkinson’s disease. Parkinson’s disease accompanies these additional problems that may be treatable:

**Thinking difficulties**: You may have cognitive problems (dementia) and trouble thinking. It usually occurs in the later stages of Parkinson’s disease. These cognitive problems are not very responsive to medication.

**Depression and emotional changes**: You may experience depression, sometimes in the very early stages. Receiving treatment for depression can make dealing with other challenges of Parkinson’s disease easier.

You may also experience other emotional changes, such as fear, anxiety or loss of motivation. Doctors may give you medications to treat these symptoms.

**Swallowing problems**: You may have difficulty swallowing as your condition progresses. Saliva may build up in your mouth due to slowed swallowing. This leads to drooling.

**Problems with chewing and eating**: Late Parkinson’s disease affects the muscles in your mouth. This makes chewing difficult. This can lead to suffocation and malnutrition.

**Sleep problems and disturbances**: People with Parkinson’s disease often have trouble sleeping, such as waking up frequently throughout the night, waking up early or falling asleep during the day.

Affected people may also have a sleep behaviour disorder; Because of rapid eye movement, which affects the activation of your dreams. Medications may contribute to your sleep problems.

**Bladder problems**: Parkinson’s disease may cause bladder problems, such as inability to control urine or difficulty urinating.

**Constipation**: Many people with Parkinson’s disease become constipated, mainly because the digestive tract functions more slowly.

**Blood pressure changes**: You may feel dizzy or lightheaded when you stand up; Due to a sudden drop in blood pressure (orthostatic hypotension).

**Weak sense of smell**: You may have problems with your sense of smell. You may have difficulty identifying or distinguishing between different odours.

**Fatigue**: Many people with Parkinson’s disease lose energy and experience fatigue, especially later in the day. The cause of this disease is unknown.

**The pain**: Some people with Parkinson’s disease experience pain, either in specific areas of their body or throughout their body.

**Impaired sexual activity**: Some people with Parkinson’s disease notice a decrease in sexual desire or sexual performance.

If a person is taking such medicines, it is possible that he will have symptoms similar to the symptoms that characterize Parkinson’s disease, but these symptoms disappear when that person stops taking these medicines, including medicines to treat psychotic phenomena such as:

**2.2. Primary Major Symptoms in Parkinson’s disease**

Movement difficulties found in Parkinson’s disease are called “parkinsonism”. “Parkinsonian” motor symptoms are known as bradykinesia (slow onset of voluntary movements, with a gradual decrease in speed, as well as one of three other physical signs: muscle rigidity, tremor, and postural instability). Parkinson’s disease is sometimes called “idiopathic Parkinson’s”, because this disease has no specific cause. Identifiable causes of Parkinson’s disease include toxins, infections, drug side effects, metabolic arrest, and brain lesions such as strokes. Several neurological disorders may also occur with Parkinson’s, sometimes referred to as “atypical Parkinson’s.” or “Parkinson’s excess” and includes multiple system atrophy, progressive supra paraplegia, cortical degeneration, dementia and Lewy body disease. Scientists sometimes refer to Parkinson’s disease as a co-morbidity (due to an abnormal build-up of alpha-synuclein in the brain) to distinguish it from other neurogenetic diseases, such as Alzheimer’s disease, in which tau builds up in the brain. There is significant clinical and pathological overlap between topathies and synucleopathies. In contrast to Parkinson’s disease, Alzheimer’s disease is most common with memory loss, and the cardinal signs of Parkinson’s disease (slowness, tremor, rigidity, and postural instability) are not normal features of Alzheimer’s disease and dementia. Lewy body disease is a disorder closely related to Parkinson’s disease. The relationship between Parkinson’s disease (PD) and Lewy body disease (DLP) is quite complex. They may represent parts of a continuum with varying different clinical and pathological features or may prove to be separate diseases. The most characteristic symptoms of Parkinson’s disease are difficulty moving, and non-motor symptoms, which include...
autonomic dysfunction, neuropsychiatric problems (mood, cognition, behavior, or altered thought), and sensory (particularly altered sense of smell) and sleep difficulties, are also common. Some of these non-motor symptoms may be present at the time of diagnosis. The main motor symptoms in Parkinson’s disease are four: tremor, hypokinesia, rigidity of movement, and postural instability. The most common motor symptom in Parkinson’s disease is a slow tremor of the hand that disappears during voluntary movement of the affected arm and in the stages of deep sleep. Usually this tremor appears in one hand, but the other hand eventually becomes affected as the disease progresses. The frequency of tremor for Parkinson’s disease is between 4 and 6 hertz per second. A feature of the tremor movement of the hand is the tendency of the index finger and thumb to touch each other and make a circular motion. Hypokinetic presentation is present in all cases of Parkinson’s disease, due to disturbances in motor planning for initiation of movement, and is associated with difficulties along the path of the movement process, from planning to initiation to execution of movement. Movement performance is poor. Bradykinesia is the most disabling symptom of Parkinson’s disease resulting in difficulties with daily tasks such as dressing, feeding, and bathing. It leads to particular difficulty in carrying out two independent motor activities at the same time, and may be made worse by stress or concurrent illness. Ironically, patients with Parkinson’s disease can often ride a bicycle or climb stairs more easily than they can walk. While most clinicians may easily notice slow movement, a formal evaluation requires the patient to make repetitive movements of the fingers and toes. Rigidity one of the symptoms of Parkinson’s is rigidity and resistance to limb movement caused by increased muscle tone, and excessive and continuous contraction of the muscles. Hardness is a combination of shivering and increasing muscle strength at the same time. Stiffness may be associated with joint pain. This pain is a frequent initial manifestation of the disease. In the early stages of Parkinson’s disease, the rigidity is often asymptomatic and tends to affect the neck and shoulder muscles before the muscles of the face and limbs. As the disease progresses, the rigidity usually affects the whole body and reduces the ability to move. Postural instability is in the later stages of Parkinson’s disease, resulting in poor balance and frequent falls facilitating bone fractures, loss of confidence, and decreased mobility. Instability is often absent in the initial stages, especially in young adults, especially before the onset of bilateral symptoms. Up to 40% of people diagnosed with Parkinson’s disease constantly fall to the ground. Other recognized signs and symptoms that affect the patient’s motor system include: (rapid movement that occurs to the patient when he tries to stop or change his position), and also signs: a quiet voice, a face that does not move (called a mask - because there are no signs of laughter or sadness or anything on the patient) and the patient’s handwriting decreases significantly with time., Parkinson’s disease is a disease that appears gradually and often begins with an almost imperceptible and invisible tremor in one hand, and while the appearance of a tremor is the most obvious distinguishing feature of Parkinson’s disease, the syndrome generally leads to slowing or freezing of movement as well, and friends and family members can notice immobility in facial features Unable to articulate, arms do not move on either side of the body when walking, and speech often becomes sluggish with stuttering. The symptoms of Parkinson’s disease worsen as the disease progresses further, and although there is no possibility of recovery from Parkinson’s disease, many types of medications to treat the disease can help relieve symptoms, and in certain cases, surgical treatments may be needed. Symptoms that accompany Parkinson’s disease vary from person to person, and the initial symptoms may be only implicit and not be noticeable for many months or even many years, symptoms begin to appear first on one side of the body and are always more severe and dangerous on that same side in the future. Parkinson’s disease symptoms include:

2.2.1. Shivering or shivering

The characteristic tremor that accompanies Parkinson’s disease often begins in one hand, and appears as rubbing the thumb with the index finger in frequent forward and backward movement Also called a spinning tremor, this is the most common symptom, but in a large proportion of Parkinson’s patients there is no tremor strong observable.

2.2.2. Slow Motion

Over time, Parkinson’s disease may limit the patient’s ability to carry out voluntary movements and actions, which may make simpler and easier daily activities complicated tasks and require a longer period of time. It makes it difficult for him to take the first step.

2.2.3. Muscle Stiffness

Muscle stiffness often appears in the extremities and in the back of the neck, and it can sometimes be so severe that it restricts range of motion and is accompanied by severe pain.

2.3. The Effect of Parkinson’s disease on the Nervous System

Parkinson’s disease can cause neuropsychiatric disorders, which can range from mild to severe disorders. These include disturbances in cognition, mood, behavior, and thought. Cognitive disturbances can occur in the early stages of the disease and sometimes before diagnosis, and these disturbances increase with the increase in the patient’s age and progression of the disease stages. The most common cognitive deficit in Parkinson’s disease is impaired execution and planning, which can include problems with planning, cognitive flexibility, abstract thinking, inhibition of inappropriate actions, initiation of appropriate actions, and working memory. Estimating time. Also, vision problems are part of the disease, for example, when an individual is asked to perform facial recognition tests and to perceive the direction of the drawn lines he cannot easily determine this. A person with Parkinson’s disease has two to six times the risk of dementia compared to the general population. The prevalence of dementia increases with age and the length of the disease. Dementia is associated with a reduced quality of life in people with Parkinson’s disease and their caregivers, so the patient needs more nursing home care. Behavior and mood changes are more common in Parkinson’s patients without cognitive impairment than in healthy controls, and changes in behavior and mood are usually associated with dementia. The most common mood problems are depression, apathy, and anxiety. Diagnosing depression is complicated by the fact
that the body language of depression may masquerade as Parkinson's disease, such as an unexpressed sad face, slow movement, and a quiet, choppy voice - all of which may be Parkinson's disease or just a depressive state, thus separating them using Those symptoms are just very difficult. 30% of people with Parkinson's disease may develop symptoms of anxiety, ranging from generalized anxiety disorder to social anxiety disorder, panic disorder and obsessive-compulsive disorder. Dichotomy, in which goalless, repetitive stereotyped behaviors occur only for several hours, is another disorder caused by an anti-Parkinsonian drug. Hallucinations or delusions occur in about 50% of people with Parkinson's disease over the course of the disease, and can be a sign of the onset of dementia. These range from small hallucinations - 'feeling over' (something quickly passing by the person's side) or 'sense of presence' (perceiving something/someone standing to the side or behind the person) - to visual hallucinations and paranoid thoughts. Auditory hallucinations are uncommon in Parkinson's disease, and are rarely described as voices. It is now believed that psychosis is an integral part of this disease. Psychosis with associated delusions and delirium is a recognized complication of anti-Parkinsonian therapy and can also be caused by urinary tract infections (as frequently occurs in the elderly), but drugs and infection are not the only factors behind the pathology or changes in neurotrophic factors or their receptors. (e.g., acetylcholine, serotonin) are thought to play a role in psychosis in Parkinson's disease. In addition to neurological, psychiatric and motor symptoms, Parkinson's disease can compound other organ problems.

Sleep problems are a feature of the disease and can be exacerbated by medications. Symptoms can appear as daytime drowsiness (including sudden attacks of sleep resembling narcolepsy), trouble sleeping, or insomnia. Rapid eye movement, in which the patient acts as if in a dream, sometimes injuring themselves or their bed partner, may begin many years before the motor system or cognitive features of Parkinson's disease are affected. Alterations in the autonomic nervous system can lead to orthostatic hypotension (low blood pressure upon standing), seborrheic dermatitis, excessive sweating, urinary incontinence, and altered sexual function. Constipation and weakening of the stomach can be severe enough to cause discomfort and even endanger health. Changes in perception may include impaired sense of smell, disturbed vision, and pain. All of these symptoms can occur years before the disease is diagnosed.

2.4. Diagnosis of Parkinson's disease

If we return to the basic problem in Parkinson's disease, we will notice that movement has not been lost, but there is a deficit in its flexibility and in adapting it to the body's needs. The control of the loco motor system is a balance of many factors and multiple centers, some of which control the involuntary movements, some of which give the necessary background of the posture of the body to ensure that there is no falling while walking or performing various movements, including what ensures the coordination of movements. The movement cells that are damaged in Parkinson's disease and responsible for these symptoms are located in a small area of the brain stem called the substantia nigra because of its dark color. These cells, with their secretions of dopamine, play a certain role in balancing other centers, and the loss of this balance leads to tremors and muscle rigidity. New methods have emerged in the treatment of those who have reached the end of the course of drug therapy from L-Dopa. These methods depend on destroying those centers that the damaged dark matter cells were unable to balance their work and thus return the nervous system to the point of balance or negative neutrality. This destruction process is carried out by inserting fine needles in the middle of the brain and directed by magnetic imaging with specific guiding maps so that the needle tip reaches the required place in the area behind the thalamus and then it emits heat that leads to cauterization of a small area 1-2 mm. It remains for this method to pass the test of time and see its long-term effects, as happened with L-dopa. As an alternative to the cauterization process that leads to damage, a continuous alert can be made by means of a battery implanted under the skin. This alert with a certain frequency temporarily disables the work of this area instead of damaging it and thus keeps the return line that this effect can be stopped at any time by turning off the device. Scientists are still in a constant struggle with this disease, like other diseases, and it seems that scientific research jumps in every leap period that leads to overcoming a certain barrier, but how many other barriers are there.

The doctor initially evaluates Parkinson's disease with a careful medical history and neurological examination. The patient may be given levodopa, and any resulting improvement in the imbalance in the motor system helps confirm the diagnosis of Parkinson's disease. The finding of Lewy bodies in the midbrain on autopsy is usually considered definitive evidence that a person had Parkinson's disease. The clinical course of the disease over time may reveal that it is not Parkinson's disease, which requires that the clinical presentation be reviewed periodically to ensure the accuracy of the diagnosis. Other causes that can secondary to Parkinson's disease are stroke and drugs. Progressive supra-Nazarene paralysis and multiple system atrophy should be excluded. Anti-Parkinsonian medications are usually less effective in controlling symptoms in Parkinson's plus syndromes. Rates of development and early cognitive impairment or postural instability may initially indicate Parkinson's disease and genetic forms with an autosomal or recessive pattern of inheritance are sometimes referred to as familial Parkinson's disease. Medical organizations have developed diagnostic criteria to ease and standardize the diagnostic process, especially in the early stages of the disease. The most widely known criteria come from the British Bank of Neurological Disorders and the US National Institute of Neurological Disorders and Stroke. Kingdom standards require slow movement in addition to either rigidity, tremors, or postural instability. There are other possible causes for these symptoms that need to be ruled out. Finally, three or more of the following supportive features are required during disease onset or progression: disease onset on only one side of the body, resting tremor, asymmetry of motor symptoms, and response to levodopa therapy for at least five years. When diagnoses for Parkinson's disease are examined by autopsy, movement disorders are found on average to be 79.6% accurate at initial assessment and 83.9% accurate after their diagnosis has been refined at follow-up examination. When clinical diagnoses performed primarily by noninvasive are examined by autopsy, average accuracy is 73.8% and 82.7% of diagnoses using
Two main characteristics of Parkinson’s disease are tremors and rigidity. Tremors may worsen when the person attempts to move. Rigidity, or stiffness, may change the way the body moves. Over time, this can lead to decreased movement, called akinesia. Most people with Parkinson’s disease develop symptoms between the ages of 50 and 65, but symptoms can develop at any age. The cause of Parkinson’s disease is unknown, although there are theories about what may cause it. 

Diagnosis of Parkinson's Disease

The diagnosis of Parkinson’s disease is based on the patient’s medical history and a neurological examination. As part of treatment, the treating neurologist may ask to know what medications the patient is taking

TREATMENT OPTIONS FOR PARKINSON’S DISEASE

Medications

There are several classes of medications used to treat Parkinson’s disease. Parkinsonian medications include levodopa, dopamine agonists, and monoamine oxidase inhibitors (MAO-B inhibitors). Levodopa is most effective for people with Parkinson’s disease who have a deficiency of dopamine. It converts to dopamine in the brain. Dopamine agonists mimic the effects of dopamine. Monoamine oxidase inhibitors can increase the amount of dopamine in the brain. 

Surgery

Surgery is another option for Parkinson’s disease. Deep brain stimulation (DBS) is used to treat Parkinson’s disease patients whose medicines are not effective. DBS may be performed using stereotactic techniques, or it may be performed using a lesion technique called pallidotomy. Deep brain stimulation or pallidotomy can be used to treat early-onset Parkinson’s disease, for whom drug treatment is no longer sufficient. 

Parkinson’s Disease and Movement Disorder Society (MDS) has proposed diagnostic criteria for Parkinson’s disease, as well as research criteria for the diagnosis of prodromal disease, but requires verification of the more established criteria. CT scans usually appear normal in people with Parkinson’s disease, and MRIs have become more accurate in diagnosing the disease over time, specifically iron-sensitive T2*, and magnetic resonance-weighted MRI of at least 3T, both of which can show no The presence of a characteristic ‘tail of swallow’ imaging pattern in the dorsolateral substance. In a meta-analysis, the absence of this pattern was 98% and 95% specific for this disease. An MRI diffusion image showing the possibility of distinguishing between Parkinson’s and Parkinson’s plus syndromes, although its diagnostic value is still being investigated. CT and MRI are also used to exclude other diseases that could be secondary causes of Parkinson’s, more common encephalitis and chronic brain insults, as well as less frequent entities such as basal ganglia tumors and hydrocephalus. Relevant dopamine activity in the basal ganglia can be measured directly with PET and SPECT radiographs. Detection of reduced dopamine-related activity in the basal ganglia can rule out drug-induced Parkinsonism, but basal ganglia dopamine-related activity is reduced in both Parkinson’s and Parkinson’s disorders so that these tests are not reliable in distinguishing Parkinson’s disease from others.

2.5 Pharmacological Treatment of Parkinson’s disease

There are treatments related to exercise in middle age that may reduce the risk of Parkinson’s disease later in life. Caffeine also appears to be protective for Parkinson’s disease, as well as a greater reduction in the risk that occurs with a greater amount of caffeinated beverages such as coffee. People who smoke cigarettes or use smokeless tobacco are less likely than non-smokers to develop Parkinson’s disease, and the more they use tobacco, the less likely they are to develop it. It is not known what lies behind this effect. Tobacco use may actually protect against Parkinson’s disease. Antioxidants, such as vitamin C and vitamin E, have been suggested to protect against disease, but studies have been contradictory and no positive effect has been demonstrated. Findings regarding fatty acids have been contradictory, with different studies on protective effects and increased risk effects. There have been initial indications that the use of anti-inflammatory drugs and calcium channel blockers may be protective. A 2010 analysis found that NSAIDs (excluding aspirin) were associated with at least a 15 percent (higher in long-term and regular users) reduced incidence of Parkinson’s disease progression. There is no cure for Parkinson’s disease, but medications, surgery, and physical therapy can help patients and are much more effective than treatments available for other neurological disorders such as Alzheimer’s disease, motor neuron disease, Parkinson’s syndrome and multiple sclerosis. The main families of drugs useful for treating motor symptoms are levodopa (always combined with a dopamine agonist and a monoamine oxidase inhibitor and sometimes also with a COMT inhibitor), dopamine agonists and MAO-B inhibitors. The stage of the disease and the age at onset of the disease determine the most beneficial group.

Three stages can be distinguished: an initial stage in which the individual with the disease has developed some disability that requires drug therapy, a second stage associated with the development of complications related to levodopa use, and a third stage with symptoms unrelated to a lack of dopamine or levodopa. Treatment in the first stage aims at the optimal exchange between symptom control and treatment of side effects. Levodopa can be delayed initially by using other medications such as MAO-B inhibitors and dopamine agonists instead of levodopa itself, in the hope of delaying the onset of complications due to levodopa use. However, levodopa is still the most effective treatment for loco motor symptoms and should not be delayed in patients with impaired quality of life by those symptoms. Levodopa deficiency is more strongly associated with the duration and severity of the disease, so delaying treatment is not the best solution in this case. In the second phase, the goal is to reduce the symptoms of Parkinson’s disease while controlling fluctuations in the effect of the drug. Sudden withdrawals from medication or overuse should be managed. Oral medications are not sufficient to control symptoms so surgery, deep brain stimulation, subcutaneous injections of apomorphine infusion and dopa enteric pumps may be of benefit. The third stage presents several challenging problems that require a variety of treatments for psychiatric symptoms, orthostatic hypotension, bladder dysfunction, etc. In the final stages of the disease, care is provided to improve the quality of life, the treatment of Parkinson’s disease was limited to surgery, but after the discovery of levodopa, surgery was limited to only a few cases. Studies in the past few decades have led to significant improvements in surgical techniques, and surgery is being used again in people with advanced Parkinson’s disease symptoms for whom drug treatment is no longer sufficient. Less than 10% of Parkinson’s patients qualify as suitable candidates for a surgical response. Three different mechanisms of surgical response to Parkinson’s disease are: (irreversible burning or freezing of brain tissue), deep brain stimulation (DBS), or restorative surgery. The areas targeted for deep brain stimulation (DBS) include the thalamus, the Globus pallidus (a lesion technique called pallidotomy), or the hypothalamic nucleus. Because the cause of Parkinson’s disease is unknown, proven ways to prevent it also remain a mystery. Some research shows that regular aerobic exercise may reduce the risk of developing Parkinson’s disease. Other research has shown that people who consume caffeine — found in coffee, tea and cola — develop Parkinson’s disease at a lower rate than those who don’t. Green tea is also linked to a lower risk of developing Parkinson’s disease. However, it is still not known whether caffeine actually protects against Parkinson’s disease, or if it is linked in another way. Currently, there is not enough evidence to suggest drinking caffeinated beverages to protect against Parkinson’s disease.

It has been shown that a one-time head injury, as well as repetitive head injuries such as those that characterize the sport of boxing, are also associated with the appearance of symptoms similar to those characteristic of Parkinson’s, although the chances of this occurring are very small. Stroke or fluid buildup in the brain can mimic features characteristic of Parkinson’s disease. The diagnosis of Parkinson’s disease is based on the patient’s medical history and a neurological examination. As part of treatment, the treating neurologist may ask to know what medications the patient is taking.
regularly and whether they have family Parkinson's conditions. A neurological exam includes an assessment of the patient's gait and coordination as well as their ability to perform many simple manual tasks. Parkinson's disease can be confirmed if:

- The subject had at least two of the three main symptoms of Parkinson's disease: tremor, slow movement, and muscle stiffness.
- Symptoms are concentrated on only one side of the body.
- The tremor is intensified at rest, for example: when the hands are on the legs.
- The person's body responds to the medication levodopa used to treat Parkinson's disease.

Pharmacotherapy can help overcome walking problems and control tremors, by raising the level of dopamine in the brain. It is indicated here that there is no benefit in taking dopamine itself because it cannot penetrate the brain, and the most common drug for treating Parkinson's disease is levodopa. The more Parkinson's disease progresses, the less effective levodopa becomes.

1. Dopamine balancing drugs: COMT-Catechol O-methyltransferase (COMT-Catechol O-methyltransferase) inhibitors. Inhibitors of the neurotransmitter acetylcholine in the parasympathetic nervous system Antivirals.

2. Surgery: Deep intracerebral stimulation is the most common surgical procedure to treat Parkinson's disease. The surgery involves implanting an electrical conductor deep into the brain regions responsible for body movements.

   The degree of electrical stimulation that is transmitted through these conductors is monitored by a device similar to an artificial pacemaker that is implanted under the surface of the skin in the upper chest at the other end. This surgery is often used in people with very advanced Parkinson's disease whose condition does not stabilize even after taking levodopa. It is possible that this therapeutic procedure helps to achieve stability and stability in the drug doses and to reduce the involuntary movements, but this surgery is not effective in treating dementia and may even lead to aggravation and worsening of the situation.

2.6. Parkinson's Disease Prevention

Here are the top tips to prevent Parkinson's disease: Eat fresh and raw vegetables. Include omega-3 fatty acids in your diet. Eat foods rich in vitamin D. Drink green tea. Do aerobic exercise regularly. Studies are examining whether music therapy could have a beneficial effect on patients with Parkinson's. A 3-month study investigated whether there was any movement benefit to music and physical therapy in Parkinson's patients, and whether the treatments had any effect on their emotional well-being and quality of life. Music therapy consists of Korean singing, vocal practice, rhythmic movements and freedom of the body, while physical therapy consists of stretching exercises, specific motor tasks and ways to improve balance and gait. The study concluded that music therapy had a beneficial effect on the patient's feelings, as it showed improvement in slow movement and quality of life. But music therapy lacked motor benefit, while physical therapy showed improvement in patients' stiffness, Figures (1-6).
3. Conclusions

For the sufferer, Parkinson’s disease represents an obsession with fear of bending and losing movement, while for those interested in the sciences of the nervous system and how it works, it represents a historical introduction to abundant information about some aspects of the nervous system’s work, information transfer and control of the motor system, etc. The treatment with L-dopa improves the symptoms of the disease. It was later revealed that the treatment does not eliminate the disease and does not affect its causes, as the loss of movement cells continues to increase, which leads to the weak effect of the drug or its benefit and the short period of time in which it gives its desired effect. This substance, then, was only a treatment for symptoms, and it was just like a pain reliever until a certain period of time, but many researchers tended to say that the treatment might be a factor in accelerating the pace of the disease by stressing the motor cells, as if it is an exhausted horse at the end of the race that you may be able to induce it to run for the distance while for those interested in the Historical introduction to abundant information about some aspects of the disease. It was later revealed that the treatment requires a broad program including patient and family education, support groups, exercise, and good nutrition. At present, there is no known cure for Parkinson’s disease, but medication or surgery can reduce these symptoms. Although there are many medications prescribed to treat Parkinson’s disease, none of them actually reverse the effects of the disease. In addition, the description of treatment varies with the patient’s condition. Therefore, people with Parkinson’s disease often need a variety of medications to treat the symptoms of the disease. Many drugs are currently being developed to seek better treatment of Parkinson’s disease. However, there is still no specific treatment in pharmaceutical companies against Parkinson’s disease.

Conflicts of Interest

The authors declare no conflict of interest.

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