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Parkinson's Disease, a neurological disorder, affects over half a million individuals in the United States, with approximately 50,000 new diagnoses annually (Mayo Clinic, 2002; National Institute of Neurological Disorders and Stroke, 2002). Although the disease is believed to have existed for centuries, it wasn't formally described and investigated until 1817. Much of what is known about Parkinson's is still speculative at best, as there is no certainty as to its causes and diagnoses. Although there is no known cure, treatment exists to address the challenges induced by the debilitating symptoms of the disease. A significant quality of life can be maintained for years with effective therapy to help the patient cope with the symptoms of the disease.

Parkinson's Disease is a neurological disease that occurs when the neurons of the substantia nigra becomes impaired, affecting the production of dopamine, a chemical that facilitates smooth muscle movement and coordination (National Institute of Neurological Disorders and Stroke, 2002). The loss of dopamine renders the patient unable to control muscle movement. Studies show that individuals with Parkinson's have lost at least 80% of the dopamine production of the substantia nigra (American Association of Neurological Surgeons, 2002).

Although there is no test specifically for the disease, diagnosis consists of the following:

- The presence of two of the three primary symptoms (tremor, muscle rigidity, and changes in voluntary movement)

- The absence of other neurological problems
- The absence of other factors that cause Parkinson's-like symptoms
- A responsiveness to traditional Parkinson's medication (American Association of Neurological Surgeons, 2002).

Unfortunately, the only true determination for Parkinson's can be done only with an autopsy. Autopsy studies indicate that far more people actually have the disease than are diagnosed (National Institute of Neurological Disorders and Stroke, 2002).

Other symptoms of the disease include slowed movement, impaired speech, difficulty swallowing, and the loss of automatic movements, such as facial expressions (Uitti, 1998).

Several complications manifest themselves with Parkinson's. One complication is depression, existing in approximately 50% of diagnosed patients (National Institute of Mental Health, 2002). Although some of the incidences of depression may be attributed to the realization of the limitations caused by the disease, it is largely believed to be predominantly more a result of the same abnormal functioning of the brain that also caused Parkinson's disease to manifest itself (National Institute of Mental Health, 2002). Additionally, 33% of patients are also diagnosed with dementia. Other complications include difficulty chewing or swallowing, urinary problems, constipation,

sleep disorders, and sexual dysfunction (Mayo Clinic, 2002)

It is estimated that 0.3% of the general population suffers from Parkinson's, increasing to 3% for those over 80 years of age (Salazar, 2000). The vast majority of those afflicted by Parkinson's are elderly; only 10% of patients are under 40 years of age, with the average age of onset being 60 years of age (American Association of Neurological Surgeons, 2002). Although not primarily a disease that in itself is fatal, in Texas, 1,009 individuals, or 5.0 in 100,000, died from Parkinson's related causes in 2000, up from 4.4 in 1999 (Texas Department of Health, Bureau of Vital Statistics 2000, 2001). Based on the 2000 Census (U.S. Census Bureau, 2001), the graph below is an estimate of individuals with Parkinson's by county calculated for 2001.

County	2001 Population Estimate	Estimated individuals with Parkinson's
Bandera	18,553	57
Bexar	1,417,501	4,252
Comal	82,563	248
Kendall	24,869	75

As this is a disease that most commonly afflicts the elderly, this is a conservative figure since the percentages of persons over age 65 are higher in each of the four counties than the state average and all but Bexar County are higher than the national average (U.S. Census Bureau, 2001).

Although it still not completely clear, it is believed that Parkinson's disease is caused both by environmental factors and an inherited susceptibility (National Institute of Environmental Health Sciences, 2002). Primarily, Research indicates that typical onset Parkinson's, diagnosis occurring after 50 years of age, may be caused by environmental factors (Tanner & Langston, 1999). Among the prevailing environment factors that have been associated with Parkinson's are insecticides and pesticides. Individuals with a high level of exposure to herbicides have a 70% increased

risk to develop the disease (Stephenson, 2000). In fact, even a low-level herbicide exposure is linked with a 40% increased risk. In home use of insecticides was also associated with a 70% increased risk. Unfortunately, the actual chemicals that might be triggering the incidence of Parkinson's have not yet been isolated and identified. In a study of identical twins, it was shown that for typical onset Parkinson's, only one twin developed the disease in most instances, suggesting that genetic factors are not significant in determining incidence (Tanner & Langston, 1999). However, for early onset Parkinson's, both sets of twins in all cases developed the disease.

Treatment for Parkinson's consists predominantly of medications to relieve the symptoms of the disease. Surgery, although once commonly prescribed, is now only used for patients that do not respond to medication (National Institute of Mental Health, 2002). Levodopa is the most common drug prescribed to patients. Levodopa and other medications prescribed to treat symptoms of Parkinson's, including carbidopa and amantadine, work to stimulate the production of dopamine or to increase the amount of dopamine absorbed by the brain (Young, 1999).

As stated earlier, many individuals live long, productive lives with Parkinson's Disease. However, the symptoms of the illness are progressive, worsening gradually. Therapy to manage these potentially debilitating symptoms is also commonly prescribed for patients. The following types of therapies are used routinely by doctors to help their patients in symptom management (Marjama-Lyons, 2001):

- Physical and occupational therapy: To help the patient with balance, mobility, and gross motor function.
- Speech therapy: To help patients who have lost muscle control in their vocal chords.
- Nutritional therapy: To help with guidance to supplement diets and reduce constipation.
- Exercise: To help maintain flexibility and physical health

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