9.13: Neurocognitive Disorders

Historically, the term dementia was used to refer to an individual experiencing difficulties with memory, language, abstract thinking, reasoning, decision making, and problem-solving (Erber & Szuchman (2015). However, in the latest edition of the Diagnostic and Statistical Manual of Mental Disorders Fifth Edition (DSM-5) (American Psychiatric Association, 2013) the term dementia has been replaced by neurocognitive disorder. A Major Neurocognitive Disorder is diagnosed as a significant cognitive decline from a previous level of performance in one or more cognitive domains and interferes with independent functioning, while a Minor Neurocognitive Disorder is diagnosed as a modest cognitive decline from a previous level of performance in one of more cognitive domains and does not interfere with independent functioning. There are several different neurocognitive disorders that are typically demonstrated in late adulthood, and determining the exact type can be difficult because the symptoms may overlap with each other. Diagnosis often includes a medical history, physical exam, laboratory tests, and changes noted in behavior. Alzheimer’s disease, Vascular Neurocognitive Disorder and Neurocognitive Disorder with Lewy bodies will be discussed below.

Alzheimer’s disease: Probably the most well-known and most common neurocognitive disorder for older individuals is Alzheimer’s disease. In 2016 an estimated 5.4 million Americans were diagnosed with Alzheimer’s disease (Alzheimer’s Association, 2016), which was approximately one in nine aged 65 and over. By 2050 the number of people age 65 and older with Alzheimer’s disease is projected to be 13.8 million if there are no medical breakthroughs to prevent or cure the disease. Alzheimer’s disease is the 6th leading cause of death in the United States, but the 5th leading cause for those 65 and older. Among the top 10 causes of death in America, Alzheimer’s disease is the only one that cannot be prevented, cured, or even slowed. Current estimates indicate that Alzheimer disease affects approximately 50% of those identified with a neurocognitive disorder (Cohen & Eis dorfer, 2011).

Alzheimer’s disease has a gradual onset with subtle personality changes and memory loss that differs from normal age-related memory problems occurring first. Confusion, difficulty with change, and deterioration in language, problem-solving skills, and personality become evident next. In the later stages, the individual loses physical coordination and is
unable to complete everyday tasks, including self-care and personal hygiene (Erber & Szuchman, 2015). Lastly, individuals lose the ability to respond to their environment, to carry on a conversation, and eventually to control movement (Alzheimer’s Association, 2016). On average people with Alzheimer’s survive eight years, but some may live up to 20 years. The disease course often depends on the individual’s age and whether they have other health conditions.

![THE ALZHEIMER’S TIMELINE](image)

Figure 9.29. Source.

The greatest risk factor for Alzheimer’s disease is age, but there are genetic and environmental factors that can also contribute. Some forms of Alzheimer’s are hereditary, and with the early onset type, several rare genes have been identified that directly cause Alzheimer’s. People who inherit these genes tend to develop symptoms in their 30s, 40s and 50s. Five percent of those identified with Alzheimer’s disease are younger than age 65. When Alzheimer’s disease is caused by deterministic genes, it is called familial Alzheimer’s disease (Alzheimer’s Association, 2016). Traumatic brain injury is also a risk factor, as well as obesity, hypertension, high cholesterol, and diabetes (Carlson, 2011).

According to Erber and Szuchman (2015) the problems that occur with Alzheimer’s disease are due to the “death of neurons, the breakdown of connections between them, and the extensive formation of plaques and tau, which interfere with neuron functioning and neuron survival” (p. 50). Plaques are abnormal formations of protein pieces called beta-amyloid. Beta-amyloid comes from a larger protein found in the fatty membrane surrounding nerve cells. Because beta-amyloid is sticky, it builds up into plaques (Alzheimer’s Association, 2016). These plaques appear to block cell communication and may also trigger an inflammatory response in the immune system, which leads to further neuronal death.

Tau is an important protein that helps maintain the brain’s transport system. When tau malfunctions, it changes into twisted strands called tangles that disrupt the transport system. Consequently, nutrients and other supplies cannot move through the cells and they eventually die. The death of neurons lead to the brain shrinking and affecting all aspects of brain functioning. For example, the hippocampus is involved in learning and memory, and the brain cells in this region are often the first to be damaged. This is why memory loss is often one of the earliest symptoms of Alzheimer’s disease. Figures 9.30 and 9.31 illustrate the difference between an Alzheimer’s brain and a healthy brain.
Vascular Neurocognitive Disorder is the second most common neurocognitive disorder affecting 0.2% in the 65-70 years age group and 16% of individuals 80 years and older (American Psychiatric Association, 2013). Vascular neurocognitive disorder is associated with a blockage of cerebral blood vessels that affects one part of the brain rather than a general loss of brain cells seen with Alzheimer’s disease. Personality is not as affected in vascular neurocognitive disorder, and more males are diagnosed than females (Erber and Szuchman, 2015). It also comes on more abruptly than Alzheimer’s disease and has a shorter course before death. Risk factors include smoking, diabetes, heart disease, hypertension, or a history of strokes.

Neurocognitive Disorder with Lewy bodies: According to the National Institute on Aging (2015a), Lewy bodies are microscopic protein deposits found in neurons seen postmortem. They affect chemicals in the brain that can lead to difficulties in thinking, movement, behavior and mood. Neurocognitive Disorder with Lewy bodies is the third most common form and affects more than 1 million Americans. It typically begins at age 50 or older, and appears to affect slightly more men than women. The disease lasts approximately 5 to 7 years from the time of diagnosis to death, but can range from 2 to 20 years depending on the individual’s age, health, and severity of symptoms. Lewy bodies can occur in both the cortex and brain stem which results in cognitive as well as motor symptoms (Erber & Szuchman, 2015). The movement symptoms are similar to those with Parkinson’s disease and include tremors and muscle rigidity. However, the motor disturbances occur at the same time as the cognitive symptoms, unlike with Parkinson’s disease when the cognitive symptoms occur well after the motor symptoms. Individuals diagnosed with Neurocognitive Disorder with Lewy bodies also experience sleep disturbances, recurrent visual hallucinations, and are at risk for falling.