

From an Alzheimer's Diagnosis to a Solution

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Abstract

Meet Mrs. Rodriguez, a 72 year-old retired school teacher, now living by herself, who was recently diagnosed with Alzheimer's Disease (AD). AD represents the cause of 60% to 80% of Dementias [7], a broad term that encompasses conditions describing symptoms associated with progressive deterioration of cognitive activity, and of which the prevalence increases over the age of 65 years old [12] [7].

Mrs. Rodriguez was always a bright and responsible woman. However, she recently found herself forgetting where her car was parked at the supermarket or losing her words during conversations. She made a visit to her doctor to discuss the issue. The physician firstly proceeded to run a Mini-Mental State examination (MMSE), a test conceptualized in 1975, and now available in several versions to accommodate patient's varying conditions [3]. The MMSE is taken in about 15 minutes and consists of questions to assess cognitive impairment [8]. Additionally, Mrs. Rodriguez was referred to have a FDG (2-[18F]fluoro-2-deoxy-D-glucose) - PET (positron emission tomography) scan. This brain imaging procedure reflects glucose metabolic rates in the cerebral regions [7]. Studies have shown that alterations in brain glucose metabolism precedes development of AD symptoms, and its distinct pattern allows differentiation from other prevalent forms of Dementia [9]. The results of the scan were sent to Mrs. Rodriguez's doctor within a few days and confirmed an Alzheimer's Disease diagnosis [14].

Now, while feeling her own fear and anger, the newly diagnosed patient gathers her close family members to inform them about her condition. Every family member takes the news differently, but most importantly, everyone is open to her needs and there for support [1]. The following concern consists of deciding what action course will be taken next. While there is no cure for Dementia, current treatments exist to help manage mood and behavior changes and maintain some cognitive abilities. Some non-drug therapies include social interaction and mental stimulation through activities and cognitive exercises. In terms of medications, 4 drugs are approved by Health Canada and available upon prescription to temporarily improve memory, time and space perception, communication, and performance ability: AriceptTM, ExelonTM, Reminyl ERTTM, and Ebixa[®]. Some people might additionally benefit from general medication for other related conditions like psychosis, sleep disturbance, depression and strong emotional response behavior [13].

Setting apart medications, the main AD treatment initiative consists of giving personal assistance to the patient. While some people with various forms of Dementia including AD can live alone, there are several cognitive impairments that can become hazardous. As an example, they might experience a loss of orientation, posing of risk of getting lost during a trip to the grocery store or an outdoor walk. Additionally, it is possible that they can forget about basic housekeeping and hygiene tasks, like letting food spoil, or not brushing their teeth [2]. A caretaker can come on short regular visits to ensure proper maintenance of the patient's well-being and their property, as well as providing emotional support.

However, the process of being, or having a guardian adds another financial burden to family members, on top of medical economic demands. With all expenses, including potential hospital stays or emergency department visit, and direct costs of services such as prescription medicines and nursing, the average cost per patient with dementia in Ontario in 2020 was an estimated \$60 000 [4]. This average also considers patients with severe Dementia who reside in a long-term care facility for which the monthly cost sits around \$22,000 [10]. Considering that the average caretaker wage is \$30 per hour, and the number of hours required each week ranges from 4.9 hours to 22.2 hours per week in accordance with the severity on symptoms, the yearly cost of a guardian can range from about \$7, 600 to \$34, 600 [6]. Mrs. Rodriguez's memory loss is still very mild.

Therefore, her family decides to hire a nurse who will come for an hour Monday through Friday. Then, family members would spend their own time with their relative on weekends. However, symptoms of Dementia are known to progress over a few years, creating greater destabilizing effects on patient's overall health and abilities [12]. Three years later, Mrs. Rodriguez's AD has progressed from mild to moderate, where symptoms include difficulty to organize thoughts and logical thinking, difficulty speaking, writing, or using numbers, forgetting its own history and other family members, restless nights and tiredness during the day, and inappropriate emotional outbursts.

From there, a patient's condition is prone to progress further, over a few years again, to a severe stage where the individual might experience a loss of ability to communicate, a loss of awareness of their surroundings, difficulty to swallow, known as aspiration pneumonia, a loss of appetite and a loss of bowel or bladder control or both [11].