

ALZHEIMER'S DISEASE

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## **1. PROBLEM POSING QUESTION**

What exercises to the brain will effectively improve Alzheimer's symptoms in patients?

## **2. OBJECTIVES**

### **2.1 GENERAL OBJECTIVE**

How can patients and families dealing with Alzheimer's achieve quality of life during the disease?

### **2.2 SPECIFIC OBJECTIVES**

- ♥ To show studies of coping mechanism in families with Alzheimer's
  
- ♥ To identify and share options and different coping mechanisms that have been successful in improving life quality for patients and their families
  
- ♥ To create a coping guide for families and Alzheimer's patients

## **3. INTRODUCTION**

Everyone thinks that Alzheimer can't be cured, and they are right, but regardless to that it can be treated and prevented. People often think that Alzheimer consists only in forgetting things, but it has much more complex things that can be also affecting a person. If you live now or in a future with a person affected by this disease, you may get stressed out and won't understand their position, but today we will give you a few tips for you to survive to the physical and mental behavior of the person affected. You need to be patient and lovely with this person because if not both of you will suffer more. To recognize if a person has Alzheimer you will need to focus on their behavior, their mind changes, their mind decline, in the way of thinking, and principally in their feelings. This disease has no age, no sex, no health, and no social class. In fact people with this disease it is not because another person pass it to them, it is mostly because genetic factors and "luck". Like you have seen the important or significant event in the world have a special day in the year for commemorating or celebrating them. As the Alzheimer is one of them the OMS (Organización Mundial de la Salud) and the International Federation of Alzheimer have chosen September 21<sup>st</sup> as the day where people to know and help prevent this disease. The arterial hypertension in a large evolution could also be a reason why Alzheimer is caused.

## **4. ALZHEIMER'S DISEASE**

### **4.1 WHAT IS IT?**

Alzheimer's disease is the common cause of dementia. Happens because of abnormal protein deposits in the brain. Amyloid and tau are things present in all brains, but the brains with Alzheimer have amyloids and taus that doesn't work correctly. Amyloids form plaques and taus form tangles that damage and kill nerve cells and when this nerve cells die the brain shrink.

Obviously the brain does not shrink immediately, it starts shrinking step by step. The steps are the following:

1. The hippocampus becomes affected. The hippocampus is the one in charge of forming memories. People affected with this disease have the struggle to remember what they did or said before and often repeat the previous conversations. These people would easily remember things of their childhood and have difficulties to recall the actions that they did early before in the day.
2. The amygdala is the second one to be affected. This part of the brain is the one in charge of the emotions. The reactions of this damage will be to remember the emotions they had before but doesn't remember the exact facts of the situation that make him/her to get that emotion.
3. Then the person won't be able to process logical thoughts.
4. Next he/she will start getting paranoia and hallucinations
5. After that the plaques and tangles will erase the long term memories from the victim.
6. Finally the control center would be damaged and the person will be able to die.

## **4.2 SYMPTOMS**

Some of the most common symptoms of Alzheimer's disease are sleeping issues that means to have difficulty to sleep and that they wake up several times in a small amount of time, they will also start losing the memory which that they won't remember so well the names of people, phone numbers, home, and addresses. They will often have some problems to solve common problems and also logical ones like adding 1+1 or having an order with things and being incapable to organize the mess they have. They will also start to be confused with times and places that is that they don't know at what time did

they had a meeting and where was it. People affected will have a little trouble to understand the visual images like paintings, drawings, and computed images. They will start to show problems with words in speaking or writing by misspelling them or using them in a place they doesn't go and mispronouncing them constantly. They will seem to misplace things and to have trouble to retrace steps like where did they left an important paper or other object. The most common one is the change in mood and personality and to be one type of person with certain people and another type with other people and to change in a notable way the emotions they have.

#### **4.3 WHO IS MOSTLY AFFECTED?**

Researchers and scientists say that some people are more likely to suffer from alzheimer than others. It is unlikely that someone could get the disease from a single cause. It is more common that a combination of factors causes its development.

Some of this factors are:

Age:

The most common age for developing alzheimer from 65 years and up. However people tend to forget things as they grow old, the majority of people over 80 years stay mentally alert. This means that although the likelihood of developing Alzheimer's disease increases with age, old age does not itself cause the disease. Arteriosclerosis is an age related problems that might be a factor that causes this disease. As people are now living longer than in the past, the number of people with Alzheimer's disease and other forms of dementia will most probably increase.

Sex:

Some studies show that more women are affected by alzheimer than men. Women tend to live longer than men and the chances of developing alzheimer increase with age.

There are no particular reasons of why women are susceptible to dementia, but some factors could be genetics, estrogen and the rate at which their brain cells die.

Genetic factors (heredity):

In an extremely limited number of families Alzheimer's disease is a dominant genetic disorder. Members of this families inherit from one of their parents the part of the DNA, which causes the disease. On average, half the children of an affected parent will develop the disease. For the members of such families who develop Alzheimer's disease, the age of onset tends to be relatively low, usually between 35 and 60. The onset is fairly constant within the family. A link between chromosome 21 and Alzheimer's disease has been discovered. As Down's syndrome is caused by an anomaly in this chromosome, many children with Down's syndrome will develop Alzheimer's disease if they reach middle age, although they may not display the full range of symptoms.

Head injury:

A person who has received a severe blow to the head could be at risk of developing alzheimer. The risk of getting the disease is higher when the person that got injured, is over 50 years old, has a specific gene and has consciousness just after the accident.

Other factors:

Race, profession, geographical and socio-economic situation are not determinants of the disease. However, people with a higher level of education are at less risk than those with a lower level of education.

#### **4.4 WAYS TO PREVENT IT**

Here are 6 things that you can do to reduce the risk of getting alzheimer:

♥ Regulate exercise:

Do at least 150 minutes of exercise per week, build muscle to pump up your brain, include balance and coordination exercises like yoga.

♥ Social engagement:

You don't need to be a social butterfly or the life of the party, but you do need to regularly connect face-to-face with someone who cares about you and makes you feel heard. While many of us become more isolated as we get older, it's never too late to meet others and develop new friendships.

♥ Healthy diets:

Cut down on sugar, enjoy a Mediterranean diet, avoid trans fats, get plenty of omega 3 fats, focus on fruit and vegetables, enjoy daily cups of tea, cook at home often and include a glass of wine in some of your meals.

♥ Mental simulation:

Learn something new, practice memorization, enjoy strategy games, puzzles and riddles, follow the road less traveled.

♥ Quality sleep:

Establish a regular sleep Schedule, be Smart about napping, set the mood, create a relaxing bedtime ritual, quiet your inner chatter.

♥ Stress management:

Breathe Schedule daily relaxation activates, nourish inner peace, and make fun a priority, keep your sense of humor.

Other factors that could help you reduce the risk are:

Stop smoking, control blood pressure and cholesterol levels, watch your weight and drink only in moderation.

## **4.5 TREATMENT**



There's no specific test today that confirms to people that they have Alzheimer's disease. Usually doctors will make a judgment about whether Alzheimer's is the most likely cause of the symptoms you have, based on the information you provide, and results of various tests that can help clarify the diagnosis.

Doctors can nearly always determine whether you have dementia, and they can often identify whether your dementia is due to Alzheimer's disease. Alzheimer's disease can be diagnosed with complete accuracy only after death, when microscopic examination of the brain reveals the characteristics a person with Alzheimer's.

To help distinguish Alzheimer's disease from other causes of memory loss, doctors now typically rely on the following types of tests.

Physical and neurological exam:

The doctor will perform a physical exam, and is likely to check your overall neurological health by testing your:

- ♥ Reflexes
- ♥ Muscle tone and strength
- ♥ Ability to get up from a chair and walk across the room
- ♥ Sense of sight and hearing
- ♥ Coordination
- ♥ Balance

Lab tests:

Blood tests may help the doctor rule out other potential causes of memory loss and confusion, such as thyroid disorders or vitamin deficiencies.

Mental status and neuropsychological testing:

The doctor may conduct a brief mental status test to assess your memory and other thinking skills. In addition, the doctor may suggest a more extensive assessment of your thinking and memory. Longer forms of neuropsychological testing may provide additional

details about your mental function compared with others' of a similar age and education level.

Brain imaging:

Images of the brain are now used chiefly to pinpoint visible abnormalities related to conditions other than Alzheimer's disease, such as strokes, trauma or tumors, that may cause cognitive change. New imaging applications, currently used primarily in major medical centers or in clinical trials, may

Brain imaging technologies include:

- ♥ Magnetic resonance imaging (MRI): an MRI uses radio waves and a strong magnetic field to produce detailed images of your brain. They help by using the device to determine if the person has a high possibility to have Alzheimer's disease.
- ♥ Computerized tomography (CT): it scans produces cross-sectional images (slices) of your brain. It's currently used chiefly to rule out tumors, strokes and head injuries.
- ♥ Positron emission tomography (PET): during a pet scan, you'll be injected in a vein with a low-level radioactive tracer. The tracer may be a special form of glucose (sugar) that shows overall in various brain regions.

This can show which parts of your brain aren't functioning well. New PET techniques are able to detect your brain level of plaques. However, these new PET techniques are generally found in research setting or in clinical trials.

- ♥ Cerebrospinal fluid: in special circumstances such as rapidly progressive dementia or very young onset dementia, a cerebrospinal fluid examination may be performed. The spinal fluid can be tested for biomarkers that indicate the likelihood of Alzheimer's disease.

Future diagnostic tests:

Researchers are working with doctors to develop new diagnostic tools to help definitely diagnose Alzheimer's. Another important goal is to detect the disease before it causes the symptoms.

New tools under investigation include:

- ♥ Additional approaches to brain images
- ♥ More-sensitive tests of mental abilities
- ♥ Measurement of key proteins or protein patterns in blood or spinal fluid (biomarkers)

Genetic testing generally isn't recommended for a routine Alzheimer's disease evaluation. The exception is people who have a history of early onset Alzheimer's disease. However, anyone with a family history of early

Alzheimer's needs to meet with a genetic counselor to discuss the risks and benefits of genetic testing.

Drugs:

Current Alzheimer's medication can help for a time with memory symptoms and other cognitive changes. Two types of drugs are currently used to treat cognitive symptoms:

- ♥ Cholinesterase inhibitors: these drugs work by boosting levels of a cell-to-cell communication by providing a neurotransmitter that is depleted in the brain by Alzheimer's disease. Symptoms, such as agitation, depression, diarrhea, nausea, loss of appetite and sleep disturbances. In people with cardiac conduction disorders, serious side effects may include a slow heart rate and a heart block.
- ♥ Memantine (namenda): this drug works in another brain cell communication network and slows the progression of symptoms with moderate to severe Alzheimer's disease. Side effects may include constipation, dizziness and headache.

In conclusion it is very important that the people that have this disease communicates every time with their doctor every time they want to take or try new drugs and treatments, because the doctor will make or choose the best solution for your health.

#### **4.6 10 WAYS TO HELP A PERSON WITH ALZHEIMER**

1. Learn the basic concepts of Alzheimer and then study its effects.
2. Don't forget about the patient, call them, write them, or visit them.
3. Remember to keep calm, this is a slow process.
4. Give your support to the patient's family.
5. Talk to person affected so they can improve and be better each day.
6. Be aware of taking care of the patient, and help their family.
7. Invite the family members to a different space, this will help them have a nice day.
8. Help taking care of the person affected so the family members can do other stuff and get their minds clear.
9. Be kind.
10. Support the Alzheimer's cause. Look for ways you can join the fight against the disease. It will help many people around the world.

#### **4.7 INTERVIEWS TO PEOPLE CLOSE TO AN AFFECTED PERSON**

A: Amalia Vallejo. This disease affects her grandmother and she will give us tips for having a happy life with the patient and the family.

M: Marta Arango. The disease affects her mom and she wants to help other people by sharing her experiences.

Us: Ladies, good afternoon how are you?

A: Hi girls. I'm very good and happy of being here

M: Hi women. I am very happy of sharing my point of view of this disease.

Us: Oh thanks. Let's begin

A: Okay, let's do it

M: Let's start

Us: How long ago did your family member was diagnosed with Alzheimer?

A: 5 years ago, when she had 84 years

M: More unless 10 years ago, when she was 83 years

Us: How did you notices that she needed to be taken to the doctor for a revision?

A: Because she started to show that she often forgot several things and she lost her own car so we decided to take her to the doctor.

M: Generally she started forgetting stuff y she started asking the same questions, over and over again, and that is why we decided to go to see a doctor.

Us: What did the doctors recommended you and your family?

A: They recommended us to always be with her, that she took all the pills needed, that we didn't argue with her and that we needed to have her many patience.

M: The principal thing that the doctor recommended ways to have patience and to answer in a sweet and calmed way to the patient, because the patient didn't know what is going on , and no matter how many times he ask, you need to keep answering in a calmed way.

Us: Of all those recommendations they gave you, which ones produced a good effect?

A: The recommendations worked completely well for all of us as a family to live good with her. It is obviously difficult because it is like treating with a little kid, you need to have many patience.

M: The recommendations the doctor suggested were only useful for the person that was taking care of her, but for the patient they were not useful.

Us: Have you ever tried any other things different from these recommendations? If you have, which ones have worked correctly?

A: No we haven't tried something different because we believe in the doctors and their recommendations and all the tips they gave us have worked really good so there is no more things to practice.

M: unfortunately, this disease doesn't move backwards, it always goes to worst. That is why the best way you can phase this disease is with patience and love. It is important to keep the same routines for them to have a contact with reality.

Us: Amalia thank you so much for your time and for answering our questions. We are very thankful and we wish that your life with your grandma works excellently.

A: No girls thank you for choosing me for this important project and for listening me. Thanks for your good wishes and I hope everything keeps going as it is, wonderful.

M: It was an honor to share my experiences and to show people that have a relative or a family member with alzheimer how to live or spend time with them.

## **5. CONCLUSIONS**

- ♥ In conclusion constantly you need to exercise your brain in order to prevent this disease.
- ♥ Alzheimer is a disease that develops during time, it doesn't happen from one day to another and it takes time to show the symptoms.
- ♥ The Alzheimer's disease is an event in which you need to have patience and be comprehensive with the person affected, so you can expect a good response on its treatment
- ♥ It is important to frequently visit a specialist so they can tell you how the process is going and if there are any good responses in the person or in other cases bad responses.
- ♥ Follow the doctor's instructions and apply all they tell you in your life for a better life quality.
- ♥ Alzheimer is a degenerative disease that has stages in which a person goes through it meanwhile it causes brain damage.

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