


ALZHEIMER'S DISEASE:
The Epidemiology of a Generational Concern

Presented to the
American Osteopathic
College of Occupational and
Preventive Medicine
Conference 3/23/24
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OBJECTIVES


To Enhance the Knowledge base of the learner regarding Alzheimer's disease and the generational effects on Family, Finances, and Function.

The physician will be able to Differentiate between the *prevalence* of Alzheimer's Disease versus the *Incidence*


Physicians and other professionals will be equipped with the ability to initiate and engage in difficult conversations regarding dementia with their patient and/or the patient's family

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EPIDEMIOLOGY



Natl Institutes of Health. "Epidemiology is the study of the determinants, occurrence, and distribution of health and disease in a defined population."




The CDC defines epidemiology as "The study of the distribution and determinants of health-related states or events in specified populations, and the application of this study to the control of health problems."

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EPIDEMIOLOGICAL INFORMATION

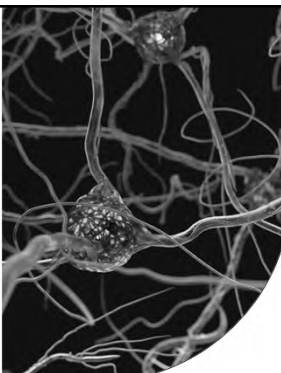
- "Is used to plan and evaluate strategies to prevent illness and as a guide to the management of patients in whom disease has already developed."



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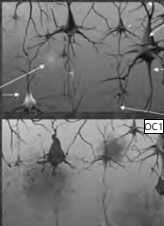
What is Alzheimer's Disease?

- It is a neurocognitive/neurodegenerative disorder that causes an impairment of intellectual functioning that destroys a person's ability to recall, remember, relate or imagine.
- The *Hallmark* of ALZ is the accumulation of beta-amyloid plaques outside of the neurons and neurofibrillary tangles (twisted strands of protein) or Tau Proteins inside of the neurons.
- It is a chronic and progressive disease. THERE IS NO CURE



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Plaques and Tangles



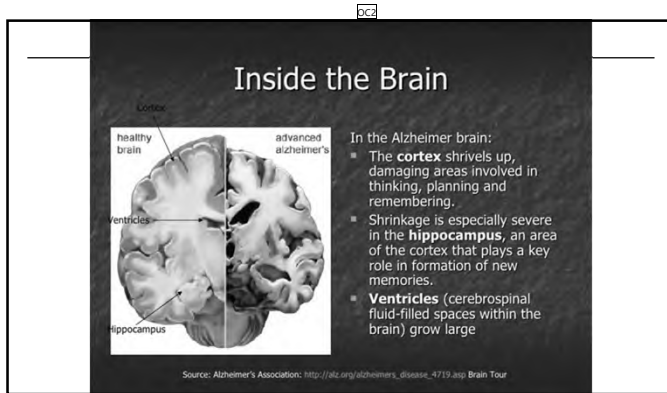
- Healthy neurons help guide nutrients and molecules from the cell body to the ends of the axon and back.
- Plaques form when protein pieces called beta-amyloid clump together. Beta-amyloid comes from a larger protein found in the fatty membrane surrounding nerve cells.
- Beta-amyloid is chemically "sticky" and gradually builds up into plaques.
- Neurofibrillary tangles (NFTs) which are found inside neurons, are abnormal collections of a protein called *tau*.
- In AD, when NFT's build up nutrients and other essential supplies can no longer move through the cells, which eventually die.

Source: Alzheimer's Association. http://alz.org/alzheimers_disease_4719.asp Brain Tour

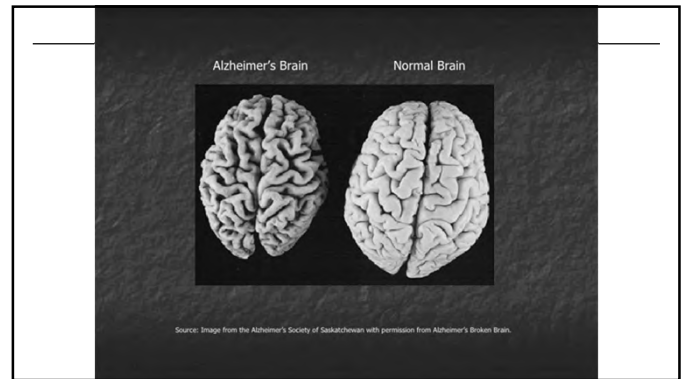
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- OC1** THE AMYLOID induces inflammation in the brain leading to neuronal dysfunction
Hyperphosphorylization of the tau protein disrupts the neuronal microtubules and the axon structure

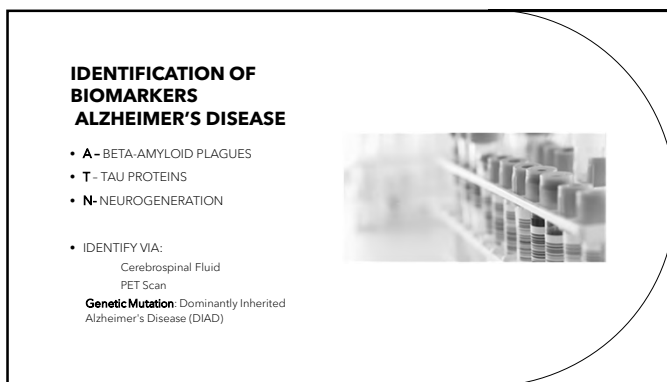
Ouida Collins, 6/14/2020



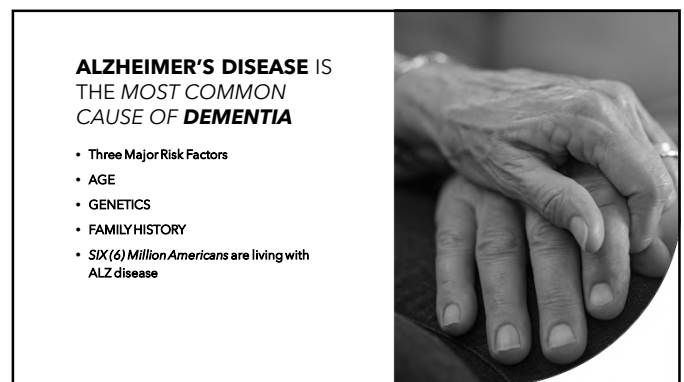
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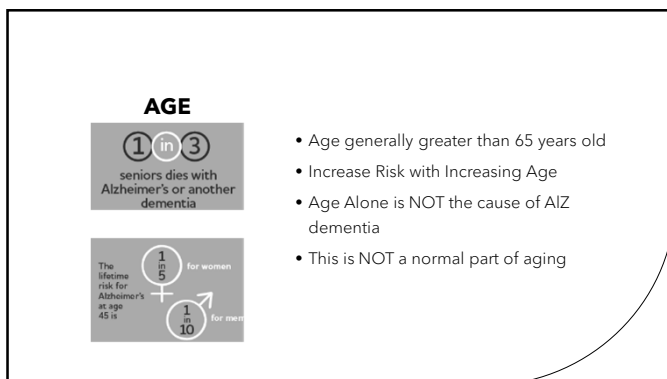
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Slide 7

- OC2** Hippocampal volume correlates with neuron numbers.
Neurodegeneration is linked to cognition and behavior
Ouida Collins, 6/14/2020

FAMILY HISTORY

- Increased Risk of Developing Alzheimer's Disease if they have a First Degree Relative diagnosed with Alzheimer's Disease
- Family History isn't necessary for a person to be diagnosed with the disease



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"Sometimes Grandpa can't remember, and he gets really sad"
Kelly, age 6



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GRANDPARENTS, Grandchildren, and CHILDCARE

Approximately 11.3 million children under the age of five years old with working parents.

Thirty percent (30%) or 3.3 million of those 5 and younger are in the care of grandparents at some point every week

Twelve percent or 4.7 million School Age Children between ages 5 and 14 are cared for by grandparents before and after school

US Census Bureau

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GRANDPARENTS and CAREGIVING

- Approximately 40% of grandparents that live within an hour's drive from them provide childcare to their grandchildren, especially if the child is under 13 years old
- If the child is under six years old then approximately 64% of grandparents surveyed provide care to their grandchildren



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Grandchildren Under 18 Years Living with a Grandparent Householder by Grandparent Responsibility and Presence of Parent

- Total: 5,668,493
- Grandparent householder responsible for own grandchildren under 18 years: 2,509,901
 - Parent present 1,528,148
 - No parent present 981,753
- Grandparent householder not responsible for own grandchildren under 18 years 3,158,592

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What happens When Grandpa Can't Remember?

- Who will care For Him?
- Who Cares for the Grandchildren while the parents work?
- How Much Does This Cost?
- How will this Effect the Family Dynamics and Roles?
- Where Can The Family Go for Help?
- Who's going to have the conversation with Grandpa that he can no longer take Kelly to school on Thursdays?
- How do you manage the family's expectations with treatment and potential outcome?



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ALZHEIMER'S DISEASE


COST


- ▶ 2029, 78 million Baby Boomers and 10million Generation X are predicted to have Alzheimer's Disease
- ▶ Total Health Cost will be at least \$172 billion
- ▶ Patient Cost:
 - ▶ Skilled Care 6K/month
 - ▶ In home Care 3800/month
 - ▶ Daycare 1500/month

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COST FOR LONG TERM CARE

 Private Room in a Nursing Home: \$315 per day; \$115,007 per year

 Semi-Private Room In NH: \$276 per day ; \$100,679

 Assisted Living Facilities: \$4,774 per month

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WHAT ABOUT THE FAMILY MEMBER THAT IS THE PRIMARY CAREGIVER?

How will they maintain their income?

How will they remain present for other members of their family (Spouse, Children)?

How do we (physicians and other healthcare professionals) care for the Caregiver?

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WHAT DO WE DO?

EDUCATE

RESEARCH

PREVENTION STRATEGIES

EARLY INTERVENTION

SUPPORT

ENCOURAGE

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"THOUGH THOSE WITH ALZHEIMER'S MIGHT FORGET US, WE AS A SOCIETY MUST REMEMBER THEM."

- SCOTT KIRSHENBAUM

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