

Understanding Neurodegenerative Disorders: A Glimpse of New Biology and Brain Health

Hippocrates

“Natural forces within us are the true
healers of disease”

Purpose

- The purpose of this presentation is to review what we know and what we're on the verge of knowing about the neurodegenerative disorders

Description

- This course will review Alzheimer's, Parkinson's, Huntington's, Amyotrophic Lateral Sclerosis, and Multiple Sclerosis

Learning Objectives

1. Review clinical aspects of each NDD
2. Introduce the New Biology and ideas concerning Brain Health

A Brief But Important Introduction

- Get ready to have your mind blown!
- I have never been this excited to share new and incredibly advanced information on aging, longevity, disease and brain health in my entire career!

- I'd like to offer you a glimpse of some of the ideas I'm going to share with you throughout this course
- How many of these have you heard of?

- Prolonged vitality
- The science of lifespan extension
- Mitochondrial decline
- Longevity genes
- Telomeres and aging
- Vitality molecules
- Zombie cells
- Inflammaging
- Precision medicine

- Paleo-deficit disorder
- microRNAs and aging
- Genes are not as important as we once thought
- Your microbiome is your first brain
- Nutrigenomics
- Evolutionary medicine
- Evolutionary mismatches

- The Western Pattern Diet
- The Elimination Diet
- Leaky gut syndrome
- Food as information
- Plant neurobiology
- Photoheterotrophy
- Grounding or Earthing

- The Earth in anti-inflammatory
- The New Biophysics
- Psychoneuroimmunology
- Pineal gland calcification
- Aging itself is a disease
- Healthspan versus Lifespan

- Well, do I have your attention?
- All of these concepts are important concerning the development of neurodegenerative disorders as well as caring for those with one of these disorders

Learning Objective 1

Review clinical aspects of each NDD

Alzheimer's Disease

- AD is the most common cause of dementia
- It is also the most common cause of neurodegeneration

- It is the major reason for nursing home placement
- Age remains the number 1 risk for developing AD
- As cognitive abilities diminish, caring becomes more challenging

- Many changes will take place as the disease progresses, physically, emotionally, behaviorally and cognitively
- Profound memory loss will occur

- Verbal communication will deteriorate
- Mobility will slow to an eventual halt
- The individual may be unable to sit upright
- Swallowing problems will develop

- Eating and drinking will become problematic
- Weight loss, poor nutrition and dehydration may become problems as well

- The individual may show no interest in food whatsoever
- Poor blood circulation can lead to other physical problems
- The individual may become incontinent of bladder, bowel or both

General Stages of AD

1. Mild
2. Moderate
3. Severe

Parkinson's Disease

- Parkinson's disease (PD) is a neurodegenerative disorder that affects dopaminergic neurons (dopamine-producing brain cells) in an area of the brain called substantia nigra

- There is no one single way to diagnose Parkinson's disease
- There are a variety of symptom and diagnostic tests available
- Making an accurate diagnosis very early in the disease process is difficult

Two of the main symptoms must be present over a period of time:

- Shaking or tremor
- Slowness of movement (bradykinesia)
- Stiffness or rigidity of the arms, legs or trunk

- Trouble with balance and possible falls, which is also known as postural instability
- Symptoms develop gradually over years and can vary from person to person

- Progression of the disease also varies
- The cause is unknown but is probably multifactorial
- There are both movement-related or motor symptoms as well as non-motor symptoms

- People may be more affected by their non-motor symptoms than their motor symptoms

Non-Motor Symptoms

- Depression and apathy
- Sleep behavior disorders
- Loss of sense of smell or taste
- Cognitive impairment
- Constipation

- Early satiety – feeling full after eating little food
- Excessive sweating (wearing off medications)
- Fatigue
- Increase in dandruff

- Hallucinations and delusions
- Pain
- Lightheadedness (orthostatic hypotension)
- Anxiety and irritability
- Sexual problems (ED)

- Sleep disorders: insomnia, excessive daytime sleepiness, REM sleep behavior disorder, Restless Leg Syndrome
- Urinary urgency, frequency and incontinence

- Vision problems
- Weight loss

Movement Symptoms

- Slowness of movement (Bradykinesia)
- Tremor
- Rigidity
- Cramping (dystonia) – sustained or repetitive twisting or tightening of muscle

- Dyskinesia – involuntary and erratic writhing movements of the face, arms, legs or trunk
- Festination – short rapid steps while walking and may increase fall risk

- Freezing – looks like being stuck in place, especially when taking a step, turning or navigating through doorways and is another fall risk
- Masked face (hypomimia) is the result of bradykinesia and rigidity

- Micrographia – handwriting that becomes small, cramped, and appears sloppy
- Shuffling gait – short steps and stooped posture
- Soft speech (hypophonia) – soft and hoarse sounding voice

Huntington's disease

- (HD) is a slowly progressive neurodegenerative disorder that involves degeneration of neurons in the brain that leads to many physical, behavioral, cognitive and emotional changes

Changes Caused by HD

- Gradual changes in the person's ability to control movements of the arms, legs, trunk, tongue, and lips
- Changes in mental processing
- Changes in learning

- Changes in memory
- Varying degrees of changes in emotional state, or mood
- Various psychological and psychiatric disturbances

- Adding all of these conditions up can lead to many unique challenges in providing effective care for the person with HD
- The challenges become even greater as the disease progresses into later stages

- There are many considerations for care at the person's end of life
- It is important to work through difficult symptoms and reach the person behind them

- We want the person to function as best as he or she can through each stage of the disease
- Some goals of care include promoting independence, freedom of choice and to safely function

Amyotrophic Lateral Sclerosis (ALS)

- Amyotrophic Lateral Sclerosis (ALS) is also known as Lou Gehrig's disease
- It is a devastating terminal neurodegenerative disease that has a highly predictable clinical course

- It is also known as a motor neuron disease and is a progressive, neuromuscular disease that attacks nerve cells and pathways in the brain and spinal cord

- Motor neurons reach from the brain to the spinal cord and then from the spinal cord to a muscle or gland
- When motor neurons die, the brain can no longer start or control muscle movement

- There is no cure for ALS
- People diagnosed with ALS gradually lose the ability to move and will eventually be overtaken by complete paralysis

- The muscles used to breathe and swallow are also affected
- ALS does not affect the person's senses, bladder or bowel function, or sex drive

Who Is At Risk for ALS?

- 20,000 Americans have ALS and annually there are 6,000 new cases
- Symptoms begin between the ages of 40-70 but there are cases earlier and later

- Most people will survive only for 3-5 years after the confirmed diagnosis
- Around 10% live ten years or more
- ALS occurs more frequently in men

- For 90-95% of all cases there is no known cause
- These are called “Sporadic ALS”
- Another 5-10% of cases are inherited and are known as “Familial ALS”

Multiple Sclerosis

- A chronic, disabling and progressive disease that affects the brain and spinal cord

- Characterized by an autoimmune, inflammatory and demyelinating of the brain and spinal cord with progressive loss of neurons and axons

- National Multiple Sclerosis Society describes it as “an unpredictable, often disabling disease of the central nervous system that disrupts the flow of information within the brain, and between the brain and body”

- The disease is not curable
- There are treatment options available to provide comfort and quality of life
- End stage symptoms may include muscle weakness, loss of mobility, pressure sores, and cognitive difficulties

- MS requires ongoing care and assistance in daily living
- The average life expectancy is 5 to 10 years lower than people without MS

- The progressive course of MS and the related functional damage significantly effects the person's daily activities, autonomy, and quality of life

- We will see, there are many symptoms of MS and they are responsible for increasing the person's physical, emotional, spiritual and psychosocial distress
- The impact will affect everyone involved in care

- MS is more common in people of northern European descent
- Women are 2X as likely to develop MS
- MS affects people between the ages of 20 to 50 years, and the average age of onset is 34 years

Symptoms

- Pain that affects the muscles, nerves and joints
- Spasms, stiffness, and muscle cramps
- Tremors
- Sensory changes

- Bowel or bladder incontinence, urinary tract infections, or constipation
- Upper and lower body mobility limitations and weakness
- Difficulty chewing or swallowing
- Speech difficulties

- Problems with memory and thinking
- Emotional disturbance including depression, anxiety, mood swings, anger, and frustration
- Pressure sores

Learning Objective 2

**Introduce the New Biology and ideas
concerning Brain Health**

Neurodegeneration: Then and Now

An Old View of Neurodegeneration

- Alzheimer's-associated neurodegeneration was thought to be the result of beta-amyloid, a sticky protein that is toxic to nerve cells

- It's thought that beta-amyloid interferes with cognition and memory by inhibiting the functioning of acetylcholine

A New View

- The New Biology stresses that the brain has both a lymphatic system and a microbiome which means the immune system, the brain and the gut are directly connected

- We also now know that cells are capable of regeneration and regrowth
- Beta-amyloid may actually protect the brain from toxic exposures and/or pathogens associated with the disease

Pineal Gland Calcification and Alzheimer's Disease

- We know that Alzheimer's and other neurodegenerative diseases appear to be marked by the calcification of the brain, particularly the pineal gland
- The reasons behind calcification are unknown

Functions of the Pineal Gland

- It secretes melatonin, a powerful regulatory hormone that influences sleep
- Melatonin is also a powerful antioxidant and affects every cell within the body

- A recent study found a correlation between the degree of pineal gland calcification and sleep problems
- Another study found more melatonin in participant's saliva with less calcified pineal glands⁴

Is Alzheimer's Disease Really Diabetes Type 3?

- There may be a correlation between insulin levels and cell deterioration
- Diabetes are twice as likely to experience dementia

- Brain cells can become insulin resistant just like any other cells of the body
- The brain can only be deprived of glucose for a few minutes before it goes into full alarm

- Therefore, the brain is highly sensitive to the problems associated with insulin resistance
- It has been found that brain cells shrink and become tangled from high blood sugar levels over time⁵

- Therefore, according to Sayer Ji, in his book, Regenerate: Unlocking Your Body's Radical Resilience Through The New Biology, "Beta-amyloid plague...may be an innocent bystander or even the hero...forming as part of the body's self-healing mechanism"⁶

More On Brain Health from The New Biology

- The use of statins (Lipitor, Crestor) may reduce LDL cholesterol too much and low cholesterol has been associated with neuropsychiatric conditions (Alzheimer's, serious depression, suicide, and accidental deaths)

- Proton Pump Inhibitors (Nexium, Prilosec and Prevacid) may be associated with the development of dementia
- Calcium supplements may be linked to Alzheimer's and heart disease

- The overuse of Tylenol may dull emotions
- Excessive fluoride may cause calcification of the pineal gland

Gluten

- Acts as an excitotoxin in the brain due to its high aspartic and glutamic acid levels
- Acts as an opioid
- Disrupts the gut-brain connection

- It has been implicated in a number of brain-related neuropsychiatric conditions: multiple sclerosis, schizophrenia, headaches, cerebral ataxia, epilepsy, autism, and psychosis

What to Do and Eat to Counteract These Affects and Maintain Brain Health

- An apple a day keeps statins away
- Avoid proton pump inhibitors if possible
- Avoid taking too much calcium
- Avoid overuse of NSAIDS

- Use distilled water or invest in a reverse osmosis system
- Stay away from processed grains
- Don't use artificial sweeteners
- Don't go overboard on low fat diets

- Stay away from pesticides
- Wear a mask on airplanes due to the “fume event”
- Use the speaker phone on your cell phone and don’t put it next to your head

- Eat lots of herbs, spices, and turmeric
- Use ginger and rosemary in your dishes
- Drink coffee, green tea, and red wine
- Eat a handful of walnuts every day

- Take ginkgo biloba and CBD
- Cook with coconut oil and extra-virgin cold pressed olive oil
- Drink coconut water

- Sleep well
- Get daily exercise
- Dance and enjoy music
- Walk through the woods
- Meditate and pray

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