

Developmental Disabilities and Geriatrics: Physical & Psychiatric Pharmacology Overview

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Outline

- Screening and preventative health strategies in the management of older individuals with disabilities
- Review of current findings in medical assessment of older individuals with disabilities
- How service providers prepare recipients for a healthy, long life

Outline

Medical Updates on Geriatric Individuals with DD and

- Diabetes
- Cardiovascular care
- Epilepsy/Seizure Management

Outline

- Respiratory issues
- Medical Impacts of Alzheimer's Dementia
- Gender-Related Health Issues
- Bone Health
- Medical Impacts of Depression

Update on Diabetes

- 90-95% of diabetics have Type 2 Diabetes
- 2 most important foci:
 - ▶ Glycemic control
 - ▶ Acknowledge association with vascular complications
- Control in less than 50% of consumers

Update on Diabetes

Looking to the Future

- Adding glimepiride to current insulin treatment can improve glycemic control with a significant smaller daily insulin dose

Update on Diabetes

Looking to the Future

- A number of supplements are showing promise for Type 2 Diabetes.
- Vitamins C and E
- α -lipoic acid
- Melatonin
- Emodin from Aloe vera and Rheum officinale
- Red Mold
- Astragalus
- Cassia Cinnamon

Update on Diabetes

Looking to the Future

- A supplement, emodin, in animal studies:

- Lowered body weight
- Decreased blood glucose
- Decreased serum insulin levels
- Improved insulin utilization
- Improved serum lipids

Update on Cardiovascular Health

Atherosclerosis – arterial wall build up of LDL

- Inflammatory disease
- Check markers
 - ▶ High-sensitivity C-reactive protein (hs-CRP)
 - ▶ Lipoprotein-associated phospholipase A2 (Lp-PLA2)

Update on Cardiovascular Health (continued)

- Elevated markers can be lowered with
 - ▶ Weight loss
 - ▶ Whole grain enriched hypocaloric diet
 - ▶ Statins
 - ▶ Niacin and Omega-3 fatty acids when added to a statin



Risk of CVD

- Fluctuating BP increases risk for CVD
 - ▶ From non-adherence with antihypertensives?
- Hypertension is associated with poorer cognitive functioning and Alzheimer's Dementia

Update on Cardiac Medications

Review of Emergency Cardiac Medications

- M Morphine
- O Oxygen
- N Nitroglycerine
- A Aspirin

Beta Blockers

- Alone or second line therapy with antihypertensives reduces high BP
- Commonly used to reduce stroke and CVD
- Combine 2 differently acting drugs for better results

Beta Blockers (continued)

- Metoprolol and some other beta blockers dilate vascular structures
- Reduce blood pressure
- Watch for hypotension
- Respiratory tissue also has beta receptors and beta blockers may exacerbate respiratory illnesses

Recognizing Heart Failure

Symptom recognition suffers with this group

- Hearing and vision loss is already common
- Consumers do not attend to their internal physical symptoms well
- Nurses must teach symptom awareness

Cardiac Disease and Diabetes

Research disputes benefit of certain current guidelines

- ASA may not be useful in reducing CVD risks when co-morbid with diabetes
- Mild benefit in men, none in women
- Take bleeding risks into account

Cardiac Disease and Diabetes

Co-morbidity with poorly controlled diabetes

- Anti-angina drug ranolazine lowers glucose without hypoglycemia

Update on Managing Epilepsy/Seizure

Types of seizures

- Partial
- Generalized
- Absence
- Atypical Absence Myoclonic & Atonic Seizures
- Unclassified

Update on Managing Epilepsy/Seizure

- Partial (discrete areas of cerebral cortex)
- Generalized (diffuse regions of brain simultaneously)

Partial Seizures

Seizure Medications

- 58% do not achieve seizure control with current antiepileptic medications
- Side effect profiles (dizziness, somnolence affect ~97% of consumers)
- Adherence issues contribute

Treatment Options

- Medications
- If not successful:
 - ▶ Surgery
 - ▶ Special diet
 - ▶ Complementary therapy
 - ▶ Vagus nerve stimulation

Overview of Medications

First line

- Valproic acid (all types)
- Lamotrigine (generalized, atypical, atonic)
- Topiramate (generalized, atypical, atonic)
- Carbamazepine (partial)
- Phenytoin (partial)
- Oxcarbazepine (partial)
- Ethosuximide (absence)

Alternative & Adjunctive Agents

- Phenobarbital
 - Primidone
 - Felbamate
 - Levetiracetam
 - Tiagabine
 - Zonisamide
 - Gabapentin
- Eslicarbazepine
 - Vigabatrin
 - Lacosamide
 - Pregabalin
 - Rufinamide
 - Clonazepam

Treatment Effectiveness

- Is complicated by issues of medication absorption due to frequent GI problems.
- Can be best accomplished using two or more anti-seizure drugs (AEDs) simultaneously.
- Is further complicated by inconsistent verbal reports from the consumer.

Seizure Management

Seizure management in elderly DD consumers relies on both behavioral observations and lab testing to assess the response to the AEDs.

Respiratory Health

- People with DD have more than typical problems with respiratory infections/difficulties
- Vulnerability to respiratory problems increases with age

Respiratory Health

- Cases of tuberculosis are on the increase
- Multi-drug resistant strains are more prevalent

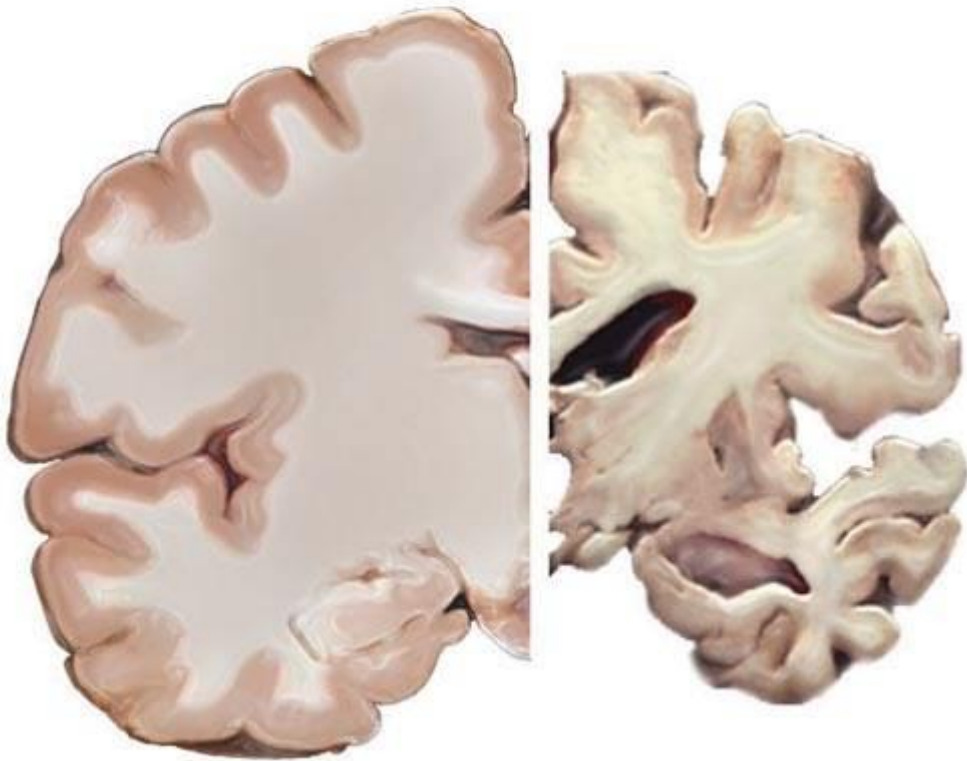
Dementia

- A group of syndromes
- Some are possibly reversible
- Some are irreversible

Alzheimer's Dementia (AD)

Healthy
Brain

Severe
AD



Update on Dementia

- Alzheimer's Dementia and Down Syndrome are both 21st chromosome genetic mutations
- Diseases are closely related
- High probability that a person with Down Syndrome will develop Alzheimer's or Alzheimer's-like dementia after the age of 50

Possibly Reversible Dementias

- Caused by other and/or underlying medical conditions which can be treated successfully
- Examples: Infection, Depression, Normal Pressure Hydrocephalus, Head Trauma, Drugs, Thyroid, Ingestion of toxic substance, Vitamin B₁₂ Deficiency

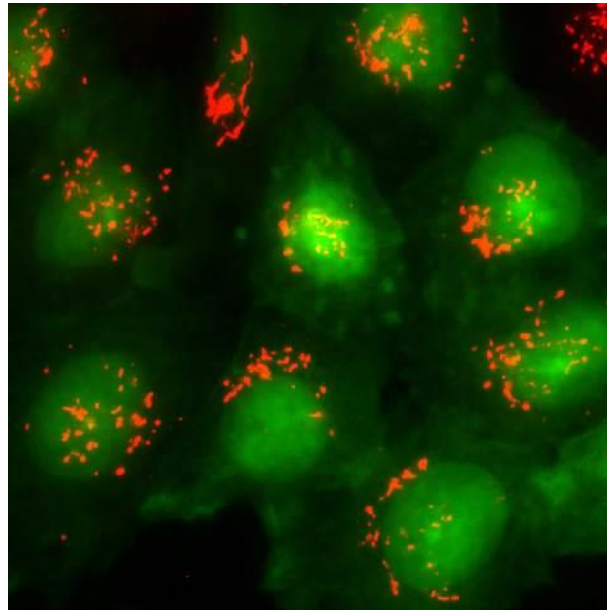
Update on Dementia

Reducing dementia risk

- Dementia risk is higher in those with hypertension
- Recent research demonstrate potential value of antihypertensives (any class) in reducing dementia risk

Update on Dementia

- Microscope images of the Golgi structure (colored red) when fragmented under disease conditions.



Source: University of Michigan/Yanzhuang Wang

Irreversible Dementias Other Than Alzheimer's Dementia

- Vascular Dementia
- Mixed Vascular and Alzheimer's Dementia
- Lewy Body Dementia/Parkinson's Dementia
- Pick's Disease
- Creutzfeld-Jacob Dementia
- Huntington's Chorea
- Wernicke-Korsakoff Syndrome

Alzheimer's Dementia Diagnostic Criteria

- Memory impairment and at least one:
 - ▶ Aphasia
 - ▶ Apraxia
 - ▶ Agnosia
- Associated functional impairments
- Early & gradual onset & course
- Not due to other medical conditions
- Not only during delirium
- Not due to other psychiatric disorder
- With or without behavior disturbance

Observable Features

- Gradual decline and plateaus in cognitive and memory function
- Often with periods of mood and behavior problems
- Loss of self-care and ADL skills
- In later stage, total dependency, inactivity, incontinence, need for total nursing care

Stages

- Early: often includes treatable mood problems
- Middle: often includes behavior problems, hallucinations, delusions
- Late: often includes inability to recognize family, caregivers

Diagnostic Process

- Interview patient, family, caregivers
- Psychological assessment including memory and other intellectual functions
- Comprehensive physical
- Consider EEG, scans

Diagnostic Process (continued)

- Rule out thyroid, hearing and vision loss, dehydration, apnea, other medical and psychiatric factors
- Follow-up
 - ▶ To confirm
 - ▶ To assess status, pace of decline

Down Syndrome & Alzheimer's Dementia

- More prevalent at any age
- Prevalence increases with age
- Older data (1994) suggest
 - ▶ 8% ages 35-40
 - ▶ 75% ages 60+

Down Syndrome Treatment

- Possible early course for Down Syndrome with relatively high functioning
 - ▶ Irritability
 - ▶ Mood swings
 - ▶ Reduced verbal communication
 - ▶ More problems learning new things
 - ▶ Behavior changes
 - ▶ Memory loss (for example, forgetting locations of objects)

Down Syndrome Treatment (continued)

- Initial course for Down Syndrome with relatively low functioning
 - ▶ Less sociable
 - ▶ Less enjoyment
 - ▶ Loss of self-care skills

Down Syndrome Treatment (continued)

- Possible intermediate course for Down Syndrome with relatively high functioning
 - ▶ Work skills deteriorate
 - ▶ Less able to follow instructions
 - ▶ Declining language skills
 - ▶ Seizures may start about 2 yrs after dementia onset
 - ▶ Mobility
 - ▶ Incontinence
 - ▶ Hallucinations/Delusions
 - ▶ Weight loss

Down Syndrome Treatment (continued)

- Possible Intermediate course for Down Syndrome with relatively low functioning
 - ▶ Memory deficits
 - ▶ Spatial disorientation
 - ▶ Higher supervision needs
 - ▶ Disturbed diurnal rhythms
 - ▶ Motor and gait disturbances
 - ▶ Seizures

Other Developmental Disabilities and Dementia

- Paucity of studies
- Problems with psychological tests
- Multidisciplinary assessment

Managing Alzheimer's Dementia

- Multidisciplinary
- Medication
- Psychological therapies
- Environment
- Daily activities
- Support for caregivers
- Reality orientation

Managing Alzheimer's Dementia (cont)

- Reminiscence
- Behavior therapy
 - ▶ Enhance skills
 - ▶ Reduce difficult behavior
 - ▶ Antecedents
 - ▶ Consequences
 - ▶ Positive reinforcement
 - Intentional
 - Unintentional
 - Rates of behavior

Sensory Processing Loss and Confabulation

- Hearing
- Seeing
- Smelling
- Tasting
- Touch
- Memory Gaps

Break



Dementia Challenges

- Treatment for dementia poses a challenge for DD caregivers.
- It is important to note that symptoms of dementia appear, with this population, exactly as with the general population.

Dementia Challenges (cont.)

This has medical implications:

- A DD consumer with hypertension is at higher risk
- There will be even poorer cognitive functioning with this population
- The degradation of cognition must be incorporated into treatment program

Dementia Challenges (cont.)

Given that DD geriatrics have significant cognition problems, depression impacting further on cognition is not easy to differentiate.

Differentiation of Dementia vs. Depression

- Memory deficits
 - ▶ Overemphasis
 - ▶ Oblivious
- Orientation - affected or not
- Language - deteriorated or not
- Apraxia - at baseline or not
- Negativity

Treatment & Interventions

- Behavior of DD geriatric consumers is influenced by praise and rewards
- Consumers are responsive to verbal interventions

Treatment Advances

- Acetylcholinesterase inhibitors (also called cholinesterase inhibitors)
- Glutamate targeted compound
- Rivastigmine patch
- Donepezil oral disintegrating tablet

Medications for Dementia, Alzheimer's Type

- Acetylcholinesterase inhibitors
- Atypical antipsychotics
- AED/Mood stabilizer valproate

Medications for Dementia, Alzheimer's Type (continued)

- Acetylcholinesterase inhibitor agents are found to be helpful
- They reversibly inhibit the enzyme acetylcholinesterase in the CNS
- This allows the build-up of acetylcholine
- Temporarily improves cognitive functioning

Medications for Dementia, Alzheimer's Type (continued)

- Acetylcholinesterase Inhibitor Agents
 - ▶ Aricept (donepezil)
 - ▶ Reminyl (galantamine)
 - ▶ Cognex (tacrine)
 - ▶ Exelon (rivastigmine)

Side Effects

Common side effects of Acetylcholinesterase inhibitors are

- GI upset (nausea, vomiting, diarrhea)
- Headache, dizziness
- Can unmask underlying cardiac conduction problems
- Watch liver enzymes especially ALT
- Can interact with other meds – watch for toxic effects

What If Drug Therapy Fails?

Change drugs

- There's at least a 50-50 chance the other medication will help reduce symptoms.
- Side effects from one med in this class does not necessarily mean the same side effects from another.

What If Drug Therapy Fails?

Check Environmental Factors

- People with dementia do not respond well to low light situations
- Keep ambient noise to a minimum
- Behavioral treatment must accompany pharmaceutical care

Cholinesterase Inhibitors & Anticholinergics

Geriatric DD consumers given cholinesterase inhibitors for dementia along with anticholinergics for incontinence:

- 50% faster decline in function than those taking only dementia medication
- Medications, in effect, cancel each other out and researchers say they should not be given together.

Update on Perimenopause & Menopause

- Hormonal changes can begin as young as 30 yo with this population
- Medications can influence early onset
- Medical conditions further influence hormonal milestones

Update on Perimenopause & Menopause (cont)

- Down Syndrome females are much more likely to have earlier onset
- Some women with developmental disabilities may not express their concerns about how they are feeling, especially if symptoms occur gradually over time.

Update on Perimenopause & Menopause (cont)

Symptoms of hormonal changes:

- Short term memory decrement
- Hot flashes/warm flashes/cold flashes
- Vulvodynia
- Hirsutism, thinning hair
- Changes in behavior, comfort level, and physical well-being
- Sweating, night sweats

Update on Perimenopause & Menopause (cont)

- Insomnia
- Heart palpitations
- Itchy skin
- Backaches, joint pain
- Headaches
- Bloating, weight gain
- Check heritable factors

Interventions

- Support: Loose clothing, creams, mnemonics
- Comfort: Topical meds, fans, cooling substances
- Medical: HRT, SSRI, anxiolytic, supplements

Update on Prostate Health

- Maintaining a healthy prostate involves
- Hydration
- Early UTI intervention
- Nutrition

Prostate Nutrition

- Less calories
- Less protein
- Plant-based estrogens (isoflavones/flavonoids)
- Low fat, no caffeine diet
- Saw palmetto

Update on Prostate Cancer

Diagnosis of prostate cancer with this population

- Often late-stage
- Metastases

Update on Prostate Cancer

Treatment for prostate cancer involves

- Testing
- Options
- Follow-up

Prostate Cancer Chemotherapy

- Chemotherapy compounds often cause
- GI SE
- Blood SE
- Neurological SE
- Renal SE

Prostate Cancer

■ Nutrition

▶ Very low-fat diet

- Ornish Diet – fruit, vegetables, grains, fat-free yogurt, milk, fat free cheeses, egg whites

▶ Vegetarian

Update on Bone Health

Sedentary lifestyles contribute to severe health problems

- Osteoporosis
- Back and joint pain
- Decreased flexibility, endurance, and mobility

Update on Bone Health

Maintaining bone health involves

- Nutrition
- Activity
- Monitoring side effects of long-term use of compounds meant to increase bone density
- Calcium supplements with Vitamin D

Depression

- Expression of a depressed state is different for the DD geriatric consumer
- Very likely to complain of a range of physical problems instead of sadness or a problem with his or her mood

Depression (continued)

- Dementia a risk factor for depression
- Massive life transitions can trigger flare-ups of co-morbid psychiatric conditions which can involve depressive symptoms

Update on Depression

Maintaining mood with this population can involve pharmacotherapy

- Lithium augmentation
- SSRI
- MAOI

Update on Depression (continued)

Can involve psychotherapeutic interventions

- Activity levels
- Increased empathic support
- Individual support and guidance
- Monitoring for lethality

Medical Implications

The medical implications of depression include:

- Weight changes
- Sleep disturbances
- Passive self-harm

Medical Implications of Depression

- Deconditioning
- Less cooperation with needed medical treatment
- Slower Healing
- Increased cardiac risk

Medical Implications of Depression

- Lower pain threshold with more analgesics
- More medical diagnostic tests for increased somatic complaints
- More frequent and severe pain complaints

Update on RA

Rheumatoid Arthritis

- Exercise, weight loss, physical therapy manage symptoms but do not affect the cause
- Autoimmune response in synovial fluid
- Affects life expectancy (5-10 years)
- Aggressive therapy early slows joint destruction

Exercise & Medical Impacts

Exercise for older people with DD has the potential to ameliorate many medical conditions

- Reduces
- Falls
- CVD

Exercise & Medical Impacts (continued)

Improves

- ▶ Aerobic capacity
- ▶ Flexibility
- ▶ Muscle strength
- ▶ Physical performance
- ▶ Sleep quality
- ▶ Mood
- ▶ Well-being

Poll Questions

Question 1: Of the 90-95% of diabetics with Type 2 Diabetes, what percentage best describes how many have control of the disease?

- (1) Less than 80%
- (2) Less than 20%
- (3) Less than 50%
- (4) Varies

Answers:

- A. (1)
- B. (2)
- C. (3)
- D. (4)

Correct Answer: C

Poll Questions

Question 2: There are clinical tests for cardiac disease markers in this population.

Elevated markers can be lowered with:

- (1) Weight loss
- (2) Whole grain enriched hypocaloric diet
- (3) Statins
- (4) Niacin & Omega-3 fatty acids added to a static

Answers:

- A. (1) and (2)
- B. (2) and (3)
- C. (1), (3) and (4)
- D. All of the above

Correct Answer: D

Poll Questions

Question 3: Seizure management in elderly DD consumers is:

- (1) Complicated by issues of medication absorption due to frequent GI problems.
- (2) Often best accomplished using two or more antiseizure drugs (AEDs) simultaneously.
- (3) Complicated further by inconsistent verbal reports from the consumer.
- (4) Relies on both behavioral observations and lab testing to assess the response to the AEDs.

Answers:

- A. (1)
- B. (2) and (3)
- C. (3) and (4)
- D. All

Correct Answer: C

Poll Questions

Question 4: Given that elderly DD consumers are likely to have significant cognitive problems

- (1) Depressive impacts on cognition are easily differentiated
- (2) Behavior of consumers is less influenced by praise or rewards
- (3) Consumers are unlikely to be responsive to verbal interventions
- (4) Symptoms of dementia appear later and are not as recognizable as with the general population.

Answers:

- A. (1)
- B. (2) and (3)
- C. (4)
- D. None of the Above

Correct Answer: D

Poll Questions

Question 5: Physical characteristics typically associated with elderly DD consumers are:

- (1) primarily congenital in nature
- (2) primarily due to medication side effects
- (3) associated with lowered resistance to communicable disease
- (4) associated with both congenital and medication side effects

Answers:

- A. (1)
- B. (2)
- C. (3)
- D. (4)

Correct Answer: D

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Questions / Comments?

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