Welcome to the Your Health Lecture Series!
Tonight’s Lecture: Alzheimer’s Disease: A Look into the Future
Event Begins @ 6:30pm

Moderator: Dr. Jean Nagelkerk
Vice Provost for Health
Grand Valley State University
Special Thanks!

alzheimer’s association®
GREATER MICHIGAN CHAPTER

AREA AGENCY ON AGING OF WESTERN MICHIGAN
The Source for Seniors

SPECTRUM HEALTH NEUROSCIENCES
Cynthia Hingtgen, MD, PhD, FAAN
Section Chief, Neurology Integrated Care Campus Beltline (ICCB), Department of Clinical Neurosciences, Spectrum Health Medical Group

Associate Professor
Michigan State University College of Human Medicine

Tonight’s focus area:
• Diagnosing dementia and Alzheimer’s disease
Tonight’s focus area:

• The prevalence of Alzheimer’s disease and its impact on patients, caregivers and the health care system
David Morgan, PhD
Professor, Department of Translational Science and Molecular Medicine
Michigan State University College of Human Medicine

Director
Alzheimer’s Alliance

Tonight’s focus areas:

• The latest Alzheimer’s disease research and future treatments
Your Health Lecture Series

Alzheimer's Disease: A Look into the Future

Cynthia M. Hingtgen, MD, PhD, FAAN

November 12, 2018
Objectives

- Signs of Alzheimer’s Dementia
- Evaluation for Alzheimer’s Dementia
- Treatment for Alzheimer’s Dementia
Signs of Alzheimer’s Dementia

“Is this normal aging?”

memory

decision making/problem solving

daily tasks

language

motor/spatial skills

personality/behavioral
Signs of Alzheimer’s Dementia

“What is mild cognitive impairment (MCI)?”

“Is this dementia or Alzheimer’s?”

“What stage is this and will this kill me?”
Evaluation for Alzheimer’s Dementia

- History – with family/friend
- Neurological examination
- Laboratory tests for other causes
- Imaging of the brain for other causes
- Cognitive or neuropsychological testing
Treatment for Alzheimer’s Dementia

Physical activities
Cognitive activities
Diet
  Yes: olive oil, vegetables, fish, legumes, nuts
  No: red meat, dairy
Control blood pressure
Control blood sugar
Limit medications that worsen brain function
Treatment for Alzheimer’s Dementia

Cholinesterase inhibitors: donepezil (Aricept)
rivastigmine (Exelon)
galantamine (Razadyne)

NMDA receptor antagonist: memantine (Namenda)
Alzheimer’s Disease: A Look into the Future

*Incidence and Impact*

Rebecca Davis, PhD, RN
Professor, Interim Associate Dean for Research and Practice
Kirkhof College of Nursing
Who does Alzheimer’s Disease Affect?

Ages of People with Alzheimer's Disease in the US, 2018

- <65
- 65-74
- 75-84
- >85

Alzheimer’s Association, 2018
Projection into the Future

Projected Number of People (over age 65) in US with Alzheimer’s Disease

Alzheimer’s Association, 2018
Alzheimer’s Disease Statistics

• 1 in 10: Seniors with Alzheimer’s disease
• 1 in 5: Risk for Alzheimer’s at age 45
• 1 in 3: Seniors dies with dementia

Alzheimer’s Association, 2018
# Impact on Persons with Alzheimer’s Disease

<table>
<thead>
<tr>
<th>Losses</th>
<th>Possible Gains/Maintains</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning new things</td>
<td>Enjoyment of the moment</td>
</tr>
<tr>
<td>Cognitive abilities</td>
<td>Every day decision making</td>
</tr>
<tr>
<td>Certain skills</td>
<td>Certain skills</td>
</tr>
<tr>
<td>Some functions</td>
<td>Some functions</td>
</tr>
<tr>
<td>Independence</td>
<td>Activities with others</td>
</tr>
<tr>
<td>Memory of some past events/people</td>
<td>Family relationships</td>
</tr>
</tbody>
</table>
Caregiving

• Assistance with mobility
• Dressing
• Showering
• Feeding
• Toileting

Plus...companionship, finances, health care, emotional support
Impact on Families

• 18.4 billion hours of care provided by unpaid/family caregivers
  – $232 billion in care

• Average age of caregiver is almost 70 years

• Most persons with dementia live in the community

Family Caregiver Alliance (2016)
Hours spent caregiving

Number of Hours Dedicated to Caregiving by Age of Family Caregiver

Family Caregiver Alliance (2016)
Caregivers

- Over half of caregivers (66%) live with the person with dementia
- 25% “sandwich” caregivers
- 2/3 of caregivers are women
- 1/3 of caregivers are daughters
Decision Making

• Independence/Dependence?
• Driving?
• Living arrangements?
• Medication safety?
• Home safety?
• Health?
• Values?
Effects on caregivers

• Stress

• Anxiety

• Less personal time

• Health effects
Help for Caregivers

• Acceptance of disease

• Reduce stigma (tell people)

• Seeking support and help
  – Alzheimer’s Association
  – Support groups
  – Family/Friends

• Making a plan (i.e. SHARE intervention)

Gillhooly et al., 2016; Whitlatch et al., 2016
Into the Future

• Earlier, better diagnoses
• More comprehensive care planning
• More people with dementia living alone in the community
• More long-distance caregiving
• “Dementia friendly” communities
• More technological interventions
• Better long term care options
References


Preventing and Treating Alzheimer’s in 2020

David Morgan, PhD
Director Alzheimer’s Alliance
Professor of Translational Sciences
Michigan State University, Grand Rapids MI USA
scientist.dave@gmail.com
Alzheimer Pathology

- Autopsy of Auguste D revealed two key features when stained with silver
- Neuritic plaques outside cells
- Neurofibrillary tangles inside cells
Alzheimer's Begins Years Before Symptoms Emerge

First Symptoms

Dementia Diagnosis

PET Amyloid Imaging

Positron Emission Tomography (PET)

Fluorodeoxy-glucose (sugar) measures brain activity; decreased with dementia

Amyloid tracers detect amyloid without autopsy; increased in Alzheimer’s

Aducanumab Treatment Reduces Amyloid and Slows Cognitive Decline

Nature. 2016 Sep 1;537(7618):50-6

Sevigny et al
BAN2401 Reduces Amyloid Burden

- Dose dependent reduction in amyloid PET values (Florbetapir tracer)
- BAN2401 significantly reduced amyloid PET values across all doses

- Similar results with SUVr and Centiloid measures across all reference regions analyzed
  - Reference regions analyzed: SWM, WC mask, WC derived, WC/WM correction, CG, Composite
- Top dose: observed baseline mean (74.5), observed 18-month mean (5.5)

Global Cortical Average versus Whole Cerebellum Reference

*P<0.05, **P<0.01, ***P<0.001, ****P<0.0001. †Adjusted mean change from baseline by Mixed Model Repeated Measures (MMRM).
The Mixed Model Repeated Measures (MMRM) uses treatment group, visit, clinical subgroup (MCI due to AD, Mild AD), the presence or absence of ongoing AD treatment at baseline, APOE4 status (positive, negative), region, treatment group-by-visit interaction as factors, and baseline value as covariate.
For PET analysis N=306 at 12 months and N=277 at 18 months.
BAN2401 Slowed Cognitive Decline on ADAS-cog Over 18 Months

- Dose dependent reduction in decline on ADAS-cog over time; starting at 6 months
- Slower decline on ADAS-cog 10 mg/kg bi-weekly dose (green) vs placebo (black) across all time points

$P < 0.1 \ (P = 0.073), \ *P < 0.05$. The Mixed Model Repeated Measures (MMRM) uses treatment group, visit, clinical subgroup (MCI due to AD, Mild AD), the presence or absence of ongoing AD treatment at baseline, APOE4 status (positive, negative), region, treatment group-by-visit interaction as factors, and baseline value as covariate.
Ongoing Prevention Studies

- Dominantly Inherited Alzheimer’s Network. US Familial cases. Solanezumab, Gantanerumab
- Autosomal Dominant Alzheimer’s Disease (ADAD) trial. Single cohort of over 100 individuals in Columbia. PS1 mutation; Crenezumab
- Anti-Amyloid in Asymptomatic Alzheimer’s (A4). Solanezumab; BACE inhibitor (A5)
MSU Alzheimer’s Alliance

• Goal is to mobilize resources in Grand Rapids to fight dementia
• Engage as many stakeholders in dementia care and services as will participate. Already including Rethinking Dementia: Accelerating Change; Alzheimer’s Association; Mercy Health; Spectrum Health; Hope for Metro and Pine Rest too.
• Our mission is to increase dementia diagnosis, increase access to clinical trials/research and provide improved resources and services for caregivers.
Importance of Clinical Trials

- Today the only opportunity to receive a drug to slow Alzheimer’s is in a clinical trial. The first person cured of Alzheimer’s will be in a clinical trial!
- Final stage (phase 3) clinical trials for Alzheimer’s take 2 years from first participant to last participant enrolled.
- Delays drug availability and reduces drug company period of exclusivity.
- The average dementia diagnosis occurs at a stage too late for clinical trial participation (median MMSE=18.8; range 0-30 with 27-30 normal)
- Plan to conduct clinical trials with multiple health system partners
Community Based Memory Screening

• Only 40% with dementia receive a diagnosis. Memory screening exams can identify those at risk at an early stage of disease when medications more effective.

• Train retired healthcare professionals to administer standard neuropsychological instrument (MoCA)

• Review health history and medications to assess risk factors for memory impairment.

• Enter data into the Memory Care Registry (REDCap), which may be helpful in recruiting for clinical trials.

• Provided results and recommendations if follow up is needed.

• 20-30% of community-residing older adults scored at a level indicating possible memory-impairment
Alliance Plans over next Year

- Develop a Community Based Memory Screening Program for Greater Grand Rapids Area. Will need volunteers willing to learn how to administer the MoCA exam.
- Initiate a clinical trial designed to prevent development of mild cognitive impairment and dementia in cognitively normal older adults. The P.A.C.T. trial (Preventing Alzheimer’s with Cognitive Training).
- Integrate providers from major health systems to join together in implementing clinical pharmaceutical company trials for the prevention and treatment of Alzheimer’s disease.
- For more information call 616-234-2844
Lab Members at MSU
David Morgan
Marcia Gordon
Ahlam Soliman
Dylan Finneran
Amber Tetlow
Mohammed Alhadiddy
Kelsey Magolan
Khawla Benyamine
Christin Carpenter
Jennifer Westerhuis
Brianna Jackman

Others in Grand Rapids
Scott Counts
Nick Kanaan
Irving Vega
Kevin Foley

Supported By
NIA,
NINDS
Alzheimer’s Association
Dementia Consortium
Hesperos Inc
Starwise Pharma
GlaxoSmithKline

...until Alzheimer’s is a memory™
Questions?
Thank you for attending the Your Health Lecture Series!