Clinical and Epidemiological Aspects of Neurodegenerative Diseases
N231 - Fall 2016
Syllabus

Time and place: Thursdays; 1:00 pm – 3:50 pm

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Level: Graduate

Units: 4

Course objectives:
This graduate seminar will include student presentations and group discussions. In this course, the students will learn the clinical and epidemiological aspects of neurodegenerative diseases including Alzheimer's disease, Parkinson's disease, Huntington's disease, amyotrophic lateral sclerosis, Frontotemporal dementia, progressive supranuclear palsy, corticobasal degeneration, and multiple systems atrophy. The discussion of clinical aspects will cover presentation, course, diagnosis, and treatment. The discussion of epidemiological aspects will cover prevalence, incidence, risk factors, and prevention. Students will be responsible for researching, presenting, and discussing the clinical and epidemiological aspects of each disorder. The presentations will lead to a discussion on how to translate into bench research the newly gained knowledge about clinical and epidemiological aspects. The goal is to gain familiarity with neurodegenerative disorders that are currently being investigated in labs at our institution.

Readings:
Students will identify current research articles relevant to their assigned disease and will use them as the basis of their presentation. All students will be required to read these research articles in addition to the readings listed below:

Reading List for Neurodegenerative Diseases Seminar

1. Albert, Marilyn S., et al. "The diagnosis of mild cognitive impairment due to Alzheimer's disease: Recommendations from the National Institute on Aging-Alzheimer's Association workgroups on diagnostic guidelines for Alzheimer's disease." *Alzheimer's & dementia* 7.3 (2011): 270-279.

2. Brookmeyer, Ron, et al. "Impact of interventions to reduce Alzheimer's disease pathology on the prevalence of dementia in the oldest-old." *Alzheimer's & Dementia* 12.3 (2016): 225-232.

3. Corrada, María M., et al. "Dementia incidence continues to increase with age in the oldest old: the 90+ study." *Annals of neurology* 67.1 (2010): 114-121.

4. Corrada, Maria, et al. "Microinfarcts Are As Strongly Related To Dementia As Tangles In The Oldest-Old: The 90+ Study (S48. 003)." *Neurology* 82.10 Supplement (2014): S48-003.

5. Dong, Xiao, Brandon Milholland, and Jan Vijg. "Evidence for a limit to human lifespan." *Nature* 538.7624 (2016): 257-259.

6. Jack, Clifford R., et al. "A/T/N: An unbiased descriptive classification scheme for Alzheimer disease biomarkers." *Neurology* 87.5 (2016): 539-547.

7. Jack, Clifford R., et al. "Defining imaging biomarker cut points for brain aging and Alzheimer's disease." *Alzheimer's & Dementia* (2016).

8. Katzman, Robert, et al. "Clinical, pathological, and neurochemical changes in dementia: a subgroup with preserved mental status and numerous neocortical plaques." *Annals of neurology* 23.2 (1988): 138-144.

9. Kawas, Claudia H. "The oldest old and the 90+ Study." *Alzheimer's & Dementia* 4.1 (2008): S56-S59.

10. Kawas, Claudia H., et al. "Multiple pathologies are common and related to dementia in the oldest-old The 90+ Study." *Neurology* 85.6 (2015): 535-542.

11. Khachaturian, Zaven S. "Revised criteria for diagnosis of Alzheimer's disease: National Institute on Aging-Alzheimer's Association diagnostic guidelines for Alzheimer's disease." *Alzheimer's & dementia: the journal of the Alzheimer's Association* 7.3 (2011): 253-256.

12. Kern, Jürgen, et al. "Calcium supplementation and risk of dementia in women with cerebrovascular disease." *Neurology* 87.16 (2016): 1674-1680.

13. Kravitz, B. Adar, Maria M. Corrada, and Claudia H. Kawas. "High Levels of Serum C-Reactive Protein Are Associated with Greater Risk of All-Cause Mortality, but Not Dementia, in the Oldest-Old: Results from The 90+ Study." *Journal of the American Geriatrics Society* 57.4 (2009): 641-646.

14. Mapstone, Mark, et al. "Plasma phospholipids identify antecedent memory impairment in older adults." *Nature medicine* 20.4 (2014): 415-418.

15. McKhann, Guy M., et al. "The diagnosis of dementia due to Alzheimer's disease: Recommendations from the National Institute on Aging-Alzheimer's Association workgroups on diagnostic guidelines for Alzheimer's disease." *Alzheimer's & dementia* 7.3 (2011): 263-269.

16.
Robinson, John L., et al. "Perforant path synaptic loss correlates with cognitive impairment and Alzheimer's disease in the oldest-old." *Brain* 137.9 (2014): 2578-2587.

17. Sperling, Reisa A., et al. "Toward defining the preclinical stages of Alzheimer's disease: Recommendations from the National Institute on Aging-Alzheimer's Association workgroups on diagnostic guidelines for Alzheimer's disease." *Alzheimer's & dementia* 7.3 (2011): 280-292.

18. Villeneuve, Sylvia, et al. "Vascular risk and Aβ interact to reduce cortical thickness in AD vulnerable brain regions." *Neurology* 83.1 (2014): 40-47.

Diseases to be covered

- Alzheimer's disease
- Parkinson's disease
- Lewy body disease
- Huntington's disease
- amyotrophic lateral sclerosis
- frontotemporal dementia
- Parkinson's plus syndromes
    - progressive supranuclear palsy
    - corticobasal degeneration
    - multiple systems atrophy