Week 13

- KW27 - Dementia (Parkinson's)
- O15 - Case Report (RJ)
- Writing workshop: in-class time to finish Clinical Reports which are due this week

KW27 : Parkinson's Disease

DSM-V NCD - Review

- Minor NCD:
  - A - moderate cognitive *decline* in one or more *domains*
    - 1 - from patient, informant, or clinician
    - 2 - NP deficits : 1-2 SD below expectation
  - B - little interference with ADLs
  - C - not due to Delerium. D - Not due to other disorder
- Major NCD:
  - A - significant cognitive *decline* in one or more *domains*
    - 1 - from patient, informant, or clinician
    - 2 - substantial NP deficits (2+ SD below expectation)
  - B - interference with ADLs
  - C - not due to Delerium. D - Not due to other disorder

DSM-V : Etiological SubTypes

- Types
  - Alzheimer's
  - Frontotemporal lobar degeneration (FTD)
  - Lewy Body Disease
  - Vascular Disease
  - Head Trauma (TBI)
  - Parkinson's
  - Huntington's
  - Creutzfeldt-Jakob
  - Other Medical Condition
  - Substance/Medication use

DSM-V : NCD due to Parkinson's Disease

- A - NCD criteria are met
- B - It is Parkinson's disease -- (see next slides)
- B - insidious onset, gradual progression
- D - not explainable by other medical or mental disorder
- Specifiers:
- 1. No evidence of mixed etiology affecting cognitive decline
- 2. Parkinson's disease clearly predates NCD
- Probable:
  - both 1 and 2 are true
- Possible:
  - either 1 or 2 are true

PD Motor Symptoms

- Positive Symptoms
  - tremor at rest (reduced with purposeful movement)
    - *rest tremor = pathognomonic sign of PD*
  - muscular rigidity
  - involuntary movements
    - akathesia, tics
- Negative Symptoms - disorders of
  - posture (unable to maintain posture, equilibrium / loss of balance)
  - righting (can't stand up or roll over)
  - locomotion (can't walk normally - shuffle with short footsteps)
  - speech : loss of prosody, gravelly speech
  - akinesia / bradykinesia : slow or lack of motor behavior

PD Cognitive Symptoms

- Up to 60% of PD patients have cognitive/emotional symptoms
- Emotional
  - reductions in libido, motivation, attention. Lack of activity (may sit quietly for hours). Apathy
  - Anxiety
  - Depression (25% having *major* depression)
- "Subcortical Dementia"
  - cognitive slowing
  - executive functioning
  - memory deficits
    - retrieval rather than learning
    - recognition better than recall

PD - a *subcortical* dementia

- Subcortical Dementia
  - cognitive slowing
    - can perform tasks given enough time
  - executive functioning
    - attentional control, planning, changing strategies
  - memory deficits
    - retrieval rather than learning
      - --> information *is* being stored
    - recognition better than recall
      - --> information can be found, if given appropriate cues

PD Course

- Insidious onset
  - slight tremor or stiffness at first
  - bradykinesia
  - masked facies (flattened affect)
  - stopped posture, shuffling gait
  - speech slows, monotone (lack of prosody)
  - trouble swallowing, drooling
- Progression is variable - typically 5 years from Dx to disability, 10-20 years until incapacitated

Dementia : Prevalence

Type	Proportion of all dementias
Alzheimer's	46%*
Vascular	22%
Parkinson's	2%
Huntington's	< 1%
Other (including Mixed)	30%

* DSM-5 claims "60% to over 90%"

PD Prevalence

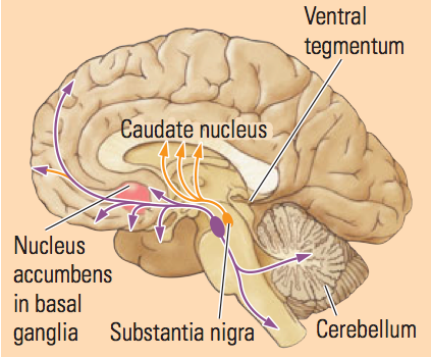
- Prevalence:
  - About 0.1% to 1.0% of adults worldwide, risk increases with age
  - About 4% at age 80+

PD Causes

- Types:
  - idiopathic
  - postencephalitic
    - sleeping sickness of 1916-1917 to 1927
    - Oliver Sack's book *Awakenings*
  - drug-induced
    - antipsychotics
    - MPTP (bad batch of synthetic MPPP, a synthetic opioid)
- Causes:
  - degeneration of substantia nigra ("black area")
  - loss of dopamine projections to cortex

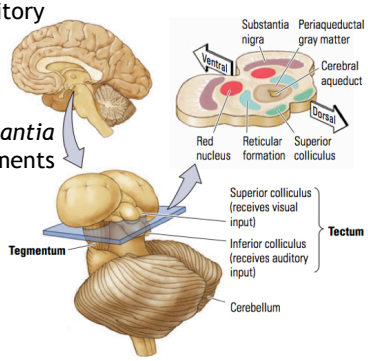
Dopaminergic Activating System

- Nigrostratial
  - Functions:
    - normal motor behavior
  - Damage/Disease:
    - Parkinson's
- Mesolimbic
  - Functions:
    - reward & pleasure
  - Damage/Disease:
    - addiction
    - schizophrenia



Midbrain

- Nuclei related to motion
- superior & inferior colliculi coordinates visual/auditory motor responses
- red nucleus - limb movements
- black substance - *substantia nigra* - initiating movements & rewards



PD Treatment

- Drugs
  - Dopamine Agonists
    - L-Dopa - converted to dopamine in the brain
      - combined with carbidopa (which prevents peripheral conversion to DA). Patients suffer ON/OFF syndrome with severe motor symptoms (e.g. MJF, RJ)
    - amphetamines
    - MAOIs
  - Anticholinergics
    - block ACh which is overactive in low DA conditions
- Surgery
  - thalamotomy
  - stem cells
  - DBS : deep brain stimulation

PD Prevention

- Prevention:
  - consumption of both coffee and tobacco associated with reduced risk
    - highest caffeine drinkers had up to 80% reduction in risk of PD
    - tobacco, however, causes much other harm

O15 : RJ (Parkinson's Disease)

Ogden Ch. 15: Parkinson's Disease : "Robert"

- ID & Presenting Problem
  - RJ 58 year old MD, referred by neurologist for baseline NP workup
- Background
  - Family Hx: father had hand tremor
- Sx & Hx
  - Noticed tremor in LH during a talk he was giving (ironically, about Parkinson's disease). Tremor in LH (he is Left handed) mostly while not using it
  - 4 months later, son (also MD) noticed it while golfing
  - family "encouraged" RJ to get evaluated by neurologist
- Initial Dx from neurologist
  - stage 1 PD: unilateral tremor, bradykinesia, rigidity

Ogden Ch. 15: Parkinson's Disease : "Robert"

- Tx:
  - started LDopa with very good results
  - tremor controlled
  - reduced work schedule, took on partner at work
  - Prozac for depression
- After 3 years
  - voice very faint, micrographia, wetting bed
  - seeing only easiest cases
- After 5 years
  - ON/OFF symptoms after taking L Dopa
    - ON: 30 minutes after taking choreatic dyskenesias
    - 60 minutes of normality
    - OFF: bradykinesia (could be stuck in a chair)

Robert : NP Testing

- Age 58
  - High overall IQ, especially on Verbal abilities
  - Mild visuospatial deficits
  - Cognitive slowing
  - Executive dysfunction
  - Rey Complex Figure test
    - copy : fair
    - memory poor but not as bad as Alzheimer's patient
- Age 60
  - no significant worsening in NP tests
  - however, gave up driving (having trouble changing lanes)

Ogden Ch. 15: Parkinson's Disease : "Robert"

- After 6 years, he had right-sided pallidotomy with good results
  - symptoms reduced, ON/OFF syndrome much better
  - could show facial expressions again
- After 7 years
  - tried DBS for left-side of brain, good results
  - by enabling "magic wand", could reduce symptoms

RJ: Rey Complex Figure