DEFINITION OF A NURSE

To go above and beyond the call of duty. The first to work and the last to leave. The heart and soul of caring.

A unique soul who will pass through your life for a minute and impact it for an eternity.

An empowered individual whom you may meet only for a 12 hour period, but who will put you and yours above theirs.

Nurseslabs.com
Parkinson Disease: Basics and Med factors

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Your Neighbor May Have Parkinson Disease
Parkinson Disease

“...caused by degeneration of dopamine producing neurons in midbrain, specifically the substantia nigra pars compacta”
Substantia nigra is the major source of dopamine in the brain
Substantia nigra is in the midbrain
Motor symptoms develop after losing 60–80% of these brain cells
Substantia nigra neurons fire:
  ◦ When expecting a reward
  ◦ During learning of a new task
Direct injury of the substantia nigra causes (suicidal) depression
PD  Normal
Parkinson disease

Mild right-sided symptoms

Normal
PD Epidemiology

- At least 1 million PD patients in the USA
- Prevalence on the rise with aging baby boomers (expected to triple in the next 40 years)
- 60k new cases diagnosed each year
- Genetics thought to account for less than 5% of cases
- Man/Woman ratio = 2:1
- Age: 10/100,000 by age 50, 200/100,000 by age 80
- Race: more common in whites (access to care??)
- Before Levodopa, life expectancy was
  - 25% deceased in 5 years
  - 65% deceased in 10 yrs
  - 89% deceased in 15 yrs
  - 2017 study says lifespan is on average 2 years less than the general population
PD Epidemiology Cont.

- Chemicals: pesticides, manganese, MPTP (1983)
- Occupation: agriculture, carpenters, cleaners, teachers, health care workers, exposure to metals, welders…

- Neuroprotective factors:
  - NOTHING ESTABLISHED YET TO BE NEUROPROTECTIVE
    - No real dietary interventions
    - No herbal remedies
    - No cannibinoids/THC thus far
Welding Related Parkinsonism

Normal idiopathic PD
welder w/ PD

Mean onset:
(n) 63 yrs (100) 46 yrs (15)

Racette et al, 2002
Geographic Prevalence of PD

Prevalence_pred (/100,000)
- 1175
- 1526
- 2086
- 3257
- 13800
Manganese Releasing Facilities

[Map of the United States with red dots indicating manganese-releasing facilities.]
"When you are a nurse you know that everyday you will touch a life or a life will touch yours."
Nursing Home Patients with PD

- Tend to be older
- More advanced PD
- More ADL impairment
- More likely to have dementia
- More likely to have hallucinations
  - Aarsland et al 2000

- Basically, you all are getting the sickest of the sick. And it is a hard job.
Other NH facts

- At least 25% of PD patients reside in a long term care facility
  - This number will grow and grow as people live longer
- Broken hips, urosepsis, dementia and psychosis seem to be the “tipping point” where patients are admitted to LTC
- Direct and indirect cost of PD is $25 billion per year in the US
Lewy bodies in the midbrain = PD
Lewy bodies in midbrain and cortex = PD/dementia, “Lewy Body Dementia”
Neuropathology starts in the olfactory bulbs and lower brainstem, move to the nigrostriatal pathways where motor symptoms begin, then spread to the cortex where dementia can occur.
CARDINAL MANIFESTATIONS

- Resting Tremor
- Rigidity (stiffness)
- Bradykinesia (slowness)
- Postural Instability
Diagnosis of Parkinson Disease

- Diagnosis: 2/3 Cardinal Symptoms
- Asymmetry
- Rule out Parkinson Plus Syndromes (atypical parkinsonism):
  - 10% of parkinsonian patients
  - Rapidly disabling
  - Poorly treatable
- MRI used to r/o SOL or strokes
- Fdopa, DAT, Spect not specific for PD vs parkinsonisms
[18F]FD…. but doesn’t discriminate one type of parkinsonism vs another

Normal  mild PD  moderate PD
Differential Diagnoses

- Multiple system atrophy:
  - (P+autonomic system problems+freezing+early falls+may or may not respond to levodopa)
  - Can be cerebellary dysfunction or PD like

- Progressive supranuclear palsy
  (P+early imbalance+substantial neck rigidity+early dementia+eyes movement abnormalities)

- Corticobasal ganglionic degeneration–CBD
  - (P+unilateral+ dystonia+early falls+early thinking problems+alien limb)

- Lower body Parkinsonism:
  - Vascular Parkinsonism (white matter disease?)
  - Normal pressure hydrocephalus

THESE DISEASES ARE NOT LIKELY TO RESPOND TO PD DRUGS
Rest Tremor

Tremor of one hand is a frequent early manifestation of parkinsonism.

Tremor often improves or disappears with purposeful function.
Rigidity: Uniformly increased resistance to a passive range of motion

Hong et al, 2007
BRADYKINESIA

AKINESIA
Stage 3: pronounced gait disturbances and moderate generalized disability; postural instability with tendency to fall.
Still with me???
Autonomic Problems

- Orthostasis (drops in BP)
  - Major issue. Patients with frequent falls or “dizziness” should be monitored

- Bowel/Bladder problems
  - Constipation
    - Miralax, stool softeners, Senna
  - Bladder urgency, inability to get started, residual urine in bladder, incontinence
    - Only Myrbetriq for OAB
    - Meds for incomplete emptying can drop BPs
Autonomic Problems cont

- Bradycardia (slow heart rate)
- Sweating
- Inability to maintain erection
  - Sometimes responsive to Viagra
- Swallowing problems
  - No one can force a feeding tube. Often not medicine responsive
- Convergence problems
  - Can try patching an eye
- Drooling
  - Botulinin can help substantially; avoid oral anticholinergics to “dry out” (confusion)
Cognitive Problems

- Psychosis and Dementia #1 reason for nursing home in PD
- Psychosis (meds?)
  - Hallucinations
  - Delusions
- Depression/Anxiety
- Dementia
  - AD vs Cortical Lewy Bodies
  - Confusion and hallucinations are not the same!
Other features of PD

- Masked facies
- Hypophonia
- Freezing
- Dystonia
- Small steps/shuffling
- REM sleep behavior disorder
  - 38% to 50% develop PD later
- Loss of sense of smell
  - May occur 20+ years before PD motor
Don't mess with me! I get paid to stab people with sharp objects.
Medical Treatments for PD
Levodopa

- Discovered about one hundred years ago
- Discovered as tx for PD in 1960s
- Immediate precursor of dopamine
- Most efficacious treatment for PD
- Increases quality of life and survival
- Most common side effects: nausea, lightheadedness, sleepiness, mental confusion, hallucinations, involuntary movements, wearing off
- Therapeutic range: 100 mg to >6000 mg/day
- Formulations:
  - Sinemet
  - Stalevo
  - Parcopa
  - Rytary
  - Duopa
Possible side effects of levodopa

- Nausea
- Lightheadedness
- Hallucinations
- Dyskinesia
- Excessive sleepiness
- Confusion

Goal of therapy: To maximize functional ability and minimize side effects
Smooth, prolonged clinical response

Low incidence of dyskinesias

- Diminished duration of target clinical response
- Increased incidence of dyskinesias
- "On" time is associated with dyskinesias

Other treatments for motor sx

- **Dopamine releasers/replacers**
  - Catecholamine-O-methyl transferase (COMT) inhibitors: tolcapone (Tasmar), entacapone (Comtan) = extenders
    - May change color of urine, Tasmar requires liver monitoring but works best
  - Dopamine agonists: bromocriptine (Parlodel), pergolide (Permax, recalled d/t heart valve defect problems), pramipexole (Mirapex), ropinirole (Requip), apomorphine (Apokyn, more recently approved in US), rotigotine patch (Neupro)
  - amantadine (Symmetrel) = decreases dyskinesia
    - Lightheadedness, hallucinations, confusion, livido reticularis

- **Mono-amine oxidase inhibitors (MAOI):**
  - Type B: selegiline (Eldepryl), rasagiline (Azilect), safinomide (Xadago)
    - No real side effects besides those of levodopa
  - These ARE safe with most antidepressant medicines

- **Anticholinergics:** trihexyphenidyl (Artane), benztropine (Cogentin) = not used often because of side effects and lack of efficacy
Dopamine agonists

- More likely to cause lightheadedness, psychosis, sleepiness, impulse control disorders
- Not as efficacious as PD for motor sx
- Less likely to cause dyskinesia or “on–off” phenomenon
- Sometimes are necessary for restless legs
- Bottom line: Usually not in people older than 65, never for people with hallucinations or dementia
Surgical Treatments
Considerations for Deep Brain Stimulation (DBS)

- Best response to levodopa will be best response to surgery
- So inappropriate for levodopa poor responders
- Inappropriate for parkinsonisms
- Inappropriate for those w/dementia
- Best for those w/good response to levodopa, wearing off, and dyskinesia
Duopa Considerations

- May be good for people who cannot or will not agree to have DBS
- Slow continuous infusion of levodopa
- May cut down dyskinesia
- You have to carry a pump and refills
- Not good for those with dementia or who live alone
- Likely not good for NH patients as they can pull these out easily
Gamma Knife Surgery/Ultrasound (US)

- Currently no approval for US in the USA
- Gamma knife being used for ET but not PD at this point
- Both are treatment for tremor but do not treat other symptoms of PD
- May be found to be appropriate for people with tremor predominant PD dementia or those who otherwise cannot have DBS
- Caveat: It is permanent
“It’s more than just a job. Sometimes the patients just need a touch on the hand, a touch on the shoulder, a smile; just let them know that we are there for them.”

~ Suzanne Hazelaar
Licensed Practical Nurse, Hospice of St. Francis Care Center
What is the difference between Doctor and Nurse

- Doctors focus on the disease
- Nurses focus on the patient as a whole
- Nurses focus on wellness
- Doctors are rarely there
- Nurses are always there
- Nurses judged most trusting of all professions for 16 years running
- These are OUR patients
Nonmedicinal Interventions

PT
- Lee Silverman BIG—Focused on stretching, strength, balance, walking, freezing
- Standard PT (gait, balance, strength, stretching)
- PT exercise classes/youtube channel
- Rock Steady Boxing

OT
- Home safety assessments, memory strategies

ST
- Lee Silverman LOUD
- Hypophonia, word finding
- Swallowing Difficulties
Why do your patients need their meds on time?

- Levodopa is generally not a long acting med, which is why it must be taken multiple times per day
  - It kicks in and wears off
- Long acting levodopa (CR, XR) takes dramatically longer to “kick in” and you absorb less
- Caveat: All care centers have an hour window in either direction to give meds so training nursing staff is important.
  - Can it be done? Is it reasonable?
What happens when I do get my meds on time?

- My benefit lasts from dose to dose
- Improved symptoms include:
  - Balance/walking
  - Better tremor control
  - Less slowness
  - Less rigidity
  - Better dexterity
  - Better mood
  - Less falling
What happens if my patient’s meds are late?

- May not be able to walk
- May be excessively slow
- May not be able to feed or dress self
- May have more frequent falls
- May not be able to arise from chairs or from the toilet
- May have excessive hand shaking
- May seem sad and agitated
- May be in substantial pain
- May be depressed/anxious/agitated

ALL OF THIS EQUALS SUBSTANTIALLY MORE WORK FOR NURSING STAFF
Meds to avoid with PD

- Nausea meds
  - For PD induced nausea, only supplemental carbidopa or domperidone
  - For general nausea, only ondansetron
    - No compazine, Reglan, metoclopramide, Tigan
  - All others can severely worsen PD motor symptoms
  - Other nausea meds besides these are an ABSOLUTE contraindication in PD
  - Other nausea meds are potent dopamine depleters
Meds to avoid cont

- Pain meds
  - Prescription pain medicines may be necessary for severe pain or after surgery
  - They may worsen cognition, cause hallucinations/deulsions, worsen balance, blood pressure control and constipation
  - Use Tylenol, Ibuprofen or Aleve when possible
  - Muscle relaxers are safer than prescription pain meds
Meds to avoid cont

- Meds for hallucinations/delusions
  - Only quetiapine, Nuplazid or clozapine may be used
    - Clozapine is by far the best but requires frequent blood draws
    - All carry increased risk of death
  - All other neuroleptic drugs are potent dopamine blockers
  - They are absolutely contraindicated in PD except in severe cases of schizophrenia
  - No Haldol, Risperdal, Zyprexa, Abililfy, etc
Meds to avoid cont

- Meds for anxiety/depression/agitation
  - Benzodiazepines should be avoided when possible. They worsen confusion and balance and are habit forming
    - Benzos are sometimes necessary in panic disorder or used for REM sleep behavior disorder
  - Adjunctive medicines for depression or anxiety: You can really only use quetiapine or clozapine adjunctively but No Haldol, Risperdal, Zyprexa, Abililfy, etc
  - When possible, no –ZAM drugs (no alprazolam, lorazepam, clonazepam, etc)
It's a privilege to care for the sick. It is an honor to be present when humans are brought into this life and when they leave.
End stage PD

- No two people are the same
- Increased trouble swallowing
- More rapid weight loss
- Complete dependence for ADLs
- More severe rigidity
- Inability to walk
- More withdrawn, confused, psychotic
- Possibly increased pain
- Loss of bowel or bladder control
- May stop eating, drinking, communicating
- Do not be afraid to call in Hospice, especially if patient has pain
Frequently Asked Questions

- My patient can walk sometimes and other times cannot. Why? Is he/she faking?
- Is it really that big of a deal to give meds late?
- Can my patient get PT if they have substantial balance problems?
- My patient is agitated and combative. What should I do?
- My patient is having more dyskinesia? Does he/she need more PD medicine? Or is he/she overdosed?
- My patient is confused. Will more PD meds help?
General tips

- Remember not every single symptom is because of PD
- Remember not every single symptom requires a trip to the ER
  - ERs tend to be dangerous for people with PD, especially if patient also has dementia
- If falling or changes in cognition, always check sitting and standing BPs and UA first
- Your patient is going to be slow—it’s ok
- Proper mental health, physical, emotional, recreational and cognitive care and support is needed