

Medications for PARKINSON'S DISEASE

Student Version

DEH 2300

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• INTRODUCTION / PATHO

- Complex clinical syndrome
- **Progressive** neurological disorder
- Affects brain centers responsible for control and regulation of movement
- Destruction of neurons in the substantia nigra causes degeneration in this tract
- Supply of **dopamine is decreased**.
- Neurons which secrete acetylcholine remain functioning and may become overactive . .
- ↑ motor signs of PD.

FORMS / CLASSIFICATIONS by ETIOLOGY

- Idiopathic or degenerative
- Post-encephalitic
- Drug induced (iatrogenic)
- Toxic (CO, mercury, cyanide)
- Trauma (midbrain compression)
- Juvenile (before age 40)

INCIDENCE

- Found worldwide
- >1 million people in US diagnosed with PD
- Familial???
- Slightly higher incidence if first degree relative has PD
- PD is “inherited” in a very small number of families.
- Onset: usually after age 60
- More common in **men**

RISK FACTORS

- Age
- Gender
- Medications
- Trauma
- Infections of neurological system
- Toxins

CARDINAL SIGNS / SYMPTOMS

- Muscle rigidity
- Bradykinesia
- **Tremors**

CLINICAL MANIFESTATIONS

- Postural / mobility abnormalities
 - Head bent forward
 - Kyphosis
 - Gait: shuffling; short steps; toe-heel; hesitancy then propulsion
 - ↓ arm swinging
 - Inability to pivot
 - Bradykinesia / Akinesia
- Mask-like expression
 - ↓ blinking
 - Staring expression

CLINICAL MANIFESTATIONS cont.

- Drooling
- Rigidity
- Tremors
 - Pill-rolling
 - Static
 - Action (intention)
 - Tongue

CLINICAL MANIFESTATIONS cont.

- Speech changes
 - Soft, low monotone
- Handwriting changes
 - Micrographia
- Depression
- Bone demineralization
- Mental changes
 - Cognitive, perceptual & memory deficits
 - May be a feature of PD or a side effect of meds

CLINICAL MANIFESTATIONS cont.

- What are the dental implications of the signs/symptoms of PD?

COMMONLY USED MEDICATIONS

- Dopamine Agonists
 - To treat tremor and rigidity
 - **Dopar® or L-Dopa® (levodopa):**
 - is converted to dopamine in the CNS & serves as a neurotransmitter
 - carbidopa: prevents peripheral destruction of levodopa
 - **Sinemet® (carbidopa & levodopa)**

COMMONLY USED MEDICATIONS (cont)

– Dopamine Agonists (cont)

- **Adverse Reactions/Side Effects to levodopa/carbidopa**
 - Involuntary movements – N/V
 - Anxiety
 - Dizziness
 - Hallucinations
 - Memory loss
 - Psychiatric problems
 - Blurred vision
 - Mydriasis
 - Anorexia
 - Dry mouth
 - Hepatic toxicity
 - Hemolytic anemia
 - Leukopenia
 - Dark urine

COMMONLY USED MEDICATIONS (cont)

– Dopamine Agonists (cont)

- **Contraindications with levodopa/carbidopa**
 - Hypersensitivity
 - Narrow-angle glaucoma
 - Bronchial
 - Psychoses
 - MAOI's
 - Malignant melanoma
 - Lactation
 - Use cautiously in:
 - » cardiac, renal, hepatic, psychiatric or ulcer disease

COMMONLY USED MEDICATIONS (cont)

– Dopamine Agonists (cont)

- **Interactions with levodopa/carbidopa**
 - Antihypertensive agents
 - Dilantin® (phenytoin) antagonizes levodopa
 - High protein foods reduce absorption
 - Iron salts may reduce bioavailability
 - MAOIs may lead to hypertensive crisis

COMMONLY USED MEDICATIONS (cont)

– Dopamine Agonists (cont)

- Are there **dental implications** for levodopa/carbidopa?
- If so, what are they?

Xerostomia and Orthostatic Hypotension

– Other Dopamine Agonists

- Mirapex® (pramipexole)
- Requip® (ropinirole)
 - also used for restless leg syndrome

COMMONLY USED MEDICATIONS

– Other Drugs for PD

- Anticholinergics (example: Cogentin®)
- Tasmart® (tolcapone)
- **Azilect®** (rasagiline)
 - Can be used as monotherapy or adjunctive therapy for PD
 - Promotes an increase in functioning
- **Adverse Reactions, Contraindications, and Interactions:**
 - » **NUMEROUS**
 - » Ingestion of tyramine-rich foods or beverages may result in life-threatening hypertensive crisis

COMMONLY USED MEDICATIONS

– Other Drugs for PD (cont.)

- **Symmetrel®** (amantadine hydrochloride)
 - Used in symptomatic initial and adjunct treatment of PD and
 - Prophylaxis and treatment of influenza A viral infections
- **Eldepryl®** or **Deprenyl®** (selegiline) – MAOI
 - Review antidepressant notes
 - Not used alone for PD
- Antidepressants
- Other meds PRN to treat S/Sx (signs/symptoms of disease) or side effects of meds

Alternative Treatments for PD

- DBS (deep brain stimulation)

<http://www.nih.gov/news/health/jun2010/ninds-02.htm>

- Stem Cell Research

Which celebrity has become known as a spokesperson for SCR?