END STAGE PARKINSON'S DISEASE

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A division of Catalyst Rx

Objectives

- Identify features of Parkinson's Disease
- Evaluate common treatments options and rationalize reasons for continuing or discontinuing therapy
- Describe complications of Parkinson's Disease

Epidemiology

- Currently Affects (US) 1 to 1.5 million
- Prevalence by age
  - 20/100,000 in 5th decade
  - 90/100,000 in 7th decade
- Mean onset for Parkinson's Syndromes including Parkinson's Disease is 60 years of age
- Men vs. Women
Dr. Roddy may be discussing some off-label uses of Therapeutic Intervention during this presentation.

Hospice Stats

- All patient's 2008
  - MLOS = 21 days
- Non ALS Neuro Dx
  - 2.1% of all admissions
  - MLOS = 88.9 days
- Why important?

Epidemiology

- Varying types of Parkinson's Syndromes
- Idiopathic Parkinson's Disease accounts for ~85%
  - This includes Lewy Body Dementia
- Drug-Induced ~ 7-9%
- Multiple System Atrophy ~ 2.5%
  - Shy-Drager Syndrome
  - Striatonigral degeneration (SND)
  - Olivopontocerebellar Degeneration
- Supranuclear Palsy ~ 1.5%
- Vascular Parkinson's ~ 3%
- Parkinson's Disease brought on by chemical exposures & head trauma are rare

Epidemiology

- Drug-Induced
  - Medications at highest risk:
  - Anti-psychotic medications
    - typical & atypical
  - Anti-nausea
    - Phenergan, Compazine, Reglan
  - Neurotransmitter depletors
    - Reserpine, Methyldopa
Disease Progression

- Dopamine is the major neurotransmitter involved in Parkinson's Disease
- When:
  - ~70-80% of Dopamine lost, patients will become symptomatic
  - Most have > 90% Dopamine lost at time of death

Symptoms/Diagnosis

- The classic "4"
  - Bradykinesia
  - Rigidity
  - Tremor (primarily at rest)
  - Postural instability

Usually occurs later in disease, therefore not a symptom needed for diagnosis

Symptoms

- Other Common Symptoms
  - Cogwheel rigidity
  - Micographia
  - Masked face
  - Swallowing difficulty/ salorrhea
  - Stooped/ Shuffling gait
  - Decreased arm swing
  - Alterations in taste perception
  - Difficulty when arising or moving
  - Start hesitancy with freezing episodes
  - Foot dystonia
### Symptoms

- Other non-motor symptoms
  - Orthostatic hypotension
  - Anxiety
  - Constipation
  - Drooling
  - Urinary disturbances
  - Sexual dysfunction
  - Sleep disturbances
  - Depression
  - Dementia
  - Speech/Smell/Vision difficulties
  - Seborrhea
  - Hallucinations

### Disease Progression

- Presentation of symptoms is usually unilateral and will progressively become bilateral
- Common causes of death:
  - Pulmonary infection/aspiration
  - Urinary tract infection/sepsis
  - DVT/PE complications
  - Complications secondary to falls and fractures

### Hospice Criteria

**Decline in Clinical Status**

- Progression of disease as documented by worsening clinical status, symptoms, signs and laboratory results.
- Clinical Status:
  - Recurrent or intractable serious infections such as pneumonia, sepsis or pyelonephritis
  - Progressive malnutrition as documented by weight loss, measurements, decreasing albumin, dysphagia
  - Symptoms: cough, n/v, diarrhea, pain
  - Signs: decline in SBP, edema, pleural effusion, weakness, LOC
  - Lab Values: not required
  - Decline in PS/PSL Karnofsky
  - Decline in FAST
  - Increase in Hospital visits
Hospice Criteria cont.

Non-disease specific guidelines (A and B should be met)

A. Physiologic impairment of functional status as demonstrated by: Karnofsky Performance Status (KPS) or Palliative Performance Score (PPS) < 70%.
Note that two of the disease specific guidelines (HIV Disease, Stroke and Coma) establish a lower qualifying KPS or PPS.

B. Dependence on assistance for two or more activities of daily living (ADLs):
- Ambulation;
- Continence;
- Transfer;
- Dressing;
- Feeding;
- Bathing.

C. Co-morbidities

Conditions of Participation

Interpretive Guidelines 5418.54 (c)(6)

In reviewing the patient's prescribed and over-the-counter medications and any additional substance that could affect drug therapy, the hospice must consider:

- Drug effectiveness
- Side effects
- Interactions of drugs
- Duplicate drugs
- Drugs associated with laboratory testing which could affect the patient.

The Dilemma?

Formulary
- Inducement
- Family Demands
- Nurturing our Patients

Medicare Guidelines
- Total Patient Care
- Do No Harm

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... Medication Guidelines

- Related / Unrelated
  - Is the medication related to the Hospice diagnosis?
  - Is the medication for symptom management?
  - Palliative?
  - Does it contribute to the individual's quality of life?
  - Does the medication have a tangible effect within the time-frame of the terminal illness?
  - Is the medication life-prolonging?

Treatment

Levodopa
 Rx’s: Sinemet® (Carbidopa/Levodopa), Parcopa® (Carbidopa/Levodopa SR)

- Most effective medication for Parkinson's Disease
- 10yrs
- Majority is broken down by decarboxylase in the periphery
- Usually in combination with carbidopa (a periphery decarboxylase inhibitor)
- 75mg
- Side effects include nausea, postural hypotension, hallucinations, dyskinesias
- Empty stomach dosing: Protein and Iron decreases absorption
- Motor Fluctuations are _____ & _______ dependent

Disease Progression

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### Treatment

**Levodopa**

<table>
<thead>
<tr>
<th>Drug</th>
<th>Onset</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sinemet</td>
<td>15-30mins</td>
<td>2-4hrs</td>
</tr>
<tr>
<td>Sinemet CR</td>
<td>30-60mins</td>
<td>4-6hrs</td>
</tr>
<tr>
<td>Liq/ disperse tabs</td>
<td>10-15mins</td>
<td>30min-1hr</td>
</tr>
</tbody>
</table>

**COMT-Inhibitors**

Rx’s: Comtan® (Entacapone), Tasmar® (Tolcapone), Stalevo®

- Prevents breakdown of levodopa by COMT
- Often requires levodopa dose reduction when first initiated to prevent levodopa induced side effects
- Should be given at the same time as Sinemet
- Useful for end of dose failure & on/off
- Entacopone better choice, tolcapone associated with hepatotoxicity
- Stalevo
  - Prostate Cancer

**Amantadine**

- Facilitates the release of DA?
- NMDA
- Useful in Tremors
- Good for bradykinesia, rigidity, and dyskinesias
- Usually dosed 100-400mg/day in two divided doses
- Side effects very similar to anticholinergic agents, however, also can cause nervousness, agitation, insomnia, hallucinations
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### Treatment

**MAO-B inhibitor**
- Rx's: Eldepryl® (Selegeline), Azilect® (Rasagiline)
- Prevents breakdown of DA in brain
- Given AM and noon to prevent excitation later on in the day
- Neuroprotection?
- Ensam patch / Zelapar ODT

### Treatment

- **Anticholinergics**
  - Finding the balance between DA and ACh
  - DA depletion leads to cholinergic excitation which leads to tremor and rigidity
  - Efficacy with these drugs is treating tremor and rigidity
  - Trihexyphenidyl (Artane) 2-15 mg/day often given in 3-4 divided doses
  - Benztropine (Cogentin) 0.5-6 mg/day often given in 1-2 divided doses

### Treatment

- **Anticholinergics**
- Acronym for remembering cholinergic effects:
  - DUMBBELSS + Abdominal Cramping
    - D: Diarrhea
    - U: Urination
    - M: Miosis
    - B: Bradycardia
    - B: Bronchoconstriction
    - E: Excitation
    - X: Lacrimation
    - S: Salivation
    - S: Sweating
- Anticholinergic side effects of medication can give you the opposite of the above +/- confusion and hallucinations
Treatment

DA agonists

Rx’s: Mirapex® (Pramipexole), Requip® (Ropinirole)
Older agent: Parlodel® (Bromocriptine)

- Mimics natural DA
- Can be used as mono or combo therapy
- Useful for On/Off periods & end of dose failure
- Requip Dosage forms
- Potency
- Side effects: nausea, vomiting, dizziness, drowsiness, postural hypotension, hallucinations
- Older Agents / Ergot
- Neupro® (Rotigotine)

Apomorphine

- Potent DA agonist
- Only available in US as injection to be given SQ
- Requires medical supervision required on first dose
- Side effects: nausea, vomiting, dizziness, drowsiness, postural hypotension, hallucinations, QT
- Antiemetics are indicated routinely during treatment (not anti-dopamine drugs or anti-serotonin drugs)
  - Tigan
  - 5HT3 (Zofran, Kytril, Anzemet) - NO
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