Movement disorders

Neurology Didactic Session 5
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Picture a “see saw”

DOPAMINE

Acetylcholine
## Imbalance results

<table>
<thead>
<tr>
<th>Movement</th>
<th>Too much Dopamine (same as too little acetylcholine)</th>
<th>Too much acetylcholine (same as too little dopamine)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mentation</td>
<td>Chorea</td>
<td>Tremor at rest Parkinsonian features</td>
</tr>
<tr>
<td></td>
<td>Psychotic delirium</td>
<td>Cholinergic delirium</td>
</tr>
</tbody>
</table>
Three main tremor types

- Essential (Familial or Idiopathic)
  - Strong genetic component
  - Affects upper extremities >> lower extremities
  - Usually symmetric
- Parkinsonian tremor
  - Begins asymmetrically
  - Tremor at rest ("Pill rolling")
- Cerebellar tremor ("intention tremor")
  - Worsens as the patient reaches the intended target
  - If you wonder if this is the diagnosis – it isn’t
4 Cardinal features of Parkinson disease

- Bradykinesia (slow movements)
- Rigidity (cogwheel NOT lead pipe)
  - “ratcheting quality”
  - Lead pipe = same in all directions of movement
- Postural instability
- Tremor at rest
Parkinson treatment

- Depends on patient age
  - <60 = dopamine agonists
  - 60 or more = Carbidopa/Levodopa (Sinemet)
- Sinemet is effective for about 10 years
  - Consider patient life expectancy
  - Consider overall health of patient
  - DOES not treat the tremor (anticholinergics do)
- Advanced treatment - Deep brain stimulation
  - People do as well as they did on their medicine
Parkinson Disease, Parkinsonism and Neurodegenerative disorders

- Parkinson disease ONLY has the 4 cardinal features
  - Due to atrophy in substantia nigra and
  - Locus coeruleus
- Parkinsonism is due to another cause
  - Trauma
  - Toxins
  - Infection
  - Drug induced
- Parkinson plus syndromes are degenerative and involve other parts of the brain
Emergencies

- Acute dystonic reaction
  - Usually due to acute dopamine blockade
  - Treat by blocking acetylcholine with diphenhydramine

- Neuroleptic malignant syndrome (not all features need be present):
  - Four main features
    - Fever
    - Muscular rigidity (leads to elevated CK)
    - Altered mental status,
    - Autonomic dysfunction
  - Treat with dopamine agonist bromocryptine
Movement disorder summary

- Excess movement
  - Give sedative agent
  - Consider anticholinergics for Parkinson tremor
- Reduced movement
  - Try a dopamine agonist