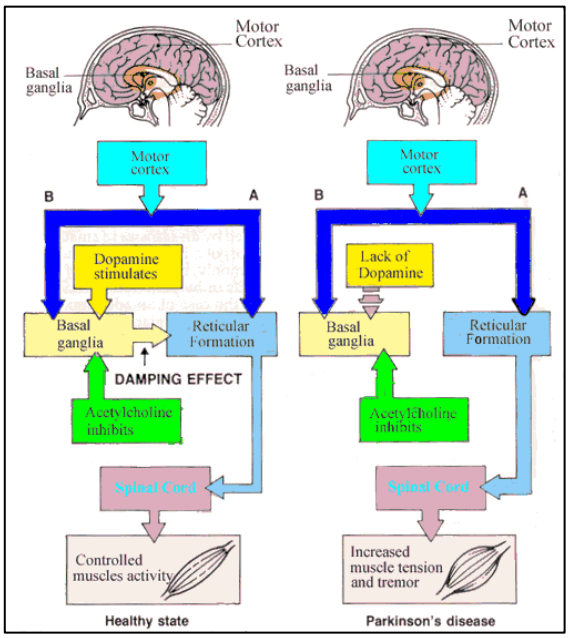
Parkinson's Disease (part - 1)

Anesthetic Pearls: Pre-Op Anesthetic Implications and Management of Parkinson's Disease

Risk

- People within USA: ~1%, of population > 50 years old
- Gender with higher prevalence: males: 40-60 y (1.5 : 1)



Overview

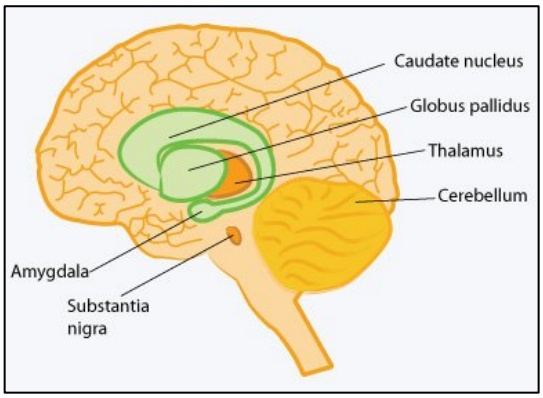
1. Degenerative disease of extrapyramidal system characterized by bradykinesia, rigidity, tremor.
2. Dementia in up to 50% of patients
3. Symptoms may worsen on emergence from GA
4. Classic signs (TRAP): 1- resting tremor, 2- muscular rigidity, 3- akinesia / bradykinesia, 4- postural instability

Etiology

- Primary Parkinsonism: unknown, multifactorial, some clusters related to 1927 influenza epidemic
- Secondary Parkinsonism (post-encephalitis, CO poisoning, manganese poisoning, n-MPTP poisoning, chronic ingestion of dopamine-inhibiting antipsychotic drugs, multifactorial, environmental)

Peri-Op Risk

A. Associated with increased incidence of arteriosclerosis and obstructive lung disease
B. Increased sensitivity to anesthetic agents
C. Laryngospasm / diaphragmatic spasms
D. Visual and tactile hallucinations
E. Reduced vital capacity leading to pulmonary complications
F. Violent tremors
G. Muscle tremors mimicking V-Fib
H. Post-op delirium / psychiatric disturbances
I. Side effects of L-dopa therapy



Usual treatment

1. Levodopa (L-dopa) in combination with alpha-methylhydrazine (Carbidopa) creates Sinemet.
2. Bromocriptine and Lergotrile: provide direct stimulation of dopaminergic receptors. Use in combination with Sinemet
3. Amantadine: reduces symptoms via presumed anticholinergic and enhanced dopamine effect
4. Anticholinergics (Benztropine): cholinergic side effects limit use
5. Stereotaxic brain surgery in rare cases
6. Experimental treatment with fetal adrenal implantation

Pre-Op Preparation

- Administer anti-Parkinson's therapy up to time of surgery (benefits last 6-12 hours)
- Avoid Phenothiazines, Butyrophenones, and Metoclopramide (exacerbate extrapyramidal Sx)
- Assess and maintain good intravascular volume status
- Pre-op instruction of deep breathing / incentive spirometry
- Potential of post-op ventilator