CARING IN YOUR COMMUNITY

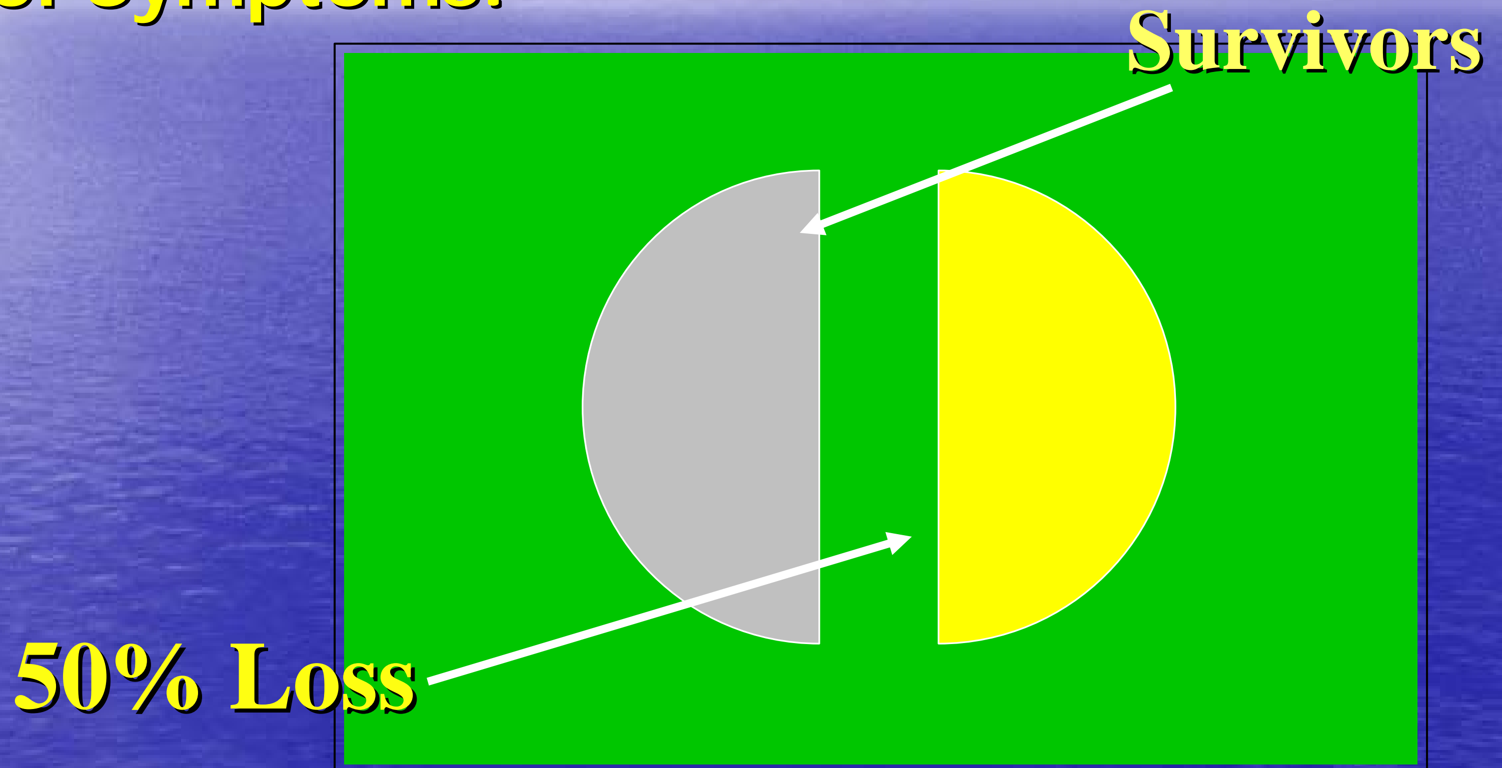
JOANNE MALENKO R.N.

PARKINSON'S DISEASE

- Chronic, progressive, neurological disorder
- Loss of substantia nigral cells within basal ganglia
- Leads to loss of neurotransmitter DOPAMINE
- MAO–B depletes dopamine
- Symptoms vary

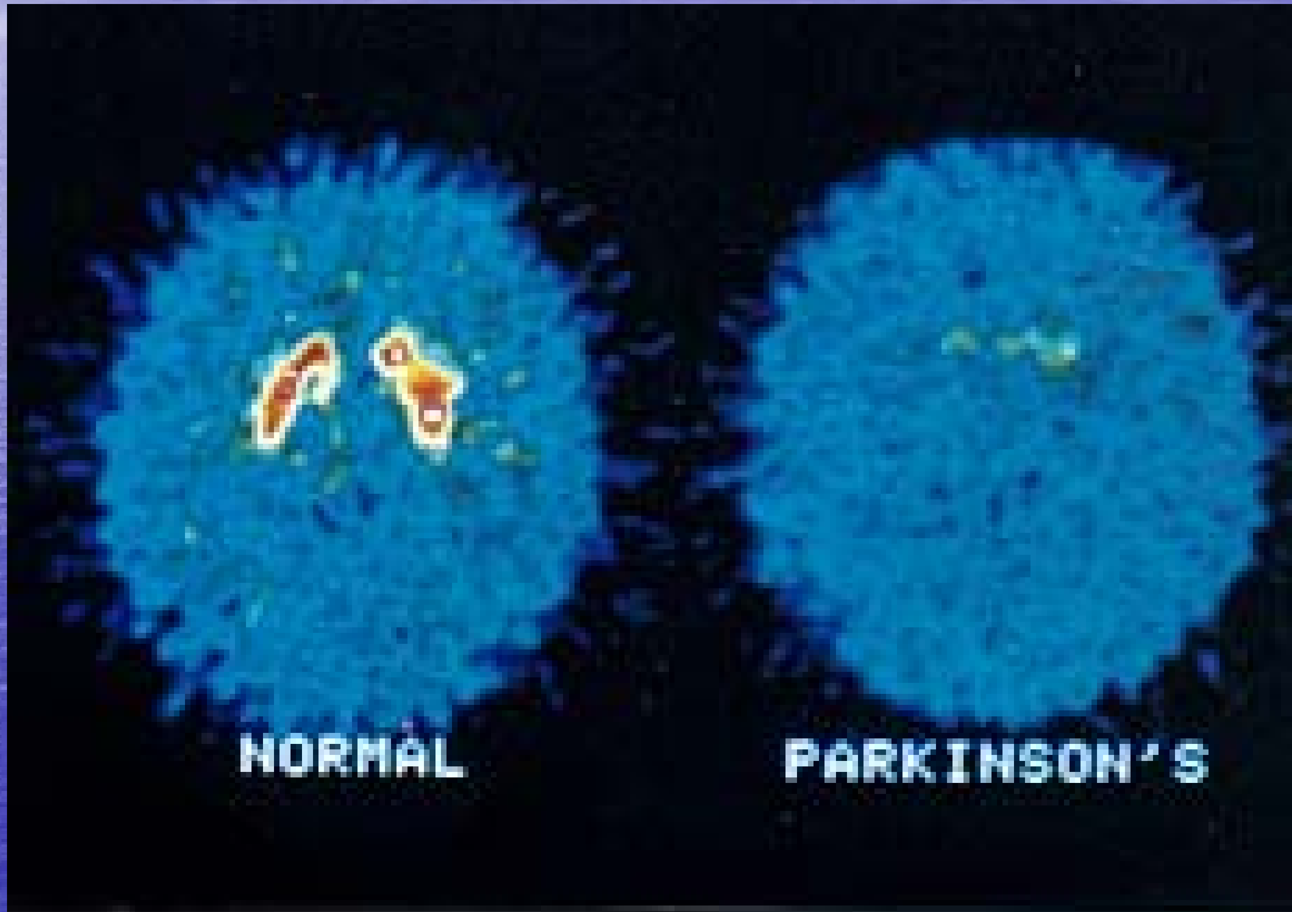
Parkinson's Disease

Onset of Symptoms:



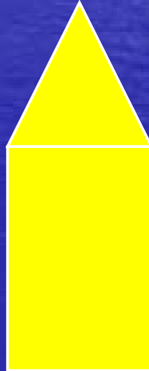
Substantia Nigra Cells

PET Scan



Normal

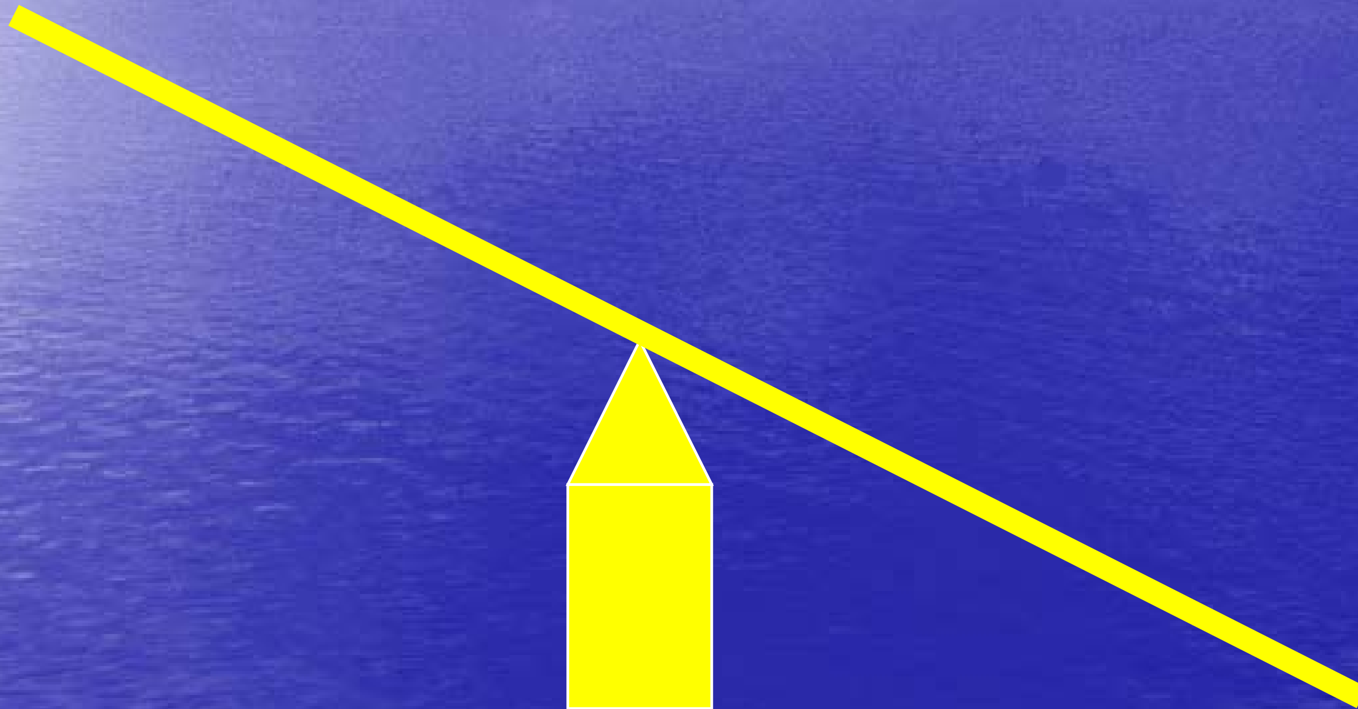
DOPAMINE



ACETYCHOLINE

Parkinson's Disease

DOPAMINE



ACETYCHOLINE

AN

ESSAY

ON THE

SHAKING PALSY.

BY

JAMES PARKINSON,

MEMBER OF THE ROYAL COLLEGE OF SURGEONS.

LONDON:

PRINTED BY WHITTINGHAM AND ROWLAND,
Goswell Street,

FOR SHERWOOD, NEELY, AND JONES,
PATERNOSTER ROW.

1817.

"Involuntary tremulous motion, with lessened muscular power, in parts not in action and even when supported; with a propensity to bend the trunk forward, and to pass from a walking to a running pace: the senses and intellect are uninjured."

PARKINSON'S

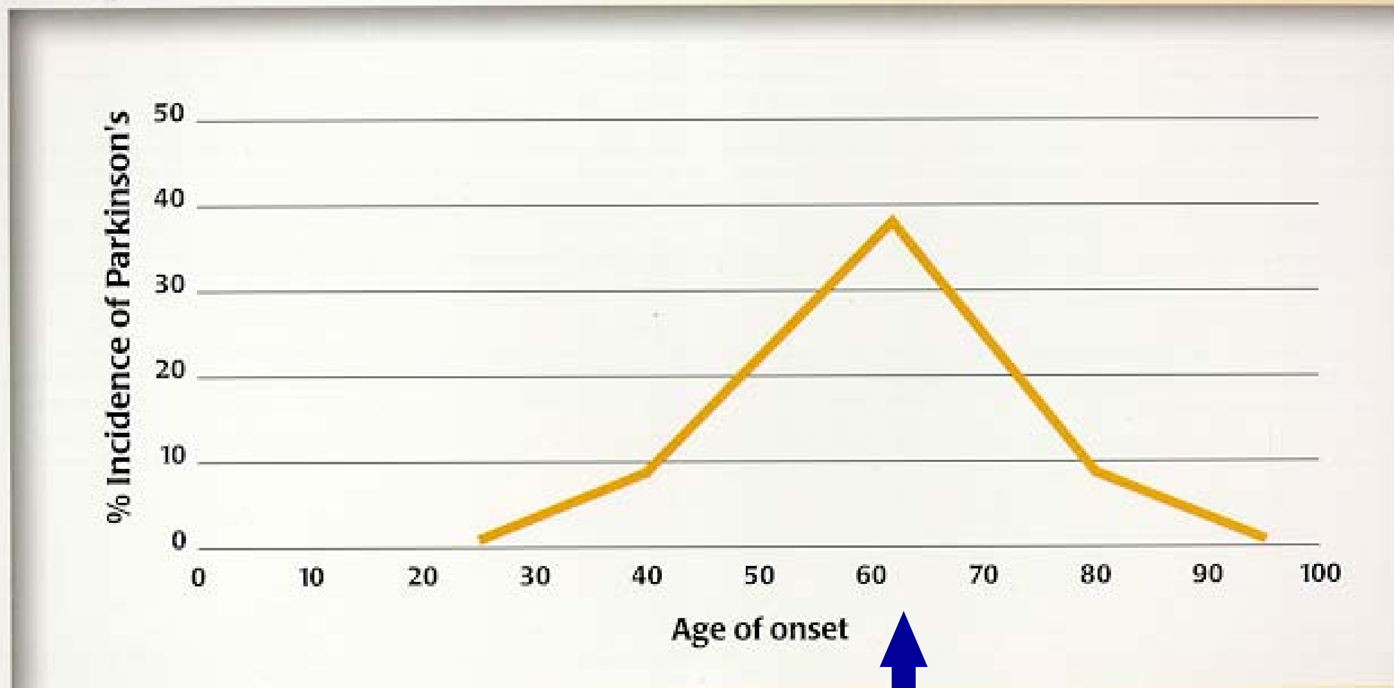
Etiology / Etiologies ?

- GENETIC
- AGING
- ENVIRONMENTAL
  - Infections
  - Toxins - MPTP

INCIDENCE

- 1/1000 = 40 – 60 Years of age
- 1/100 = > 70 Years of age
- Average Age of Onset = 64
- 10% under age 40, referred as young onset

Age of onset (years)



- More than half the cases of Parkinson's disease start before the age of 65 years.

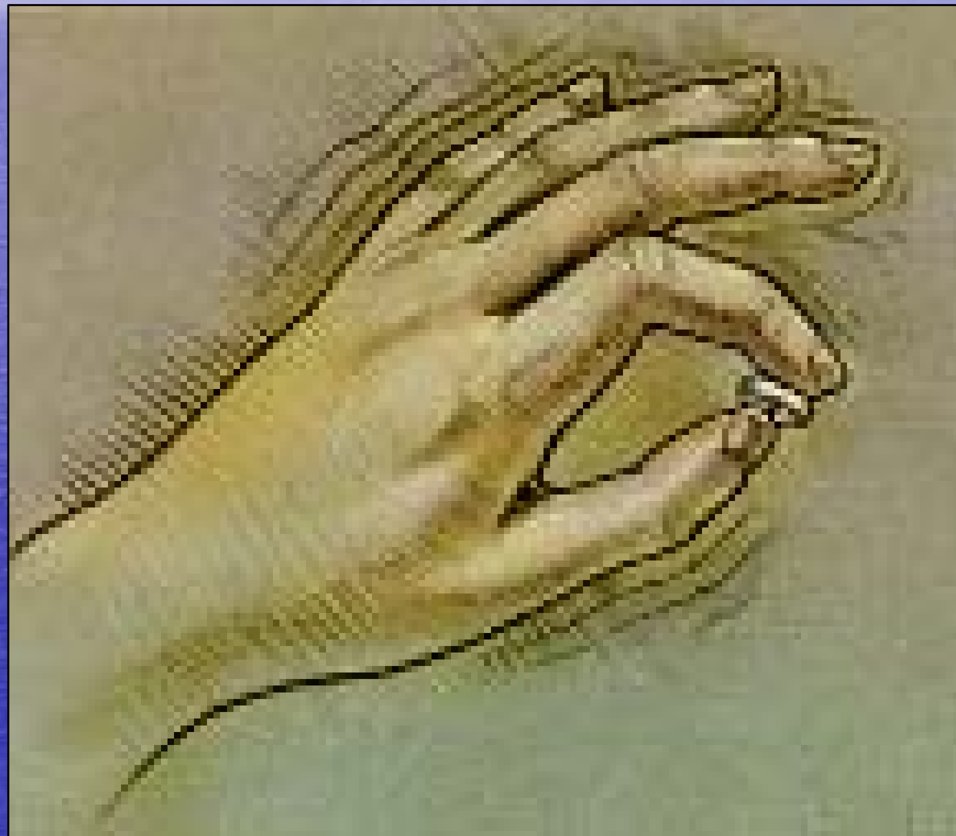
PARKINSON'S DISEASE MODIFIED HOEHN AND YAHR SCALE

- Stage 0 No signs
- Stage 1 Unilateral disease
- Stage 1.5 Unilateral plus axial involvement
- Stage 2 Bilateral disease, without impairment of balance
- Stage 2.5 Mild bilateral disease, with recovery on pull test
- Stage 3 Mild to moderate disease, needs assistance to prevent falling on pull test; physically independent
- Stage 4 Severe disability; still able to walk or stand unassisted
- Stage 5 Wheelchair bound or bedridden unless aided

CHARACTERISTIC SYMPTOMS

- **T**REMOR
- **R**IGIDITY
- **A**KINESIA / BRADYKINESIA
- **P**OSTURAL INSTABILITY / GAIT DISORDER
- **TRAP**

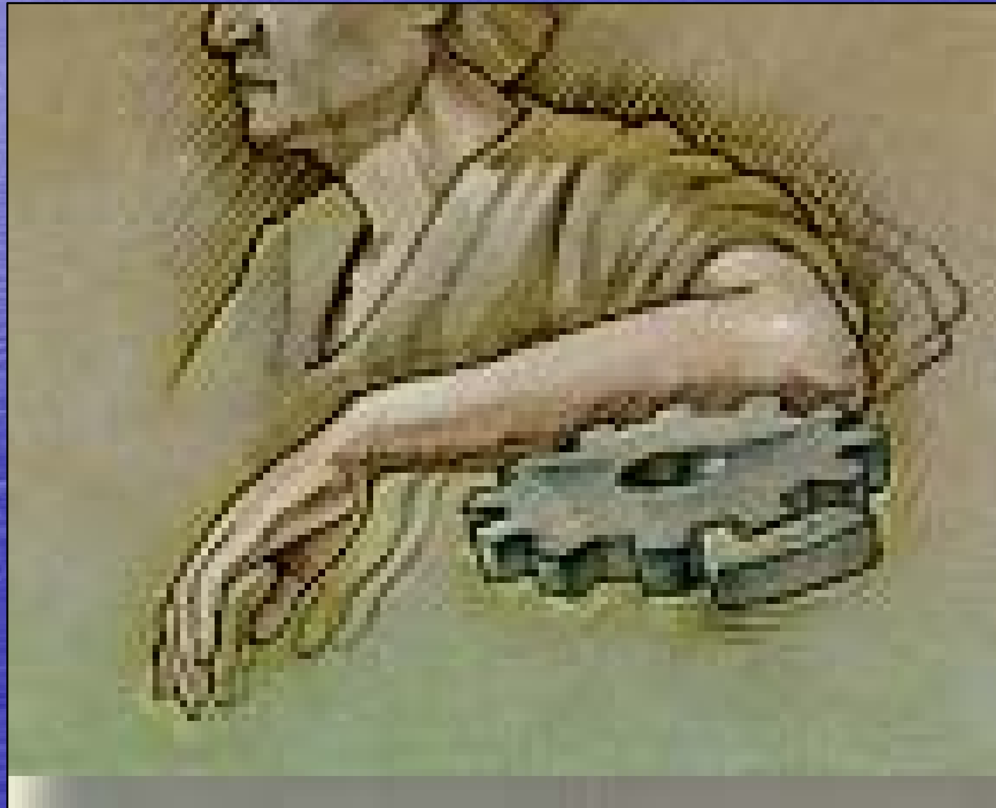
TREMOR



TREMOR

- 70% Usually at rest
- Affects limbs, tongue, chin rarely the head
- Aggravated by stress, absent during sleep
- Described as “pill rolling”

Rigidity or stiffness and muscle pain



RIGIDITY

- Increase tone or stiffness
- Affects all voluntary muscles, including chest and stomach
- Decreased arm swing
- “Mask like” appearance
- Cogwheeling

Akinesia/Bradykinesia or slowness of movement

Akinesia/Bradykinesia or slowness of movement

- Can also affect speech and thought process
- Clumsiness, difficulty with fine movements
- Frustrating
- Loss of automatic movements

Postural instability / Gait disorder

Postural instability/Gait disorder

- Tendency to stoop forward
- Inability to make adjustments to changes in one's centre of gravity
- May lead to falls
- "Festinations"
- Does not respond well to medications

SECONDARY SYMPTOMS

FREEZING

- Sudden immobility of the body or body part
- Doorways or corners can precipitate an attack

See Handout

SPEECH PROBLEMS

- Difficulty with lips, mouth, tongue and throat muscles
- Difficulty being understood
- Soft faded voice
- Speech may become faster
- Consult Speech Language Pathologist

DIFFICULTY SWALLOWING

- Approximately 50% may have difficulty with swallowing
- Initial signs: coughing, choking, sticking
- Encourage small bites, be cautious with straws etc.
- No talking or laughing while eating
- Consult SLP for Swallowing Assessment

DROOLING

- Difficulty and slowness in swallowing
- Low head position
- Tendency to keep mouth open
- Candy, ice, gum may help, if no swallowing problems
- Add lemon drops to water, or sips of tonic water
- Medications

MENTAL CHANGES

- Depression (50%)
- Anxiety
- Apathy
- Cognitive Difficulties/Dementia
- Hallucinations (40%)
- Symptoms of Parkinson's disease and depression are very similar

SEXUAL DYSFUNCTION

- Common problem
- Due to autonomic nervous system involvement

PAIN AND SENSORY

- Dystonia
- Numbness, tingling, burning
- Toe curling in the early morning

ORTHOSTATIC HYPOTENSION

- Monitor BP supine, sitting, standing
- Drop of 20mmg systolic, 10mmg diastolic
- Avoid antihypertensives
- 8 – 10 glasses water daily
- Add salt to diet
- Elevate head of bed on 4 – 6 inch blocks
- Slowly rise from bed etc.

EASY FATIGABILITY

- Conscious efforts in performing actions can cause fatigue
- Very common symptom occurs in up to 40%
- Described as chronic, creeping experience, not relieved by rest

APPETITE CHANGES

- Change in food preference
- Dopamine as well as other neurotransmitters involved in appetite process
- Depression, anxiety
- Dietary supplements if weight loss
- Consult Dietician

CONSTIPATION

- Major problem
- Immobility, complicated by antiparkinson medication
- PD slowing the bowel action
- 8 glasses fluids, foods higher in fibre, avoid bananas
- Medications as needed

URINARY PROBLEMS

- Occur in severe cases of PD
- Difficulty starting, frequency, and incontinence R/T effects on the sphincter control
- Retention or urine R/T effects of antiparkinson medications
- See MD to rule out other problems i.e. UTI, prostate, gynecologic etc.

SEBORRHEA

- Excessive oiliness causing fungal infection
- Good hygiene

SWEATING

- Impaired sweating responses
- Pills can aggravate this
- Adequate hydration

HANDWRITING

- Characteristic changes may be of diagnostic value
- Tends to get smaller *"MICROGRAPHIA"*
- Tremors may also be evident
- Medication may improve handwriting, use of computers, learn to write with opposite hand
- Consult OT and SLP

SLEEP DISTURBANCES

- Sleep initiation problems R/T anxiety or depression
- Insomnia R/T antiparkinson medications
- Early morning awakening R/T depression

DIAGNOSIS

- Physical and neurological examinations
- Medical and family history
- If one or two of primary symptoms are present
- Response to medications
- Lab tests may be ordered to rule out other conditions
- No cure

DRUG THERAPY

DRUG THERAPY

Anticholinergic Agents

Amantadine

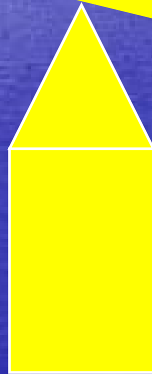
Levodopa

Dopamine Agonist

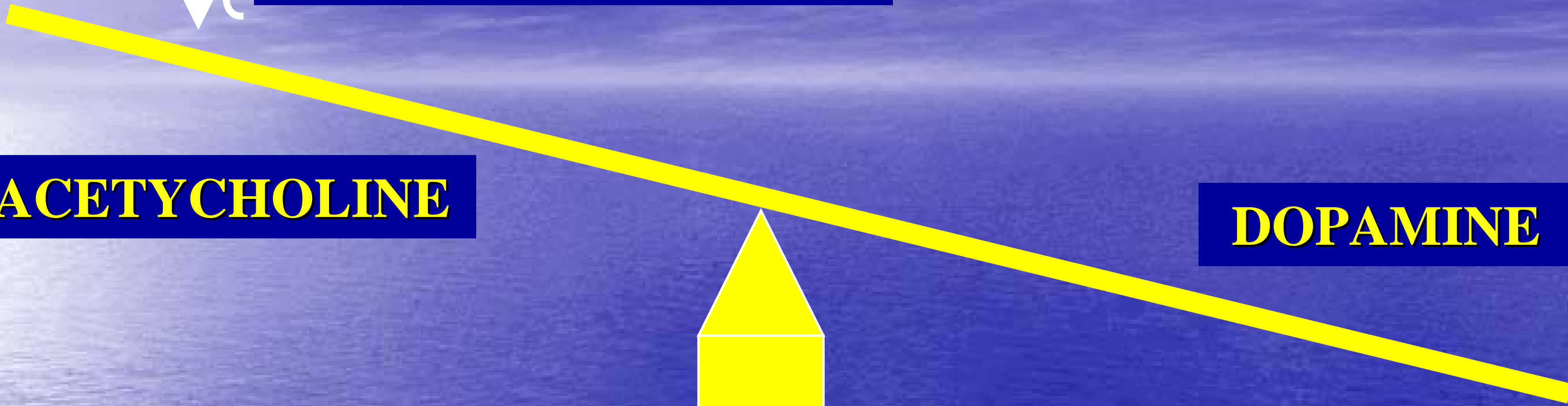
MAO-B Inhibitor

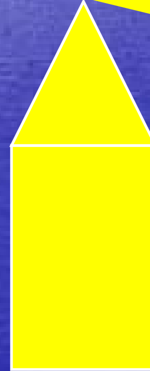
COMT Inhibitors

ACETYCHOLINE



DOPAMINE


ANTICHOLINERGICS
AMANTADINE
ACETYCHOLINE
DOPAMINE



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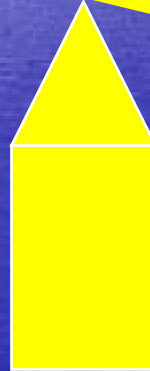


AMANTADINE
LEVODOPA
DOPAMINE AGONIST

DRUG THERAPY

- Administration of medications on time is crucial
- Never stop abruptly without consultation of MD

ANTICHOLINERGICS

Types:

- Trihexyphenidyl Hydrochloride (Artane)
- Benztropine Mesylate (Cogentin)
- Ethoprazine Hydrochloride (Parsitan)
- Procyclidine Hydrochloride (Kemadrin)
- Biperiden Hydrochloride (Akineton)

ANTICHOLINERGICS

Advantages:

- Treats:
  - rigidity and tremor
  - dystonia
  - drooling
  - postural reflexes
- Keeps Levodopa dosage small
- Can give parentally

ANTICHOLINERGICS

Side Effects:

- Memory loss / confusion
- Hallucinations
- Urination retention
- Dry mouth, skin
- Visual blurring
- Dyskinesia

Amantadine

Advantages:

- Better than anticholinergics
- Better for rigidity, improves muscle control
- Reduces stiffness
- Effect in 24 hours

Action:

- Increase dopamine release
- Less dopamine reuptake
- Direct dopamine agonist
- Anticholinergic

LEVODOPA
"The Gold Standard"

- Transformed by S.N. cells to dopamine
- Can't diagnose PD if no response
- Improves muscle control, reduces stiffness
- Iron and protein interference

TYPES : Sinemet 100/25, 100/10, 250/25, Sinemet CR 100/25, 200/50

Prolopa 50-12.5, 100-25, 200-50

LEVODOPA

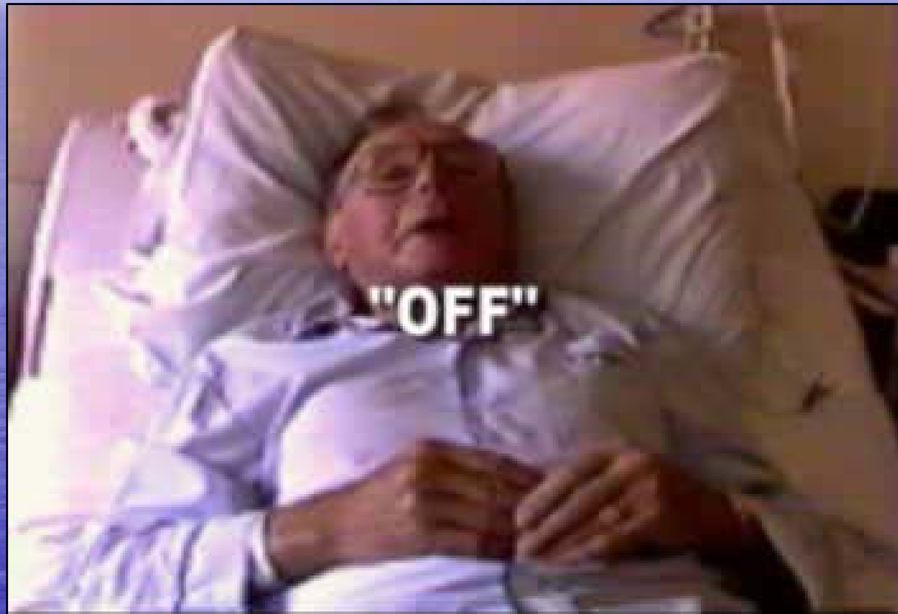
Side Effects:

- Orthostatic hypotension
- Nausea or gastric upset
- Insomnia or vivid dreams
- Psychiatric disturbances
- Hypomania, Hypersexuality
- Dyskinesias
- On/Off" Syndrome"

“OFFS” can be associated with

- Panic
- Anxiety
- Depression
- Pain
- Akathesia
- Altered bladder function
- Altered bowel function

Rx = LEVODOPA


"OFF"

Dopamine Agonist

Types:

- Bromocriptine (Parlodel)
- Pergolide Mesylate (Permax)
- Ropinirole Hydrochloride (ReQuip)
- Pramipexole Dihydrochloride (Mirapex)

} Causes thickened heart valves

Dopamine Agonist

USE:

- Early if young
  - To keep Levodopa dose low
- Late to decrease dyskinesias
  - Allows lower Levodopa

AVOID IF:

- Hypotension, confusion
- Cardiovascular disease

Dopamine Agonist

Advantages:

- Potent dopamine agonist D1 & D2
- Treats all major symptoms
- Decreases “off” time
- Mimics dopamine
- Reduces stiffness
- Use at first sign of fluctuations

Adverse Events

- CONFUSION, HALLUCINATIONS
- NAUSEA
- ORTHOSTATIC HYPOTENSION
- DYSKINESIAS
- HYPERSEXUALITY
- DIZZINESS
- SOMNOLENCE
- DIARRHEA
- IMPOTENCE
- URINARY FREQUENCY
- DEPRESSION
- IMPULSE CONTROL DISORDERS

MAO – B INHIBITORS

Types:

- Selegiline (Deprenyl, Eldepryl)
- Rasagiline (Azilect)

MAO - B INHIBITORS

Advantages:

- Prolongs levodopa effect
- Improves tremor
- Improves the "end of dose fluctuations"

COMT INHIBITORS

Types:

- Tolcapone (Tasmar) (Withdrawn in Canada due to liver problems)
- Entacapone (Comtan)

COMT INHIBITORS

Advantages:

- Inhibits the chemical in the brain that destroys excess dopamine
- Prolongs levodopa effect
- Improves fluctuations

HERBAL MEDICATIONS

- Always check with your doctor before taking any herbal medication as they all have side effects

- Vitamin B6 should be avoided in any supplement as it directly interferes with absorption of Levodopa from intestines.

SURGICAL

- Deep Brain Stimulators
  Usually in the subthalamic nucleus bilaterally

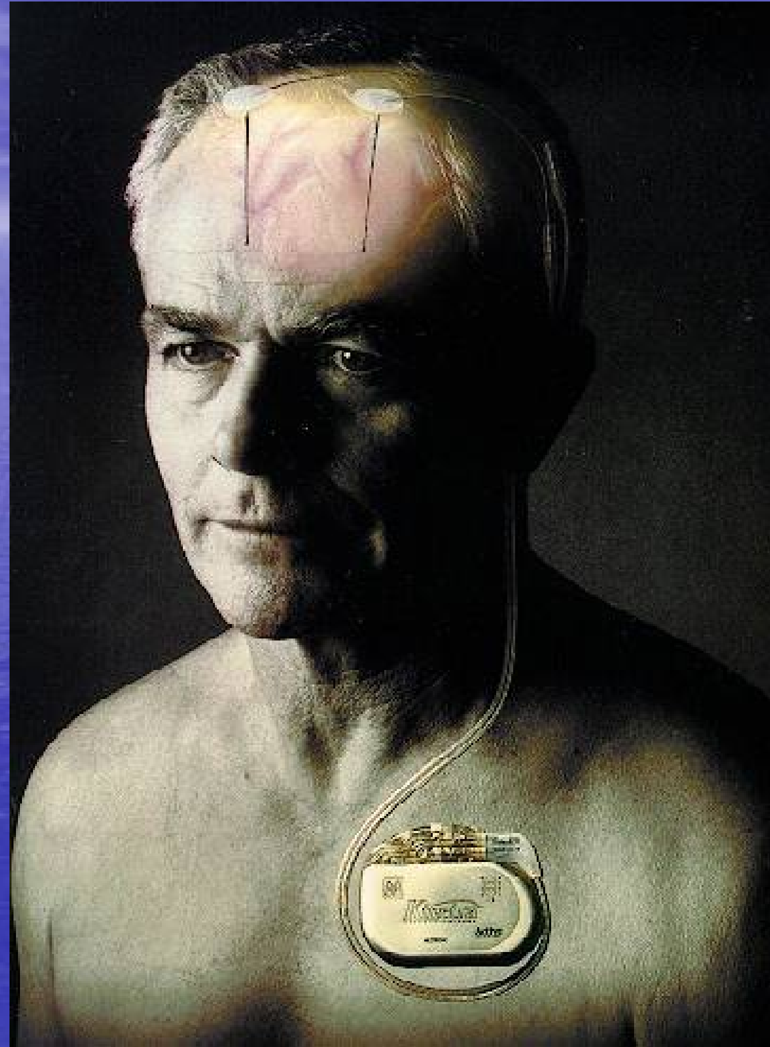
- Thalmotomy/Pallidotomy
  (Only if patients are not DBS candidates)

What is a Deep Brain Stimulator

- A 4 electrode lead
- It delivers electrical stimulation to a target

What is a Deep Brain Stimulator

- A 4 electrode lead
- It delivers electrical stimulation to a target
- Tunneled extension to an implanted pulse generator



A hand held controller allows the patient to turn the settings up and down or on and off

What Does a Deep Brain Stimulator Do?

- Mimics the effects of a lesion
- Creates reversible, suppressible effects
- No risk of inducing lesions over the years
- When stimulation is stopped, symptoms reappear

CAREGIVERS

- Remember caregiver's needs
- Include them with appointments and care planning
- They have unique knowledge about the patient
- Educate, support and provide resources
- Support groups

COMMUNITY BASED RESOURCES

DIETICIAN

- Levodopa absorption may be inhibited by protein intake
- SECONDARY SYMPTOMS
- Interfering with eating
- May lead to weight loss
- Assess chewing and swallowing difficulties

OCCUPATIONAL THERAPY

- Improve a patient's functional ability by:
- Adapting equipment
- Promoting safety
- Showing how to conserve energy
- Assessments – cognitive, physical, vocational, wheelchair requirements, home environment
- Council and teach patients and family

PHYSIOTHERAPY

- Minimize limitations due to deformity
- Teaches how to use:
- Walking aids
- Ideas to improve posture
- Balance maintenance, fall prevention
- Getting in and out of chairs and beds, turning
- Education of patient and family

MASSAGE THERAPY

- Improves circulation
- Helps to relieve muscle tension
- Improves flexibility

SPEECH THERAPY

- Improve communication
- Exaggerate pronunciation and force the tongue, lips and jaw to work
- Lee Silverman Voice Therapy if indicated
- Swallowing assessment

NURSING

- Interpreter
- Coordinator
- Teacher/Instructor of patient, caregivers, health care professionals
- Research Associate
- Data Keeper

SOCIAL WORK AND SOCIAL SERVICES

- Most knowledgeable about
- Availability of community resources
- Eligibility requirements for services and referral procedures for their implementation
- Assesses patients and caregiver needs

PARKINSON SOCIETY MANITOBA

#7 – 414 Westmount Drive

Winnipeg, Manitoba R2J 1P2

Tel: (204)786-2637 Fax: (204)786-2327

Toll Free: 1-866-999-5558

PARKINSON SOCIETY MANITOBA

- Support groups
- Winnipeg: Deer Lodge

  River East

  Care Partners Group

  Newly Diagnosed Group

  Exercise Classes

PARKINSON SOCIETY MANITOBA

- Rural Manitoba
- Westman/Brandon
- Gimli
- Morden
- Roblin

WEB SITES

www.cmdg.org

www.wemove.org

www.parkinson.ca

www.parkinsonmanitoba.ca

www.parkinson.org

Deer Lodge

Movement Disorder Clinic

A National Parkinson Foundation Care Centre

Supported by Parkinson Society Canada

MOVEMENT DISORDER CLINIC

- DEER LODGE CENTRE
- Interdisciplinary

Dr. D.E. Hobson	Movement Disorder Neurologist
Dr. A. Borys	Movement Disorder Neurologist
Dr. J. Krcek	Neurosurgeon at HSC
Dr. A. Kilgour	Neuropsychologist
Dr. B. Campbell	Geriatric Psychiatrist

MOVEMENT DISORDER CLINIC

Shaun Hobson	Movement Disorder Nurse Clinical Research Coordinator
Renée Krcek	Movement Disorder Nurse DBS Nurse Clinician/Surgical Coordinator
Ivy Namaka	Movement Disorder Nurse DBS Nurse Clinician
Joanne Malenko	Movement Disorder Resource Nurse (PSC partially funded position) Patient Care Coordinator

MOVEMENT DISORDER CLINIC

Sandra Funk	Social Worker Huntington's Resource Director
Shaun McFadyen	Physiotherapist
Catherine Bryden Dueck	Occupational Therapist
Gillian Barnes	Speech Language Pathologist
Amy Dick	Dietician

MOVEMENT DISORDER CLINIC

Robin Walmsley	Neurophysiology Technologist
Ina Varga	Administrative Assistant
Brenda Gross	Receptionist
Anita Payne	Receptionist

THE END

Questions?