

Parkinson's disease and Essential Tremor: treatment updates

Eleanor K Orehek, M.D.

Movement Disorders Specialist

Noran Neurological Clinic 

Symptoms of Parkinsons

MOTOR

- Tremor
- Rigidity (stiffness)
- Bradykinesia (slowness)

NONMOTOR

- Cognitive changes
- Anxiety, depression
- Sleep disorders
- Autonomic Dysfunction
 - **Constipation, overactive bladder**
- Fatigue
- Sensory changes

Treatment Options

- Exercise!!
- Physical, Occupational, Speech Therapies
 - BIG and LOUD therapy
- Medications
- Deep Brain Stimulation

Deep Brain Stimulation (DBS)

- DBS – high frequency stimulation applied to specific targets

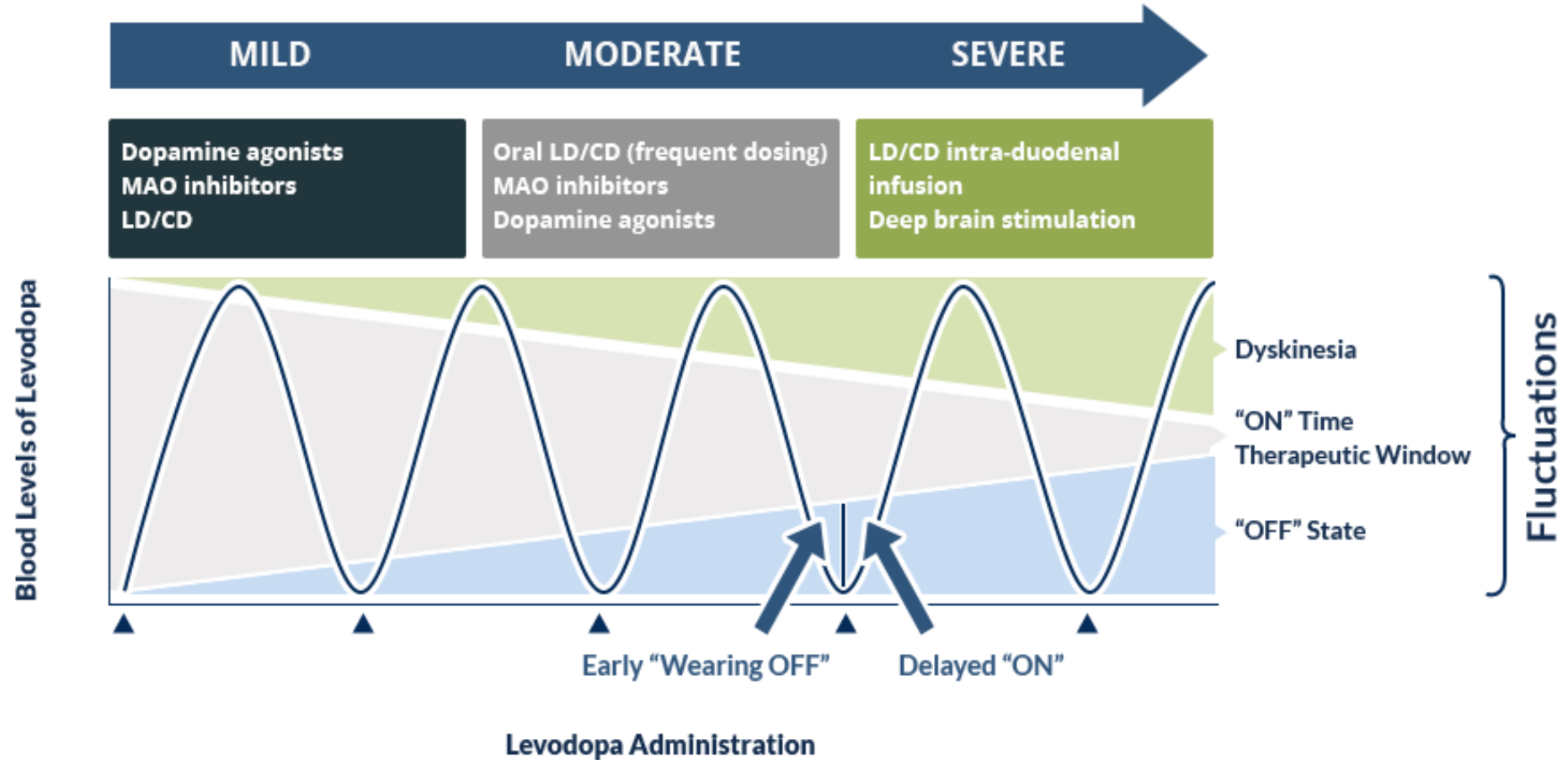


DBS for Parkinson Disease

- Who's a candidate?
 - Good response to carbidopa/levodopa
 - Having fluctuations – early off times, dyskinesias
 - Typically at least 5 years into disease

Who's a candidate?

Motor symptoms (tremor, slowness, stiffness) not well treated with medications



DBS for Parkinson Disease

- EARLYSTIM trial led by Deuschl
 - NEJM 2013 Medication only vs DBS+Medication
 - Average duration of disease 7.5 years, all under 60y
 - 24 month follow up 26% improved PDQ-39, worsened by 1% in Medication group
 - UPDRS-III scores improved by 53%, 16 point difference in UPDRS at 24months ($P < 0.001$)

DBS for Parkinson Disease

- Effectiveness
 - Symptoms that respond – tremor, bradykinesia, rigidity
 - UPDRS scores improve 40-60%
 - Disabling dyskinesias reduced 60-80%
 - Reduced OFF time by about 60%
 - Medication reduction 30-40% on average
 - Symptoms that generally don't respond:
 - Postural instability
 - Speech
 - Non-motor symptoms
 - Cognitive impairment

- Absolute Contraindications :
 - Dementia
 - Atypical parkinsonism such as Progressive supranuclear palsy, multiple system atrophy or dementia with lewy bodies

DBS for PD

- Relative Contraindications:
 - Severe psychiatric condition
 - Severe disability even in “ON” state
 - Symptoms not relieved by levodopa
 - Significant cerebral atrophy or white matter disease
 - Severe comorbidities
 - Advanced age - >75y older proceed with caution

DBS for PD

- PRESURGICAL WORK UP
 - ON/OFF testing with UPDRS
 - >30% improvement
 - This is done through Physical therapy at CKRI
 - Neuropsychological assessment
 - MRI brain if not done within past year
- DBS consensus meeting monthly with multidisciplinary team – PT, neuropsychology, neurosurgery, neurology, care coordinator
 - Review above, determine candidacy, device, lead placement

Essential Tremor

- Progressive disease results primarily in action tremor of the arms
- Can also cause voice or head tremor
- Can lead to significant disability making it difficult to eat, drink, write, etc
- Often runs in families

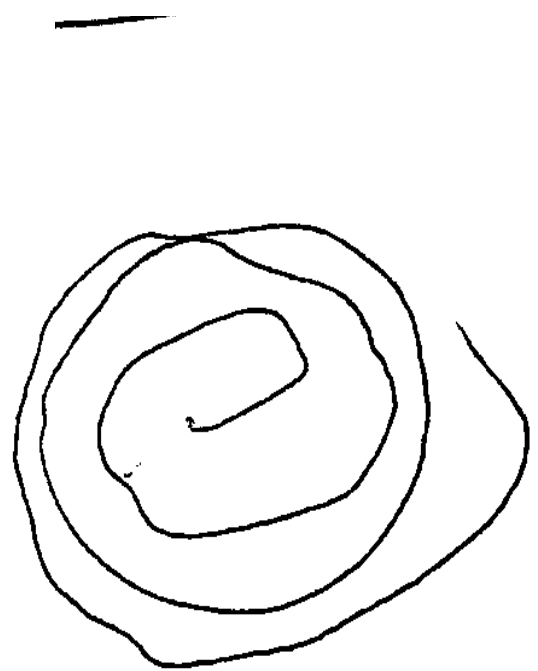
Essential tremor management

- Adaptive strategies
 - Weighted utensils or pens, different spoons
 - International Essential Tremor Foundation – essentialtremor.org
- Medications
 - Primidone, propranolol first line options
 - Topiramate, zonisamide, gabapentin, benzodiazepines (clonazepam, alprazolam)
- MRI guided focused ultrasound
- DBS surgery

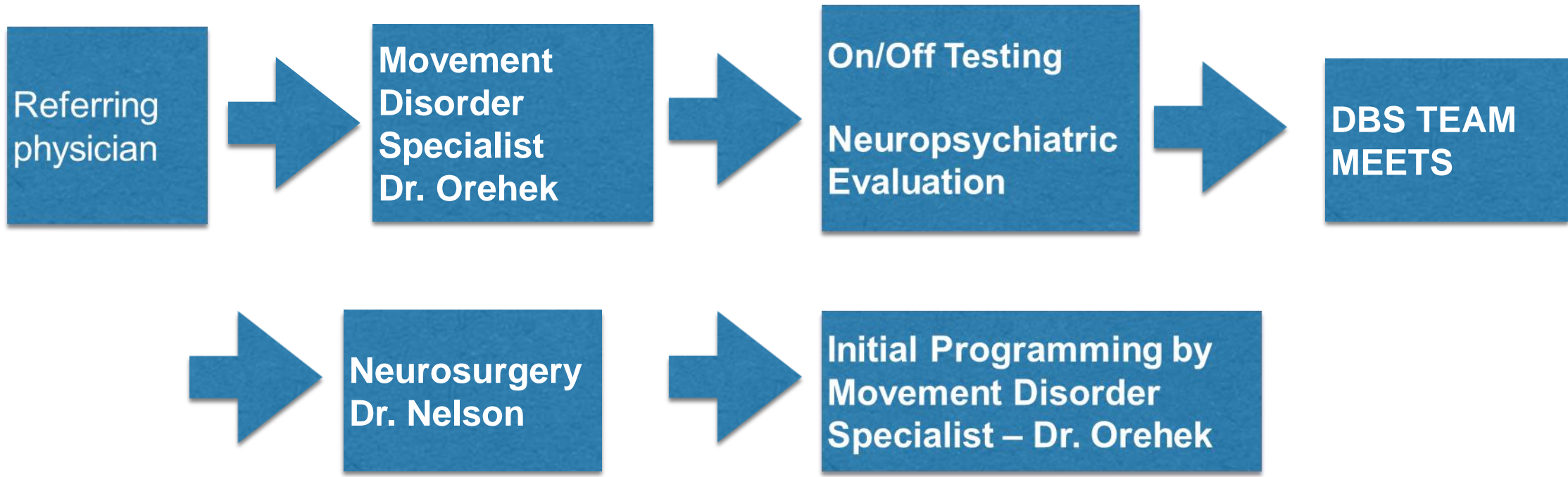
DBS for ET

- Who's a candidate?
 - Persistent tremor despite best medical management
 - Medications either stop helping or side effects intolerable
- Similar reasons against doing it:
 - Dementia
 - Other significant medical problems increasing surgery risk
 - Advanced age

DBS for ET



Who is a candidate?



DBS Programming

- Initial Programming visit 1 month after lead placement done by movement disorder specialist
- 2-4 visits within the next 3-4 months for follow up programming

Frequently Asked Questions

- How long does it work for?
 - Studies show at least 5 years
 - Anecdotal evidence extends beyond that
- Will the patient be able to stop their medications?
 - Not in majority of cases in PD, but can be reduced at least 30-40% on average
 - Often can taper off in ET
- Is it still effective even if the patient doesn't have tremor
 - Yes!

Multidisciplinary DBS Team

- Kyle Nelson MD, neurosurgeon at Metropolitan Neurosurgery
- Eleanor Orehek MD, neurologist at Noran Neurological Clinic
- DBS coordinators:
 - Kelly Mehlhorn RN – DBS nurse care coordinator
 - Anushka Mohideen - DBS program coordinator
- Courage Kenny Rehab Institute (CKRI): ON/OFF testing, BIG and LOUD therapy
- Neuropsychologists at Noran (Amy Steiner PhD, Susanne Cohen PhD, Maida Gunther PhD, Kerri Lamberty PhD)