Why and How
Deep Brain Stimulation

David Barba, MD
Clinical Professor of Neurosurgery
Director of Functional Neurosurgery
DBS THERAPY

• DBS and Meds: Superior to Meds Alone for Motor Symptoms

• More ON Time

• Sustained Benefit, > 10 years
• BEFORE DBS

• AFTER DBS
DBS CANDIDATES

- Responsive to L-Dopa
- PD >4 years
- Motor Symptoms
  - Tremor, Slow, Rigid, Dyskinesia
- Realistic Expectations
- Not Good For…
  - Falling, Dementia
DBS & MEDICATIONS BETTER

- 26% Improvement
  - Even in “Mild” PD

- **DBS + MED** Better
  - Than MEDS Alone

- EARLY PD, >4 yrs
  - NEJM 2/2014
DBS IMPROVES ON TIME

- DBS WITH MEDICATIONS IMPROVES
  - ON Time 4.5 hrs/day
  - Motor Function
  - Quality of Life

Weaver et al, JAMA 2009
POSSIBLE BENEFITS OF DBS

- Improved Survival With DBS Therapy
- Less Respiratory Problems

Ngoya et al., J Neurol Neurosurg Psychiatry 2014
DBS: BRAIN NETWORKS

Cerebral cortex
Putamen
GPe
GPi
SNc
SNr
Pedunculopontine nucleus

Centromedian-parafascicular complex

Subthalamic nucleus

- Glutamate
- Glutamate
- GABA
- Acetylcholine
- Dopamine
DBS PROCEDURE
DBS THERAPY: GPI vs STN

GPI
- Dyskinesia
- Axial Symptoms
  - Gait, Balance, Speech
- Depression

STN
- Tremor
- Medication Reduction
MICROELECTRODE RECORDING
Intra-Operative CT & MRI
DBS THERAPY

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MEET THE DBS DOCTOR
Jacob’s Medical Center, Room 1-601
Wednesday, 7/10/2018, 2-3 PM

RSVP, Jessica: jecovarrubias@ucsd.edu
858-657-7920

dbarba@ucsd.edu