

Which are Side Effects of Dopamine Agonists?

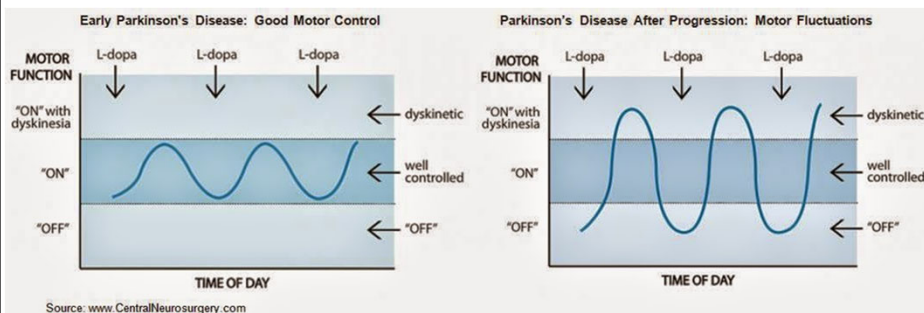
- A. Impulse control disorders
- B. Leg swelling
- C. Sleepiness
- D. All of the above



Motor Complications with Disease Progression

Early PD

>5-8 years



L-Dopa Approaches for Wearing Off



Inhaled Levodopa



23.75 mg / 95 mg*



36.25 mg / 145 mg*



48.75 mg / 195 mg*



61.25 mg / 245 mg*

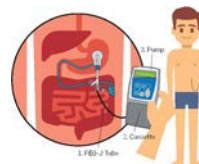
Capsules may not be representative of actual size
*Carbidopa / levodopa

Long-Acting Levodopa/Carbidopa (Rytary)

The Accordion Pill™ - A Drug Delivery Solution for Key Unmet Needs



Long-Acting Levodopa/Carbidopa (Accordion Pill)



Duopa Infusion, i.e. liquid Carbidopa/Levodopa

www.businesswire.com/news/home/20181221005620/en/ADDING-MULTIMEDIA-Acorda-Therapeutics-Announces-FDA-Approval-rytaryhcp.com/dosing
www.pharmajournalist.com/pharma-news/intec-pharma-associates-its-manufacture-accordion-pill-carbidopa-levodopa/
parkinson.org/Understanding-Parkinsons/Treatment/Surgical-Treatment-Options/Duopa

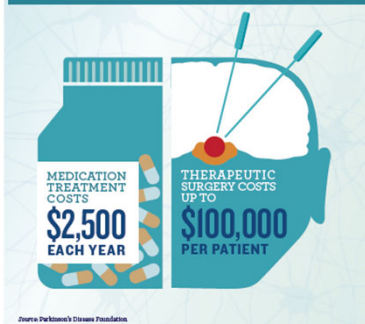


Increasing Cost of PD:

14.4 Billion in 2014; >30B in 2030

We need to control the costs of new medications!

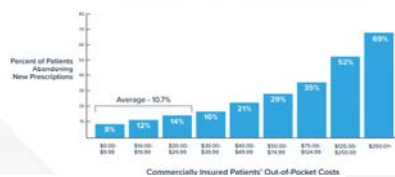
PARKINSON'S DISEASE TREATMENT COSTS



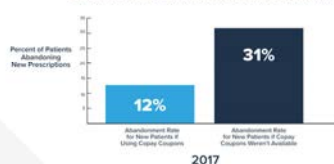
PhRMA 2014



In 2017, Prescription Abandonment Rises as Patient Out-of-Pocket Costs at the Pharmacy Increase



Copay Coupons Can Lead to Lower Prescription Abandonment for New Patients



catalyst.phrma.org/69-percent-of-patients-abandon-medicines-when-cost-sharing-is-more-than-250



**YOUR DOCTOR WANTS YOU TO
GET YOUR MEDICATIONS ON TIME.**

IN THE HOSPITAL

**3^{OUT}
OF
4**

**PEOPLE WITH
PARKINSON'S DON'T.**

GET *AWARE* IN CARE.



**NATIONAL PARKINSON FOUNDATION
& Parkinson
Alberta**

Anxiety Management – Meds & Counselling

66 year old man with Parkinson's disease and suboptimal management of anxiety

Anxiety Rx: Lorazepam (Ativan) 0.5 mg 3/day & not on antidepressant for anxiety

Taking MAO-B inhibitor selegiline (Eldepryl) for PD which can interact w antidepressants

ACTIONS: Taper off selegiline, begin sertraline (Zoloft) and wean off lorazepam

RESULT: Better control of anxiety and lorazepam used only as needed

RATIONALE: Lorazepam can increase risk of confusion/falls/cognitive changes and is not the most effective way to treat anxiety

SUMMARY: Anxiety is better managed with SSRI antidepressants.

Benzodiazepines like lorazepam should be used sparingly

Complementary/Alternative Medicine

Exercise improves symptoms and quality of life.

•No data on which exercise is best; there are many options: PWR!Moves™, Big and Loud Therapy™, cardio, resistive training, boxing, Yoga, Tai Chi, walking, stationary tandem bicycle, etc.

Corcos et al. study to determine if an exercise regimen slows PD progression.



Complementary/Alternative Medicine

Human & animal studies of “alternative” approaches and their impact on motor/nonmotor features:

- Diet: ketogenic diet, fasting, etc.
- Dietary supplements
- Mindfulness training
- Acupuncture
- Medical cannabis/CBD Oil
- Yoga



CBD Study In Parkinson's Disease

- 2018: Food and Drug Administration approves CBD Oil for two rare, severe forms of epilepsy
- It remains an unapproved product for everything else, of uncertain benefit and of uncertain legal status
- Research study of CBD oil in a small number of people with PD showed some promise but liver abnormalities and other side effects were noted (Presented at PSG Meeting 2019).



Hallucinations & PD

69 year old man with 10 years of PD with visual hallucinations (seeing people)

Carbidopa/levodopa (Sinemet) 25/100 1.5 tabs 3/day

Pramipexole (Mirapex) 1.5mg 2/day

Amantadine (Symmetrel) 100mg 3/day

Plan

Pramipexole reduced to 0.75mg 2/day, hallucinations improved, but dose could not be reduced further without worsening mobility

Quetiapine (Seroquel) was started at night

Amantadine (Symmetrel) was decreased


Background: Amantadine and Dopamine agonists, e.g., pramipexole, ropinirole, rotigotine can cause hallucinations.


- **Take home: Review benefits/side effects of PD meds and make med change**
- **If needed use cognitive enhancers and/or antipsychotics quetiapine (Seroquel) or pimavanserin (Nuplazid) for hallucinations.**
- **Monitor for medication prolongation of the ECG QTc interval**




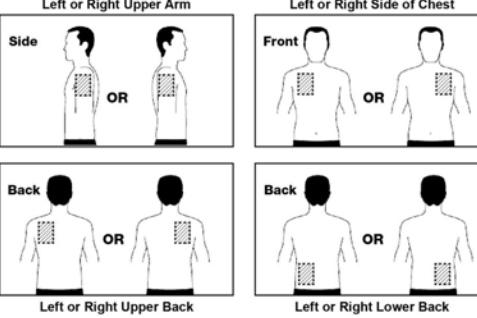
Cognitive Enhancing Medications


- Rivastigmine (Exelon) patch or capsules
- Donepezil (Aricept) pills








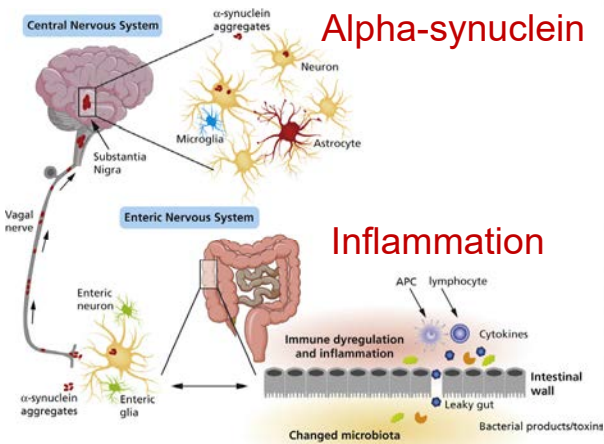


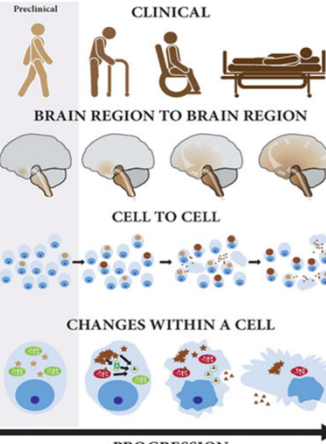





Neuroprotection: Stopping or Slowing Disease Progression


Intervene in one or several mechanisms of disease



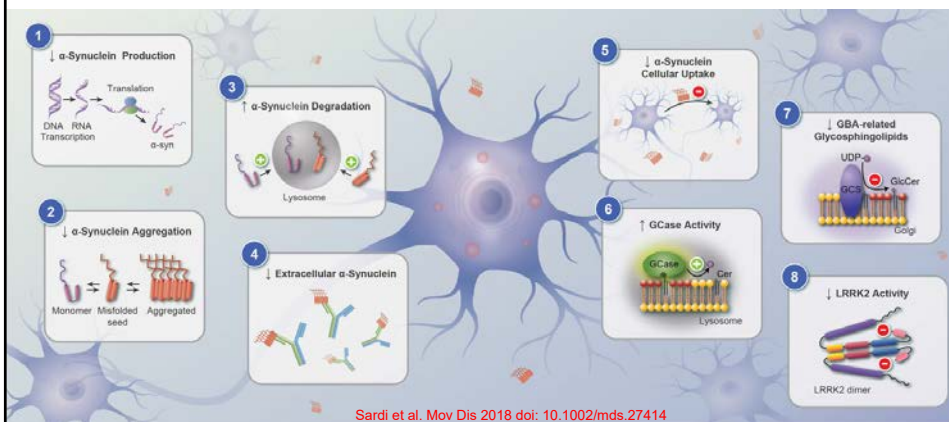




<https://doi.org/10.1016/j.ejphar.2017.05.042>



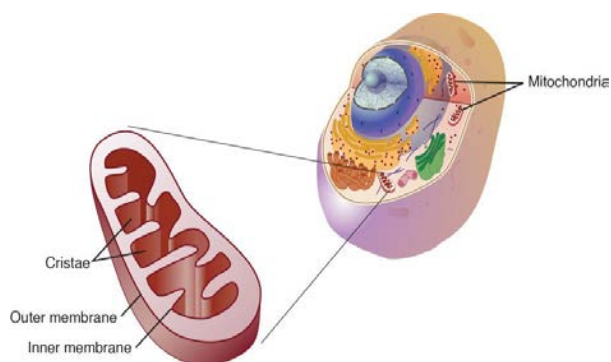
Research Therapeutic Strategies for PD



Sardi et al. Mov Dis 2018 doi: 10.1002/mds.27414



Can Ursodiol (Actigall®): ↑ Brain Energy (ATP)?



Pilot UM 7 Tesla MRI studies suggest that it may increase brain ATP energy production in PD



scienceofparkinsons.com/tag/ursodiol/
www.medi-vet.com/Ursodiol-p/10982.htm

