Psychosis in Parkinson’s disease

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PD non-motor symptoms

- Autonomic: low BP, nausea, constipation, incontinence, sweating
- Sleep: restless leg synd., REM behavior disorder, [vivid dreams]
- Cognitive: Distractible, bad multitasking (different from Alz.)
  - Perceptual: Dopamine’s effect on perception:
    - Too little dopamine: dulled, disorganized
    - Too much: over-detailed, over-vivid
      - Can cause hallucinations and delusions
What is Parkinson’s Disease psychosis?

• Psychosis requires abnormal perception + bad reality testing
• PD psychosis, NINDS-FDA definition, focuses on symptoms
  – Hallucinations: fixed false perceptions
  – Delusions: fixed false beliefs
• Psychosis is a spectrum
PD hallucinations are mostly visual

• Early: webbing over things; felt presence, dream intrusions
• Middle: +insight, small safe animals or kids, often multiple
• Late (with dementia): dead relatives you can talk to
How is PD psychosis different from others?

- **Alzheimer’s:** visions of intruders, dead relatives
  - Some PD patients also have Alzheimer’s
- **Depression:** delusions of bodily decay
- **Schizophrenia:** auditory command hallucinations
- **PTSD flashbacks:** repetitive reliving of trauma
- **Bonnet syndrome**
PD psychosis vs. Bonnet syndrome

- Similar: repetitive beings, often small and not frightening, usually normal insight
- Bonnet’s is from poor vision—sensory deprivation
- PD problems with object recognition may also cause deprivation hallucinations

Torching the Dusties
From a story by Margaret Atwood
A Marlene Goldman film
Delusions are more disabling than hallucinations

• Often paranoid
  – Othello syndrome: delusional jealousy
  – Delusional parasitosis
  – Healthcare workers trying to hurt patient
  – FBI surveillance, stealing

• Delusions may combine with med-induced manic features
  – Hypersexuality
  – Obsessive attempts to repair or build machines ("punding")
  – Gambling, day trading.
Dopamine causes manic “compulsions”

- Gambling, shopping, hypersexuality
- ...also gardening, making art, work obsession, xeroxing....

- Do the same treatments help PD psychosis and manic drives?
PD psychosis requires advanced PD + PD meds

- PD meds + no PD => ~no psychosis
- PD meds + early PD => ~no psychosis
- No PD meds + bad PD => ~no psychosis
- PD meds + bad PD => psychosis common

~ = medical equivocation
Incidence of Parkinson’s disease psychosis

• ~30% of PD pts eventually get Parkinson’s psychosis
• ~50% if minor illusions count
• Patients rarely report it; family often reluctant too.
• # of affected pts will nearly double by 2030
Risk factors for PD psychosis

• High PD med doses, especially dopamine receptor agonists.
• Pre-existing neuropsychiatric conditions
• Using other psychoactive drugs eg sleeping pills, cannabis
• Infectious/metabolic illness
• Unfamiliar surrounding e g travel, hospitalization
• Sleep deprivation
Brain receptors important for psychosis

• ~All dopamine receptors: D2, D1, D3, D4, D5
• Some serotonin receptors: 5-HT2A, 5HT2C, 5-HT3, 5-HT1A, 5HT2C
• Some glutamate receptors: NMDA
How does dopamine cause psychosis?

• It underlies goal-directed motivation, “incentive salience”, wanting
  – Wanting is not the same as liking
  – Increases goal-oriented drives (extreme: delusions)
• It increases vividness of mental images (extreme: hallucinations)
• It helps signal-to-noise discrimination, “obsessional” focus
  – (the opposite of ADHD)
• How can a patient have symptoms of low and high dopamine at the same time?
Initial management of PD psychosis

• Lower PD meds in order of nastiness: dopamine receptor agonists > anticholinergics > breakdown inhibitors > levodopa
• Lower L-dopa peaks: small frequent doses, XL meds, Duopa pump
• Deep brain stimulator can lower med needs
• Behavioral interventions: bright light therapy; distractions.
How to communicate with psychotic people

• Attend to nonverbal communication: mirror their emotions
• Reassure them they’re safe, and that you want to help
• Speak simply—but don’t assume they can’t understand
• Give patient time to respond
• Don’t argue with delusions:
  – Provide reality checks—but only once.
• Change the subject
We should mirror negative emotions

• Mirroring their anxiety or anger is not the same as showing yours
  – “I can see how worrisome this must be” – NOT “I’m worried.”

• Mirroring is nonverbal proof that you understand they’re upset.
  – Vs. a soothing tone, which can sound patronizing
  – Reassurance works better when said in a worried tone (D. Roter)

• Mirroring is less work than feigning dispassion
Mirroring is just the start

• Mirroring dimly helps avoid reverberating mirrors.
• Once you’re resonating at their frequency, you can start to change it.
• Also works with non-psychotic people: children, bosses....
Antipsychotics for PD psychosis

• Standard antipsychotics: worsen PD motor symptoms *more on 5ht/DA, olanz?

• Quetiapine
  – Pros: Easily available, inexpensive, quick acting
  – Cons: Weak, worsens PD motor sx, sedating, orthostatic hypotension

• Clozapine
  – Pros: Powerful, mood-elevating, suppresses dyskinesia and tremor
  – Cons: Sedating, orthostatic hypotension, blood tests, MD paperwork

• Pimavanserin
  – Pros: Doesn’t worsen PD, helps daytime alertness and sleep at night
  – Cons: Weak, kicks in slowly, expensive, MD paperwork
Most antipsychotics block DA receptor activation

• Benefits:
  – Decreased psychotic ideas and motivation
  – Decreased impulsive movements

• Problems:
  – Decreased ideas/motivation overall
  – Constipation
  – Orthostatic hypotension
  – Weight gain—sometimes ok in PD
  – Sedation—sometimes ok in PD
  – Clozapine: aplastic anemia (white blood cells)
    • Since blood tests required, this is rare.
Serotonin receptors can affect psychotic symptoms

- Quetiapine & clozapine bind both serotonin & dopamine receptors
- Pimavanserin binds only serotonin receptors, so no movement side effects, but weak benefit.
  
  – *Why do I prescribe it anyway to people with bad psychosis?*

Howes, Kapur 2010
PD psychosis treatment strategy

And apomorphine?
Family caregiver burden

- Terrifying for patient and caregiver.
- More caregiver burden from psychosis than motor symptoms
  - Financial
  - Time constraints
  - Emotional drain
  - Physical effects
    - Sleep deprivation
    - Injury from lifting pts, being hit
    - Caregivers put off their own MD visits
    - Stress hormones affect immune system, heart, gut

Wounds heal 20% slower in caregivers of demented pts. Kiecolt, 1995
PD psychosis burden on healthcare system

• Office phone calls and emergency visits
• Greatly raises risk of nursing home placement
• Patients need 1:1 supervision even when hospitalized.
• High risk of hospital-induced delirium
  – Catch-22: patients will stay delirious until they’re home, but can’t go home because they’re delirious
  – Treatment: lower or stop PD meds
PD psychosis -- summary

• PDP is a growing problem: ~400K pts now, ~700K by 2030.
• PD pts have tradeoff between motor and psychiatric disability
• Current treatments have problems:
  – Most antipsychotics worsen PD motor symptoms
  – Most are sedating, constipating, and cause orthostatic hypotension.
  – Clozapine requires blood tests
  – Pimavanserin is weak, and slow to kick in.
• PDP is PD’s most disabling symptom