SLEEP AND FATIGUE:

HOW TO GET A GOOD NIGHT’S REST
(AND FEEL MORE AWAKE DURING THE DAY) WITH PARKINSON’S DISEASE

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OUTLINE

• Why is sleep important in PD?

• Why is sleep affected in PD?

• How is sleep impacted in PD:
  o Sleep disorders associated with PD
  o Sleep disorders that result from PD medications
  o Common PD symptoms that impact sleep

• Fatigue and excessive daytime sleepiness (EDS) in PD
WHY IS SLEEP IMPORTANT IN PD

When you don’t get a good night’s sleep….

- Worse motor symptoms
- Worse cognition

- Poor sleep $\rightarrow$ daytime sleepiness $\rightarrow$ naps $\rightarrow$ poor sleep
WHY IS SLEEP AFFECTED IN PD?

Lewy bodies can be found throughout the brain in PD, including in brain areas that control sleep and wakefulness.

A Lewy body
SLEEP DISORDERS ASSOCIATED WITH PARKINSON’S DISEASE

Many different sleep disorders can be associated with Parkinson’s disease:

- Rapid eye movement (REM) behavior sleep disorder
- Insomnia
  - Primary
  - Secondary
- Sleep fragmentation
- Restless leg syndrome
- Sleep apnea
EVALUATING SLEEP

- Sleep study, also called polysomnography
- Can be done at a sleep center or at home
- Records activity of the body during sleep
  - brain waves
  - oxygen levels in the blood
  - heart rate
  - breathing
  - eye movements
  - leg movements
STAGES OF SLEEP

healthysleep.med.harvard.edu
REM BEHAVIOR SLEEP DISORDER

- Normally, people are paralyzed during REM sleep
- In REM behavior sleep disorder, a person is not paralyzed and can act out his/her dreams
- This can cause injury to the person and bed partner

Treatments
- Modify sleep environment
- Melatonin
- Clonazepam
REM BEHAVIOR SLEEP DISORDER

Can be a part of pre-motor Parkinson’s disease – a set of non-motor symptoms that can precede a diagnosis of Parkinson’s disease

Pre-motor PD can include: REM behavior sleep disorder, poor smell, constipation and depression
INSOMNIA

Primary insomnia – difficulty falling asleep at the start of the night
Secondary insomnia – difficulty falling asleep after waking up during the night
INSOMNIA

Solutions:

• Improve sleep hygiene
  • Turn off screens
  • Make bedroom only for sleep
  • Avoid eating or exercising close to bedtime
• Cognitive behavioral therapy
• Review medications
• Treat depression
• Melatonin
• Referral to sleep specialist
SLEEP FRAGMENTATION

• Brief arousals occurring during a period of sleep
• Can lead to poor sleep quality, decreased restfulness, and excessive daytime sleepiness
• The person may not be aware that he/she is having arousals and they may be only seen on a sleep study
SLEEP FRAGMENTATION

American Family Physician. 1999. 59(9): 2551-2558
RESTLESS LEG SYNDROME

• An uncomfortable sensation in the legs (and sometimes in the arms)
• Temporarily relieved by movement
• Described as crawling, electric, itching, aching etc.
• Occurs in the evening and night and can prevent or interrupt sleep
• Can be an independent disorder, not associated with PD
• Can be associated with damage to the nerves in the hands and feet (peripheral neuropathy) as well as iron deficiency.
RESTLESS LEG SYNDROME

No specific studies have been done for RLS in PD

Treatments for RLS (not specifically associated with PD) include:
• Dopamine agonists
• Levodopa
• Gabapentin, gabapentin enacarbil, pregabalin
SLEEP APNEA

• A sleep disorder in which breathing stops and starts through the night. This leads to periods of low oxygenation in the blood and frequent awakenings.

• Parkinson’s disease may be associated with both types of sleep apnea:
  • Central - decreased drive to breathe in sleep due to brain stem lesion
  • Obstructive – abnormal function in the muscles of the upper airway

• Diagnosis via sleep study (at home or in clinic)

• Untreated sleep apnea can raise the risk of heart disease and stroke, and can cause depression, poor memory, headaches.
SLEEP APNEA

- Elevate head of bed
- Oral appliance (good for obstructive sleep apnea)
- Non-invasive ventilation
  - CPAP
    - Continuous Positive Airway Pressure
    - Same pressure during inhalation and exhalation
  - BiPAP
    - Bilevel Positive Airway Pressure
    - Pressures are different between inhalation and exhalation
SLEEP DISORDERS THAT RESULT FROM PD MEDICATIONS

- Vivid dreams/nightmares
- Sleep attacks – falling asleep without warning
Non-Motor Symptoms of Parkinson’s Disease

Motor symptoms
- Tremor, slowness, stiffness, postural instability

Non-motor symptoms

Neuropsychiatric
- Depression
- Anxiety
- Hallucinations/psychosis
- Cognitive impairment and dementia
- Apathy

Sensory
- Visual disturbances
- Loss of smell
- Pain

Autonomic & Visceral
- Orthostatic hypotension
- Constipation
- Speech and swallow difficulties
- Urinary dysfunction
- Sexual dysfunction
Worrisome thoughts and anxiety keep a person with PD from falling asleep at the start of the night or from falling back asleep upon awakening during the night.

**Treatments:**

- Lifestyle modifications
  - Exercise
  - Meditation
- Cognitive behavioral therapy
- Medications
  - Selective serotonin reuptake inhibitors (SSRIs)
  - Selective serotonin and norepinephrine reuptake inhibitors (SNRIs)
PD SYMPTOMS THAT IMPACT SLEEP – HALLUCINATIONS

Common hallucinations in PD: furry animals, babies, dead relatives
A person can wake up to a hallucination which makes it very difficult to return to sleep.
PD SYMPTOMS THAT IMPACT SLEEP – URINARY SYMPTOMS

Urinary symptoms that can interrupt sleep
• Urinary urgency
• Urinary frequency
• Nocturia with frequent awakenings to urinate
• Urinary dribbling or incontinence

Treatment
• Assessment for other causes of urinary issues (e.g. enlarged prostate)
• Urinary issues of PD can be treated with medications, but be sure to use medications with fewer cognitive side effects
  • Mirabegron
  • Trospium
  • Solifenacin
  • Darifenacin
• Botulinum toxin injections
Motor symptoms such as tremor and stiffness can impact sleep.
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<th>Drug</th>
<th>Formulation</th>
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<td>Sinemet®</td>
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<td>[N/A - generic only]</td>
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FATIGUE IN PARKINSON’S DISEASE

- Poor sleep
- Medication side effect
- Other medical condition (e.g. thyroid imbalance or anemia)
- Depression
- Part of PD - Neurodegeneration in areas of brainstem that are responsible for maintaining wakefulness
EXCESSIVE DAYTIME SLEEPINESS

- Defined as an inability to maintain wakefulness during the waking day
- Excessive daytime sleepiness increases in prevalence as PD advances
STRATEGIES THAT IMPROVE WAKEFULNESS DURING THE DAY

- Encourage daily exercise and activities
- Light therapy
- Medications
  - Modafinil
  - Methylphenidate
  - Caffeine
  - Istradefylline
SUMMARY

Sleep disorders associated with PD
• Rapid eye movement (REM) behavior sleep disorder
• Insomnia
• Sleep fragmentation
• Restless leg syndrome
• Sleep apnea

Sleep disorders that result from PD medications
• Sleep attacks
• Vivid dreams

Common PD symptoms that impact sleep
• Hallucinations
• Anxiety
• Urinary problems
• Motor OFF time at night

Fatigue and Excessive Daytime Sleepiness
Every day, we provide the support, education, and research that will help everyone impacted by Parkinson’s disease live life to the fullest.

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