Movement Disorders Update for the Primary Care Physician: The Keys to diagnosing and treating PD, ET and RLS

Emerging Challenges in Primary Care: Update 2013

Faculty

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Update for Primary Care: Keys to Diagnosing and Treating Parkinson's Disease, Essential Tremor and Restless Legs Syndrome

Faculty Disclosure

• Ray Dorsey, MD, MBA
  — Research – Biogen, Prana Biotechnology
  — Researcher and Advisory Board – Lundbeck
  — Researcher and Consultant - Avid Radiopharmaceuticals
  — Consultant - Amgen

• Daniel Kremens, MD, JD
  — Principal Investigator - Merck and Synosia/Biotie
  — Consultant - UCB and Impex
  — Consultant and Speaker – TEVA
  — Consultant and Researcher - Merz

• Fernando L. Pagan, MD
  — Researcher - Medtronic and TEVA
  — Speaker and Advisory Board - GSK, Novartis, TEVA, Merz and US WorldMeds

Learning Objectives

• Diagnose and treat RLS
• Differentiate between PD and ET tremor
• Understand the role of Neuroimaging in PD and ET.
• Understand the role of medications and exercise in early PD
On a scale of 1 to 5, please rate how confident you would be in diagnosing and treating a patient with movement disorders.

1. Not at all confident
2. Slightly confident
3. Moderately confident
4. Pretty much confident
5. Very confident

PRE-Test Questions

1. A 62-year-old male with RLS returns for follow up in your office. He has hypertension and has been on aspirin and atenolol. Recent laboratory test were normal. His exam is normal. He states that he is not able to sit for long period of times and is having difficulty at night when going to sleep. The following would be appropriate medical treatments except:

1. Rotigotine Transdermal patch 1mg daily
2. Ropinirole .5mg at bedtime daily for 1 week then increase to 1mg daily
3. Clonazepam 1mg at bedtime
4. Gabapentin 300mg at bedtime
5. Valproate ER 500mg daily
Question 2

A 35-year-old male with a ten-year history of essential tremor comes in for evaluation because he is having difficulty with his writing. He can only print and avoids writing as much as possible. His father also has the same type of tremor. Exam findings that you are likely to find include all of the following except:

1. Difficulty with tandem gait
2. Mild difficulty with rapid alternating movement because of tremor
3. Hypomimia (masked facies)
4. Mild cogwheel rigidity
5. Normal strength

Question 3

A 61-year-old male with a history of essential tremor presents for worsening tremor on his right hand. His states that his tremors were usually when he was holding something or writing. Of late he has noted his tremor on the right hand while resting on his lounge chair and watching television. He takes 120mg of propranolol daily and 150mg of primidone daily for his ET, which had been quite stable for last 4 years. The most appropriate next step would be:

1. Increase the primidone dose
2. Order an MRI brain
3. Check TSH
4. Order a DaTScan
Question 4

A 45-year-old male presents with an intermittent right hand tremor, mild cogwheel rigidity and bradykenesia on the right side with reduced arm swing on the right. Appropriate first line therapy may include all of the following except:

1. Encourage exercise program or referral to Physical therapy
2. Watch and wait, return to clinic in three months for revaluation
3. Begin a Dopamine agonist (Rotigotine patch, Ropinirole or Pramipexole)
4. Begin Rasagiline 1mg daily

CASE 1

T.R. is a 60 year old woman with a history of hypertension well controlled on Lisinopril presents with difficulty initiating sleep because of uncomfortable “burning and cramping-like” feelings in her legs when she lays down to go to sleep. She states that it is only relieved if she gets up, walks and stretches her calf muscles. She often asks her husband to massage her legs, as well. Her husband has told her that she kicks her legs when she sleeps. She does not have any focal neurological findings on exam and her gait is normal.
Case 1 Question

The most appropriate test to order or treatment is?
1. TSH levels
2. EMG/NCV
3. MRI Lumbar Spine
4. Check Iron and TIBC levels
5. Prescribe Iron

RLS: Restless Leg Syndrome

A desire to move the legs associated with paresthesias or dysesthesias (sometimes difficult for a patient to describe).

Symptoms relieved by movement.

Symptoms worse in the evening, night or prolonged period of inactivity.

Up to 50% of RLS patients will also have PLMS (Periodic leg movements of sleep).
International RLS Study Group

Criteria for RLS

1. One has a strong, often irresistible urge to move your legs, usually accompanied by uncomfortable sensations. These sensations are typically described as crawling, creeping, cramping, tingling, pulling, tugging or itching.

2. Symptoms start or get worse when you're resting, such as sitting or lying down.

3. Symptoms are partially or temporarily relieved by activity, such as walking or stretching, for as long as you keep moving.

4. Symptoms are worse at night.

Secondary RLS

Iron deficiency
   Most common form of secondary RLS

Renal failure

Pregnancy

Neuropathy
   Low back syndrome

Medications may aggravate RLS
   TCAs, SNRIs and SSRIs
   Dopamine receptor blockers
**RLS Treatment**

- Treat underlying disease if possible
- Iron treatment in patients with deficiency
- Avoid alcohol and caffeine
- Good sleep hygiene
- Nonpharmacological
  - Exercise

**Pharmacological Therapies for RLS**

- Dopaminergic drugs
- Benzodiazepines
- Opioids
- Anticonvulsants
## Pharmacological Therapies for RLS

<table>
<thead>
<tr>
<th>Dopaminergic Agents</th>
<th>Dosage Dosing</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levodopa/carbidopa</td>
<td>50-600mg qhs or up to q4h</td>
<td>Rebound/ augmentation</td>
</tr>
<tr>
<td>Pramipexole</td>
<td>0.125-3mg qhs or up to q 6h</td>
<td></td>
</tr>
<tr>
<td>Ropinirole</td>
<td>0.25-24 qhs or up to q 4h</td>
<td></td>
</tr>
<tr>
<td>Rotigotine Transdermal</td>
<td>1 to 3mg daily</td>
<td>transdermal patch</td>
</tr>
</tbody>
</table>

## Pharmacological Therapies for RLS

<table>
<thead>
<tr>
<th>Anticonvulsants Agents</th>
<th>Dosage Dosing</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbamazepine</td>
<td>100-300 qhs up to 300mg tid</td>
<td>Useful in neuropathies</td>
</tr>
<tr>
<td>Gabapentin</td>
<td>300 to 2400mg qhs or up to tid</td>
<td></td>
</tr>
<tr>
<td>Gabapentin Enacarbil</td>
<td>600mg with dinner</td>
<td>Long acting</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pro-drug</td>
</tr>
</tbody>
</table>
Pharmacological Therapies for RLS

<table>
<thead>
<tr>
<th>Agents</th>
<th>Dosing Dosage</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzodiazepines</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clonazepam</td>
<td>0.5-4.0mg qhs or p.r.n</td>
<td>Avoid tolerance</td>
</tr>
<tr>
<td>Opioids</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Propoxyphene</td>
<td>100-300mg qhs or p.r.n</td>
<td>Avoid tolerance</td>
</tr>
<tr>
<td>Oxycodone</td>
<td>2.5-25mg p.r.n.</td>
<td>Potential for addiction</td>
</tr>
<tr>
<td>(Percodan, Percocet, Roxicodone, Oxycontin, Oxyfast)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Case 2

TH is a 75 yo with a ten year history of tremor during action. Of note recently while watching television he has noted an occasional rest tremor. This tremor does decrease with alcohol and he does not take any medicine for it. He has noted worsening writing skills. He remembers that his dad also had a tremor with writing and holding objects for most of his life. His only other medical problem is hypertension for which he takes Atenolol 50mg daily and 81mg ASA. His blood pressure is 118/78 with a pulse of 61.
An appropriate treatment for TH would be?
1. Propranolol
2. Lyrica
3. Primidone
4. DBS (Deep Brain Stimulation)
Essential Tremor

Most Common Movement Disorder

Incidence rises with age
- Prevalence is 5% after the age of 40
- More common than PD, equal MS.

Slowly progressive disorder – Variable clinical presentations

Pathophysiology still unclear, although studies suggest a Central Oscillator

Essential Tremor Diagnostic Criteria

Bilateral action tremor of the hands and forearms.

Absence of other neurologic signs, with the exception of cog-wheel phenomenon.

May have isolated head tremor with no abnormal posture.

Mild Cerebellar Signs: Difficulty with tandem gait.
Secondary Criteria

Long duration (>3yrs)
Family History
Beneficial response to Ethanol
ET may be a risk factor for PD, up to 20% of patients with a long standing history may develop PD, or PD related disorder
70% are ethanol responsive

Treatments

Classical Treatments
Propranolol (60-180mg daily)
Primidone (50-1000mg daily)
Combination (propranolol/primidone): lower doses
Gabapentin +/-

Other options
Clozapine
AEDs (e.g. Topiramate)
Anxiolytics (e.g. Clonazepam)
Botox
Surgery (Thalamotomy or DBS)
CASE 3

MV is a 37 year old right handed computer IT professional who presents with a six month history of worsening intermittent right hand rest tremor, stiffness, constipation, and decreased sense of smell. He has had a significant amount of right leg cramping. His family history is positive for PD and ET. His mother had ET for 20 years and was later diagnosed with PD at age 60. His exam is significant for R hand and arm rest tremor, mild right cogwheel rigidity and decreased arm swing on right while ambulating.

Question 3

Best appropriate medical management would be?

1. None, as symptoms are too mild.
2. Order MRI and watch and wait.
3. Begin a dopamine agonist or MAO-B inhibitor.
4. Begin Levodopa
Parkinson’s Disease

“Shaking palsy” first described by James Parkinson in 1817
- Involuntary tremor
- Lessened muscular power
- Tendency to bend forward
- Tendency to pass from walking to running pace
- Senses and intellect uninjured

Epidemiology

1 million + patients
About 60,000 new patients a year
By 2030 Prevalence may double
Currently 0.3% of total population
- Male:female = 3:2
- Average age of onset is 62 years
- 5%-10% have symptoms prior to age 40 years
- 3% of population > 65 years of age
- 10% of population > 80 years of age

## Early Signs and Symptoms

<table>
<thead>
<tr>
<th>Cardinal Characteristics</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resting tremor</td>
<td>Micrographia</td>
</tr>
<tr>
<td>Bradykinesia</td>
<td>Masked facies</td>
</tr>
<tr>
<td>Rigidity</td>
<td>ADL’s slowing</td>
</tr>
<tr>
<td>Postural instability</td>
<td>Stooped, shuffling gait</td>
</tr>
</tbody>
</table>

Additional Signs and Symptoms:

- Difficulty arising from a chair
- Difficulty turning in bed
- Hypophonic speech
- Sialorrhea
- Loss of the sense of smell
- Foot dystonia
Pathology of Parkinson’s Disease

PD-related Lewy body pathology evolves in predictable stages. According to the staging system of Braak, Lewy bodies (LB) first form within the olfactory bulb and dorsal motor nucleus of the vagal nerve (Stage 1). In Stages 2 and 3, LB pathology expands from these induction sites into additional brain stem nuclei (e.g., locus coeruleus and substantia nigra) and then into the amygdala. In Stages 5 to 6, the pathology extends into the cerebral cortex. Clinical symptoms arise during Stages 4 to 6, when the pathology involves significant regions of the substantia nigra and related brain areas.

The Parkinson’s Complex

Non-motor Features of PD

Neuro-psychiatric and cognitive:
- Depression
- Anxiety
- Psychosis
- Dementia
- Apathy
- Fatigue
- Sleep disturbance
  - RBD, OSA, etc

Autonomic:
- Constipation
- Hyperhidrosis
- Urinary dysfunction
- Sexual dysfunction
- Sialorrhea

Sensory
- Pain
- Smell loss
Parkinson’s Disease vs. Essential Tremor

- Essential tremor should be tremor with no other signs of parkinsonism.
- Both can have a kinetic and rest component.
- Kinetic tremor can interfere with RAM.
- Mild cogwheel rigidity can be found in ET.
- DaTScan help with diagnosis.
DaTScan: Evolving Imaging That May Aid in Diagnosis of PD

DaTScan™ (lifupane I 123 Injection), is a radiopharmaceutical agent recently approved by the FDA for striatal dopamine transporter (DaT) visualization using single photon emission-computed tomography (SPECT) imaging.

DaTScan differentiates between patients with and without a dopaminergic deficit.

DaTScan is a potential adjunct in the diagnosis of Parkinsonian symptoms.

DaTScan does not differentiate Parkinsonian Syndromes

FDA indicates United States Food and Drug Administration.
When Does PD Start?

Depression, REM Sleep disorder, anosmia, constipation can predate motor symptoms by several years.

At the time of diagnosis 60-70% of dopaminergic Neurons have been lost.

Treatment Vs No Treatment at diagnosis?

Treatment Options

Preventive treatment
No definitive treatment available

Symptomatic treatment
Pharmacological
Surgical

Non-motor management
Exercise

Restorative—experimental only
Transplantation
Neurotrophic factors
Drug Classes in PD

- Dopaminergic agents
  - Levodopa
  - Dopamine agonists
- COMT inhibitors
- MAO-B inhibitors
- Anticholinergics
- Amantadine

Sites of Action of PD Drugs

- **Substantia Nigra**
  - levodopa
  - Amantadine
- **MAO-B**
  - Selegiline
  - Rasagiline
- **Striatum**
  - Dopamine agonists
    - bromocriptine
    - pramipexole
    - ropinirole(XL)
    - rotigotine
    - apomorphine
  - baclofen
  - trihexyphenidyl

- **BBB**
  - carbidopa
  - benserazide
  - tolcapone
  - entacapone
Levodopa

Most effective drug for parkinsonian symptoms

First developed in the late 1960s; rapidly became the drug of choice for PD

Large neutral amino acid; requires active transport across the gut-blood and blood-brain barriers

Rapid peripheral decarboxylation to dopamine without a decarboxylase inhibitor (DCIs: carbidopa, benserazide)

Side effects: nausea, postural hypotension, dyskinesias, motor fluctuations

Survival Prior to L-dopa
**Effects of Levodopa on Motor Function in Early PD**

![Graph showing the effects of levodopa on motor function in early Parkinson's Disease (PD). The graph compares placebo and levodopa doses over time, with changes in the total score (in units) plotted against weeks and study drug withdrawal.](image)


**Motor Fluctuations**

- **“Wearing off”**: re-emergence of symptoms prior to the next scheduled levodopa (LD) dose
- **“On/off”** phenomenon: unpredictable fluctuations of periods of good mobility and function followed by periods of poor symptom control
- **“Delayed-on”** responses: dose takes longer to improve symptoms than previously
- **“Dose failure”**: dose does not provide usual improvement in symptoms
**Levodopa-Induced Dyskinesias**

- Manifestation of excessive dopaminergic stimulation
- Typically late effect, and with higher doses but ELLDOPA study saw this at 40 weeks in 16% of Patients at 600mg dose
- Narrowing of therapeutic window
- Rare in LD-naive patients on DA monotherapy
- Most common is “peak dose” dyskinesia
  - disappears with dose reduction
- Choreiform, ballistic and dystonic movements
- Most patients prefer some dyskinesias over the alternative of akinesia and rigidity

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**Dopamine Agonists: Distinguishing Features**

- Directly stimulate dopamine receptors
- No metabolic conversion; bypasses nigrostriatal neurons
- No absorption delay from competition with dietary amino acids
- Longer half-life than levodopa, Transdermal patch and once daily formulations
- Monotherapy or adjunct therapy
- May delay or reduce motor fluctuations & dyskinesias associated with levodopa
- Concerns with Impulse Control Disorders, Sleepiness, Nausea and Sleep Attacks
Pramipexole Improves Motor Function in Early PD

Mean change (%) from baseline at 31 weeks in UPDRS III (motor) scores

- Pramipexole (n = 183) -6.9
- Placebo (n = 170) 25 *

P < 0.0001


Risk of Dyskinesia Depending on Initial Treatment

Proportion of Patients Remaining Free of Dyskinesia

P < 0.001

MAO-b Inhibitors

Inhibit the breakdown of Dopamine

Allow for Dopamine to stay around longer and reuptaked (recycled by the DAT)

Selegine was first MAO-B, has a methamphetamine by product and high first pass.

Selegine only approved by FDA for adjunctive treatment only.

Rasagiline, once daily, no methamphetamine by product FDA approved for both monotherapy and adjunctive treatment.

TEMPO: Maintenance of Effect on Total UPDRS over 6 month period

1 mg vs placebo $P < 0.001$

* $P = .01$
## In Summary

L-Dopa, Dopamine Agonists and MAO-B inhibitors have out performed placebo in newly diagnosed PD patients in clinical trials.  
Treating, rather than watch and wait approach, with first onset of symptoms is becoming standard of care.  
L-dopa in animal studies at low dosages has been shown to have neuronal protective qualities, while in high doses has more toxic qualities.  
Newly diagnosed patients’ disability best dictates which drug to initiate first.

## Currently FDA Approved Monotherapy Medications for PD

<table>
<thead>
<tr>
<th>Class</th>
<th>Agent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monoamine oxidase type B (MAO-B) inhibitor</td>
<td>Azilect® (rasagiline tablets)</td>
</tr>
<tr>
<td></td>
<td>Sinemet® (carbidopa-levodopa) tablets</td>
</tr>
<tr>
<td></td>
<td>Sinemet® CR (carbidopa-levodopa) sustained-release tablets</td>
</tr>
<tr>
<td></td>
<td>Parcopa® (carbidopa and levodopa) orally disintegrating tablets</td>
</tr>
<tr>
<td></td>
<td>Mirapex® (pramipexole dihydrochloride)</td>
</tr>
<tr>
<td></td>
<td>Mirapex ER® (pramipexole dihydrochloride) extended-release tablets</td>
</tr>
<tr>
<td></td>
<td>Neupro® (rotigotine transdermal system)</td>
</tr>
<tr>
<td></td>
<td>Requip® (ropinirole tablets)</td>
</tr>
<tr>
<td></td>
<td>Requip XL® (ropinirole XL)</td>
</tr>
<tr>
<td>Dopamine agonists</td>
<td>Amantadine</td>
</tr>
<tr>
<td></td>
<td>Symmetrel® (amantadine hydrochloride, USP) tablets and syrup</td>
</tr>
</tbody>
</table>

*Generic equivalent available.  
Product names are the registered trademarks of their respective owners.
### Common Signs of Early Wearing Off

**Motor**
- Tremor
- Bradykinesia
- Muscle cramping
- Difficulty getting out of a chair
- Reduced dexterity
- Stiffness
- Balance problems
- Weakness
- Slowness in early morning/during the night

**Nonmotor**
- Abdominal discomfort
- Akathisia (uncontrollable motor restlessness)
- Anxiety
- Cloudy mind, dullness of thinking
- Drenching sweats
- Drooling
- Dysphagia
- Dyspnea
- Facial flushing
- Fatigue
- Irritability
- Mood changes
- Numbness
- Pain
- Tightening sensations
- Tingling sensations

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### Motor Fluctuations: Possible Treatment Options

- Increase CD/LD dose
- Increase frequency of CD/LD administration
- Switch to sustained-release CD/LD
- Initiate adjunctive therapy with a dopaminergic agent
  - Dopamine agonist
  - MAO-B inhibitor
  - COMT inhibitor
- Add amantadine
- DBS

Treatment decisions should be individualized for each patient, based on patient-related factors, including comorbidities, age, and cognition
### FDA Approved Adjunctive treatments

<table>
<thead>
<tr>
<th>Class</th>
<th>Agent</th>
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<tbody>
<tr>
<td>MAO-B inhibitors</td>
<td>Azilect® (rasagiline tablets)</td>
</tr>
<tr>
<td></td>
<td>Eldepryl®† (selegiline hydrochloride)</td>
</tr>
<tr>
<td></td>
<td>Zelapar® (selegiline HCl)</td>
</tr>
<tr>
<td>Dopamine agonists</td>
<td>Mirapex®† (pramipexole dihydrochloride)</td>
</tr>
<tr>
<td></td>
<td>Mirapex ER® (pramipexole dihydrochloride)</td>
</tr>
<tr>
<td></td>
<td>Requip®† (ropinirole tablets)</td>
</tr>
<tr>
<td></td>
<td>Requip XL® (ropinirole extended release tablets)</td>
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<tr>
<td></td>
<td>Neupro® (rotigotine transdermal system)</td>
</tr>
<tr>
<td></td>
<td>Parlodel®† (bromocriptine mesylate)</td>
</tr>
<tr>
<td></td>
<td>Apokyn® (apomorphine hydrochloride injection)</td>
</tr>
<tr>
<td>COMT inhibitors</td>
<td>Comtan® (entacapone)</td>
</tr>
<tr>
<td>CD/LD/COMT inhibitor</td>
<td>Stalevo®‡ (carbidopa, levodopa, and entacapone)</td>
</tr>
</tbody>
</table>

### Amantadine

- **Antiviral agent; PD benefit found accidentally**

- **Tremor, bradykinesia, rigidity & dyskinesias**

Exact mechanism unknown; possibly:
- enhancing release of stored dopamine
- inhibiting presynaptic reuptake of catecholamines
- dopamine receptor agonism
- NMDA receptor blockade

- **Side effects — autonomic, psychiatric**

- **200-300 mg/day**
COMT Inhibitors

Tolcapone and Entacapone
MOA similar to dopa decarboxylase inhibitors
Potentiate LD: prevent peripheral degradation by inhibiting catechol O-methyl transferase
Reduces LD dose necessary for a given clinical effect
Helpful for both fluctuating Parkinson's disease
Combination CD/LD/Entacapone pills

FUTURE

- New Definition for PD
- Gene therapies
  - AV Viruses GAD, AADC, BDNF,GDNF
- LCIG [Duo-Dopa ](Continous Infusion of Carbidopa/Levodopa gel via G-Tube)
- Apomorphine pumps
- Newer Indications for Dopamine agonists?
  - BRIGHT Study with rotigotine transdermal patch
  - Neuropsychiatric benefits in post-hac analysis anxiety, apathy, depression and fatigue
- New formulations of L-Dopa
  - IPX066 (Rytary), Xenopont
Update for Primary Care: Keys to Diagnosing and Treating Parkinson's Disease, Essential Tremor and Restless Legs Syndrome

**FUTURE PUMPS**

- **LCIG**
- **Apomorphine**
- **Apomorphine Pump**

**Apomorphine**

- D1/D2 agonist
- Parenteral delivery (s.c., i.v., sublingual, intranasal, rectal)
- Rapid “off” period rescue
  - 2-10 mg s.c.; pen injection systems
- Treatment of unpredictable, frequent motor fluctuations
  - continuous s.c. infusion via mini-pump
- SE: nausea, vomiting, hypotension
  - trimethobenzamide 300 mg t.i.d.
  - domperidone 20 mg t.i.d.; not available in U.S.
Question 1

1. A 62-year-old male with RLS returns for follow up in your office. He has hypertension and has been on aspirin and atenolol. Recent laboratory test were normal. His exam is normal. He states that he is not able to sit for long period of times and is having difficulty at night when going to sleep. The following would be appropriate medical treatments except:

1. Rotigotine Transdermal patch 1mg daily
2. Ropinirole .5mg at bedtime daily for 1 week then increase to 1mg daily
3. Clonazepam 1mg at bedtime
4. Gabapentin 300mg at bedtime
5. Valproate ER 500mg daily
Question 2

A 35-year-old male with a ten-year history of essential tremor comes in for evaluation because he is having difficulty with his writing. He can only print and avoids writing as much as possible. His father also has the same type of tremor. Exam findings that you are likely to find include all of the following except:

1. Difficulty with tandem gait
2. Mild difficulty with rapid alternating movement because of tremor
3. Hypomimia (masked facies)
4. Mild cogwheel rigidity
5. Normal strength

Question 3

A 61-year-old male with a history of essential tremor presents for worsening tremor on his right hand. His states that his tremors were usually when he was holding something or writing. Of late he has noted his tremor on the right hand while resting on his lounge chair and watching television. He takes 120mg of propranolol daily and 150mg of primidone daily for his ET, which had been quite stable for last 4 years. The most appropriate next step would be:

1. Increase the primidone dose
2. Order an MRI brain
3. Check TSH
4. Order a DaTScan
Question 4

A 45-year-old male presents with an intermittent right hand tremor, mild cogwheel rigidity and bradykenesia on the right side with reduced arm swing on the right. Appropriate first line therapy may include all of the following except:

1. Encourage exercise program or referral to Physical therapy
2. Watch and wait, return to clinic in three months for revaluation
3. Begin a Dopamine agonist (Rotigotine patch, Ropinirole or Pramipexole)
4. Begin Rasagiline 1mg daily

On a scale of 1 to 5, please rate how confident you would be in diagnosing and treating a patient with movement disorders.

1. Not at all confident
2. Slightly confident
3. Moderately confident
4. Pretty much confident
5. Very confident
Which of the statements below describes your approach to diagnosing and treating patients with Restless Legs, Essential Tremor and Parkinson's Disease?

1. I do not manage patients with these movement disorders, nor do I plan to this year.
2. I did not manage patients with these movement disorders before this course, but as a result of attending this course I’m thinking of managing them now.
3. I do manage patients with these movement disorders and this course helped me change my treatment methods.
4. I do manage patients with these movement disorders and this course confirmed that I don’t need to change my treatment methods.