

Coping with Restless Legs Syndrome



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Goals

- Define coping and how to apply it to your RLS.
- Apply knowledge to your benefit.
- How best to use medications to your benefit.
- Review strategies of behavioral change.



Coping means to invest through conscious effort in solutions that allow you to master, minimize, or tolerate a disease or stress.



Coping Strategies

- Mastery is not control. It requires knowledge.
- Minimize means to understand what increases or decreases symptoms.
- Tolerate means acceptance of that which is not changeable.



Knowledge is the first step to mastery



Numbers of experience/expertise

- If you have RLS, your coping is based on $N=1$.
- If you rely on your personal physician, $N=3$ over the last few months.
- If you see a neurologist or sleep specialist, the $N=10-20$ over the last year.
- If you see an RLS specialist, the $N=300-1000$ over many years.
- As a member of the RLS Foundation, $N>5,000$. The challenge: translate into your strategies.



Mastery starts with Knowledge

- What is RLS and do I have it?
- What is my severity?
- Who else do I know with RLS?
- How I cope with distress?
- What are my triggers?
- What actions to take before RLS presents?
- How to target my medications?
- What are other reasons for poor sleep?



What is RLS and do I have it?



2014 IRLSSG Diagnostic Criteria for RLS/WED "URGES"

U = Urge to move the limb(s)

R = Rest worsens the sensation

G = Get up & Go is Good
(temporary relief with movement)

E = Evening / night worsening

S = Sole or principal explanation for the symptoms rather than co-morbid conditions

Acronym by Philip M. Becker, M.D. from Diagnostic Criteria, IRLSSG, 2011 and NIH Diagnostic Criteria, Allen, RP et al. Sleep Medicine 2003.



Features of Restless Legs Syndrome (Willis-Ekbom Disease)

- **Neurosensorimotor disorder** with an urge to move the limbs, typically at bedtime.
- **Cause is unknown** (abnormalities found in CNS iron status, dysfunction of dopamine and glutamine).
- **Prevalence: 3 to 10%** based on severity, age and region.
- **Age of onset: Any**; peak presentation between 30 and 60, although early and late life presentation occurs.
- **Gender ratio: Approximately 60 women:40 men.**



Assessment of RLS

- Diagnosis by clinical history: 4 core criteria must be met + an exclusion of other cause -- **URGES**.
- Lab work: serum ferritin (>50 ug/dl or >75 ug/dl in augmentation); if suspected, neuropathy work up.
- Sleep study **is not required** unless hypersomnia or other sleep disorders are suspected.
- RLS **IS NOT** periodic limb movements (PLMs):
 - **RLS requires sensation (+ movements)**
 - **PLMs are movements in sleep**, spinal in origin, and increase with age.



Family and Management of Distress

- **More than 60% of cases of WED/RLS are familial**, inherited in an autosomal dominant fashion with variable penetrance.^[1]
- Who else had RLS?
- How did they cope with the problem?
- What was the style of expression in the family?
 - Stoic “suffer in silence”
 - Demonstrative “woe is me”
 - Communication of distress “I don’t know what I can do”
 - Command: “Stop that fidgeting”
 - ???



Potential Confounds to RLS Diagnosis

<u>Mimics</u>	How many criteria met?	Differentiate from RLS	Coexist with RLS
Leg cramps	4 of 4	Muscle spasm easily identified	+
Neuropathy/ radiculopathy	0–4 of 4	Numbness, burning, and tingling; noted in morning	+++
Arthritis	2–3 of 4	Discomfort in and around joints; stiffness on arising	++
Vascular	2–3 of 4	Varicosities and PVD. Relief from movement slow; rub helps more; walking is worse	++
Positional discomfort	1–2 of 4	Foot or leg “asleep” from compression; shift and it’s gone	--
Foot Tapping	0 of 4	Habit of tapping/wiggling a foot	??
Exacerbation of RLS	Pregnancy, blood loss, renal disease, antidepressants, dopamine blockade, Parkinson’s disease, axonal neuropathy		

Benes H et al. *Sleep Med.* 2009;10(5):524



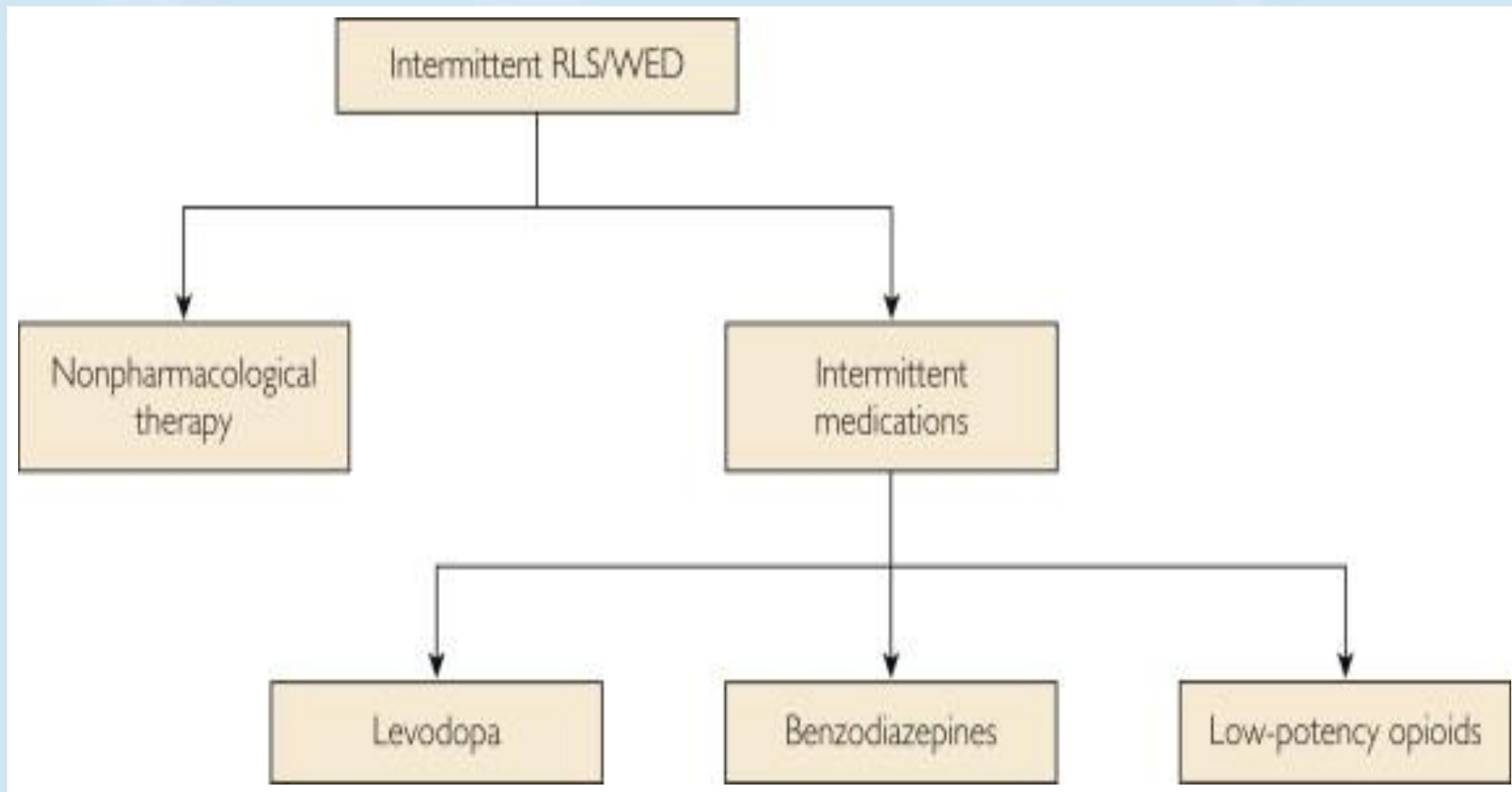
RLS Foundation Medical Advisory Board Recommendations



What is my severity?

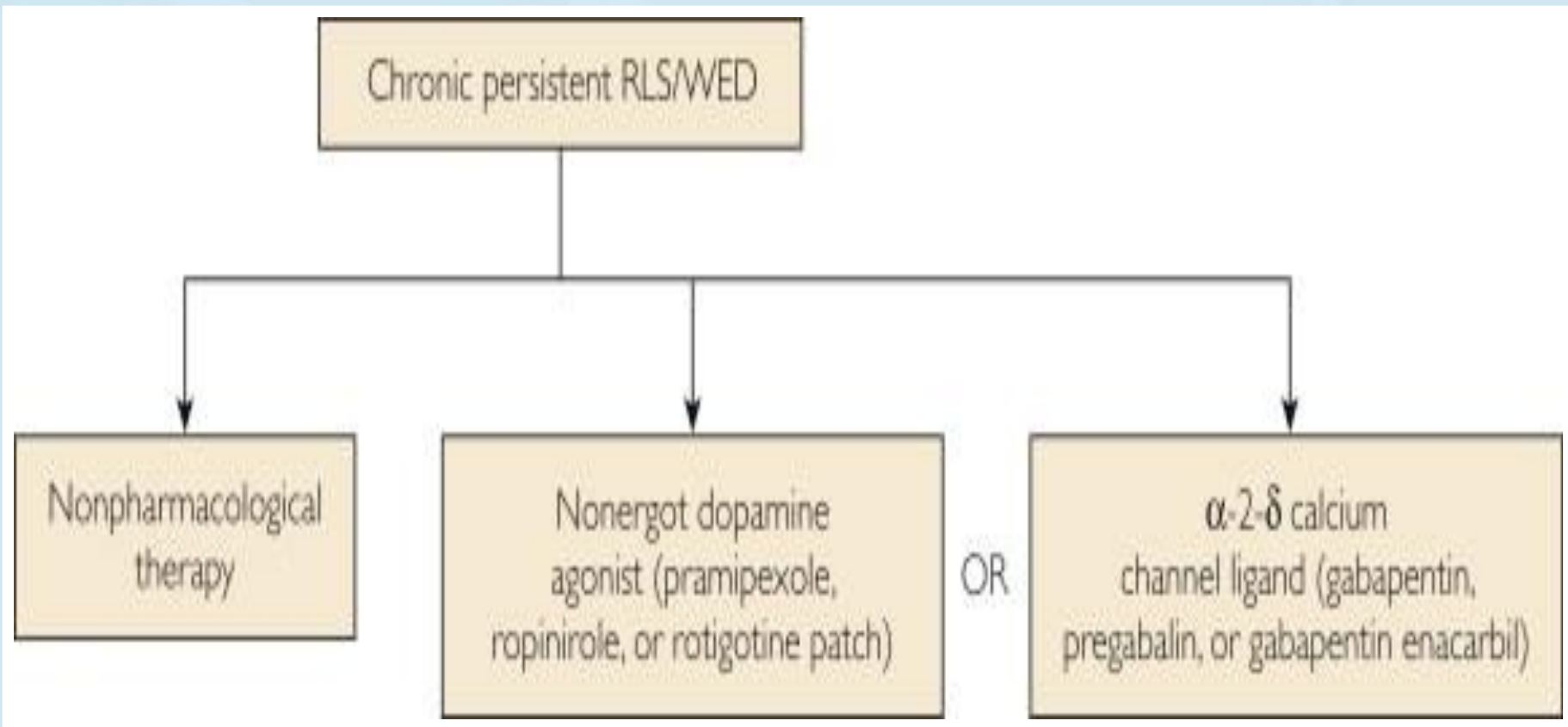


Management of **INTERMITTENT RLS/WED**



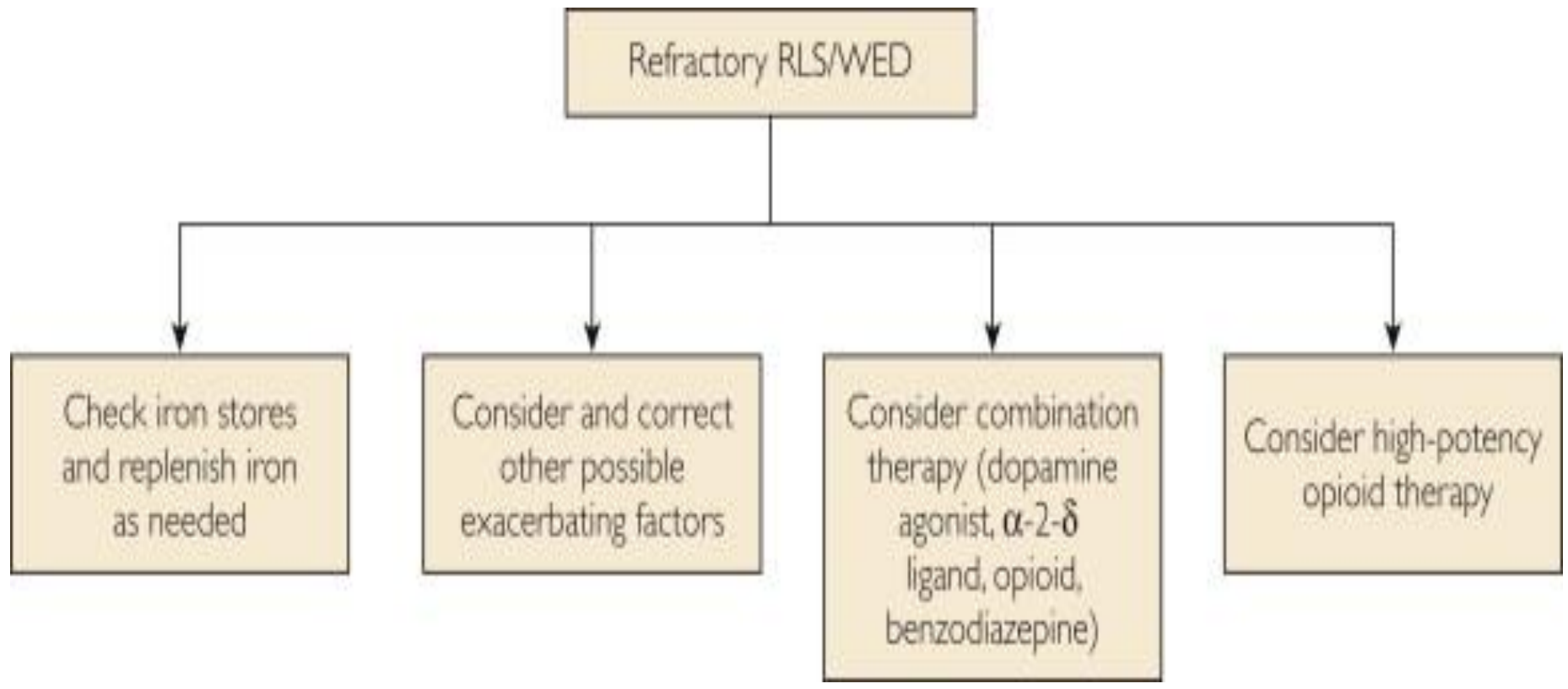
Silber MH, Becker PM, Earley C, et al. Medical Advisory Board of the Willis-Ekbom Disease Foundation. Willis-Ekbom Disease Foundation revised consensus statement on the management of restless legs syndrome. *Mayo Clin Proc.* 2013 Sep;88(9):977-86.

Management of **CHRONIC PERSISTENT RLS/WED**



Silber MH, Becker PM, Earley C, et al. Medical Advisory Board of the Willis-Ekbom Disease Foundation. Willis-Ekbom Disease Foundation revised consensus statement on the management of restless legs syndrome. Mayo Clin Proc. 2013 Sep;88(9):977-86.

Management of **REFRACTORY RLS/WED**



Silber MH, Becker PM, Earley C, et al. Medical Advisory Board of the Willis-Ekbom Disease Foundation. Willis-Ekbom Disease Foundation revised consensus statement on the management of restless legs syndrome. Mayo Clin Proc. 2013 Sep;88(9):977-86.

Target Symptoms for RLS Therapy

- **Dysesthesia reduce to the lowest level possible throughout the 24 hours.**
- **Sleep: Normalize sleep onset, sleep maintenance, and daytime alertness.**
- **Periodic Leg Movements: Reduce to an asymptomatic level for patient and bedpartner.**
- **Timing of treatment before significant onset of symptoms.**
- **Side Effects should be minimized.**

Silber MH, Becker PM, Earley C, et al. Medical Advisory Board of the Willis-Ekbom Disease Foundation. Willis-Ekbom Disease Foundation revised consensus statement on the management of restless legs syndrome. *Mayo Clin Proc.* 2013 Sep;88(9):977-86.



What are my triggers?

- Time of day (lecture, movie or concert)
- Length of rest before restlessness
- Confinement (plane or car)
- Caffeine
- Sugar
- MSG (Chinese and other foods)
- Lost sleep
- Medications for allergies/sinus/ “XXX PM” for sleep
- Others



Nonpharmacological Strategies

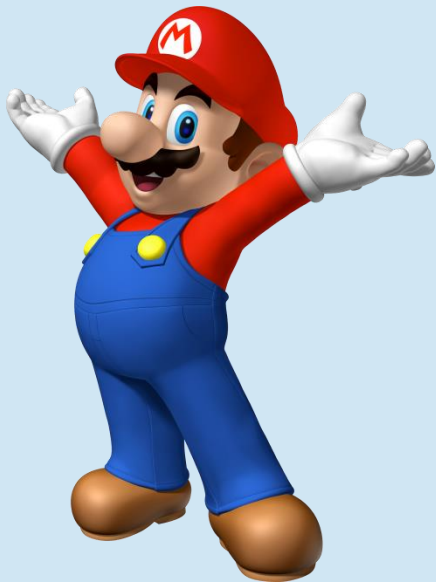
- **Mental alerting activities.**
- **Caffeine:** Limit after noon or trial off for 10-14 days.
- **Review medications, including over-the-counter agents for sleep (antihistamines) that may worsen RLS.**
- **Exercise**
- **Counterstimulation (rubbing, heat, cold, vibration)**
- **Iron: any episodes of bleeding/blood loss**

Silber MH, Becker PM, Earley C, et al. Medical Advisory Board of the Willis-Ekbom Disease Foundation. Willis-Ekbom Disease Foundation revised consensus statement on the management of restless legs syndrome. Mayo Clin Proc. 2013 Sep;88(9):977-86.



Alerting Activities

Recommend **mental alerting activities**, such as video games or crossword puzzles, to reduce symptoms at times of boredom.



Caffeine and Chocolate

- **Avoid caffeine past noon**
- Consider a trial of **abstinence from caffeine**



Exercise

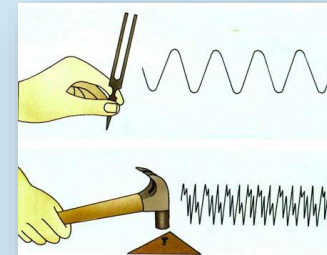
- Becoming more fit helps RLS.
- Fatiguing of the muscles temporarily increases RLS.
“The Holidays Effect on RLS.”



- Conditioning takes 4-8 weeks to see the benefit of exercise to your RLS.

Counter-stimulation

- Massage from the understanding partner.
- Bath or shower
- Rubbing
- Evening activities
- Vibration pad
- Many others



Take care about vigor of stimulation. Do not pound or overly vibrate.



Iron

- What is your **iron status**?
- Serum ferritin is best measure of the last 3 months of iron intake.
- If serum ferritin <50 ug/dL, take iron replacement, monitoring for stomach upset and constipation.



Excess iron can damage the heart and liver.



Iron Therapy

- Iron absorbed better if systemically deficient
 - CBC not a screen for low iron
 - Ferritin <50 ug/L
 - Iron binding saturation <20%
- Oral iron: ferrous sulfate 325 mg TID + vit C
- Intravenous iron an option for medically ill, anemic patient and appears better tolerated with higher effective replacement

Silber MH, Becker PM, Earley C, et al. Medical Advisory Board of the Willis-Ekbom Disease Foundation. Willis-Ekbom Disease Foundation revised consensus statement on the management of restless legs syndrome. Mayo Clin Proc. 2013 Sep;88(9):977-86.



Treat Secondary Causes of RLS

- Iron deficiency
- Renal failure
- Neuropathy
- Pregnancy (treat with magnesium and iron)
- Iatrogenic: eliminate offending agent
 - Antihistamines like Benadryl
 - Dopamine blockers (Reglan)
 - Antidepressants, primarily serotonergic agents

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How to target my medications?



Greatest Advance: Set alarm



Key to Relief with Medication TIMING



- RLS is a circadian disorder (body clock) from 4:00 PM to 4:00 AM.
- Determine when you have typical RLS onset.
- Know your medication.
 - Length to onset of action.
 - Defined by peak plasma levels.
 - **Take the medication so that it peaks at the time of RLS onset.**



Agent selection by condition

Dopamine Agonists

- Very severe RLS
- Co-morbid depression or dysthymia
- Obesity / metabolic syndrome

Alpha-2-Delta Ligands

- Co-morbid pain
- Co-morbid anxiety
- Co-morbid insomnia
- Prior impulse control disorder or addiction

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Table 2. Comparison of DOPAMINE AGONISTS Used to Treat RLS/WED

<u>Variable</u>	<u>Pramipexole</u>	<u>Ropinirole</u>	<u>Rotigotine patch</u>
Time to maximum blood level (h)	2	1-1.5	Stable plasma levels over 24 hr
Elimination half-life (h)	8-12 (increases with decreasing glomerular filtration rate and age)	5-6	Stable plasma levels over 24 h (elimination half-life biphasic: 3 and 6)
Metabolism and excretion	Renal	Hepatic metabolism and renal excretion	Hepatic metabolism and renal excretion
Initial daily dose (mg)	0.125	0.25 (-0.5) ^b	1
Maximum daily dose (mg)	0.5 (-1.0) ^b	4	3

^aRLS = restless legs syndrome; WED = Willis-Ekbom disease.

^bValues in parentheses differ from Food and Drug Administration–approved values.



Targeted use of Carbidopa / Levodopa

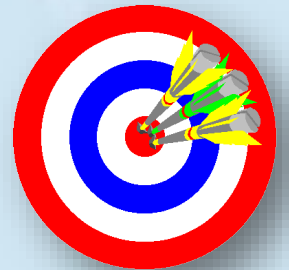
Breakthrough RLS: Rapid onset in 20-30 minutes of Regular form

Formulations:

- Regular 25/100 (half-life: 3-4 hours)
- Extended release CR or ER 50/200 (half-life: 6-8 hours)

Primary use currently:

- **As needed treatment because of increased risk of augmentation (Recommend: ≤ 300 mg/week)**
- **Diagnostic tool to determine whether possible RLS is present in other sensory disorders**



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Pharmacology and Dosing of Alpha-2-Delta Calcium Channel Ligand

	Gabapentin Enacarbil	Gabapenti n (not FDA approved)	Pregabalin (not FDA approved)
Time to maximum blood level	7-9 hrs	2 hrs	1.5 hrs
Elimination half-life	Relatively stable plasma levels over 18-24 hrs (elimination half-life 6 hrs)	5-7 hrs	6 hrs
Metabolism and excretion	Intestinal metabolism; renal excretion	Renal	Renal
Initial daily dose	600 mg	300 mg	100 mg
Maximum daily dose	600(-1200) mg	3600 mg	450 mg



Features and Treatment Strategies for Augmentation on dopaminergic therapy



Augmentation to Dopaminergic Agents

Max Planck Criteria

Worsening of symptoms after initial therapeutic benefit not accounted for by other factors

1. Earlier onset of symptoms (<4 hr) Or
2. Earlier onset of symptoms (>2 hr)
+ ONE of following:
 - Shorter latency to symptoms when at rest
 - Extension to other body parts
 - Greater intensity
 - Less relief from treatment

García-Borreguero D, Allen RP, Kohnen R, et al. Diagnostic standards for dopaminergic augmentation of restless legs syndrome: report from a World Association of Sleep Medicine-International Restless Legs Syndrome Study Group consensus conference at the Max Planck Institute. *Sleep Med.* 2007 Aug;8(5):520-30.



Augmentation Potential

Estimated Onset and Frequency

<u>Agent</u>	<u>Time to Onset</u>	<u>Frequency</u>
levodopa	1-26 weeks	30-82%
pramipexole/ ropinirole	3-18 months	8-35%
cabergoline	? months	5-10%
opiates	none	--
gabapentin/others	none	--



Management Strategies for Augmentation

- Discontinue or seek minimal dose of DA.
- Check serum ferritin. Consider iron or Mg.
- Choose longer acting dopaminergic agonist.
- In mild-moderate augmentation, offer DA 1-2 hrs. prior to RL onset, e.g., daytime dosing.
- Switch/add gabapentin (or other anticonvulsant) or opiate.
- In severe cases, taper dopamine agents while starting high potency opioids (methadone, levorphanol, etc.) &/or non-DA agents.



Prevalence of Impulsive/Compulsive Behavior in RLS Patients on Dopamine Agonists

	Estimated U.S. Prevalence	Cornelius, 2010 ⁶	Pourcher E, 2010 ⁷	Driver-Dunckley, 2007 ⁸
compulsive shopping	5.8% ¹	10%	3%	
gambling	1-7% ²	7%	1%	7%
compulsive eating	7.2% (college) ³	23%	4%	
hypersexuality	3-6% ⁴	8%		5%
punding	Unknown	10%		
trichotillomania	0.6 to 3.5% ⁵		2%	

¹Karran L, Am J Psychiatry 163:1806-1812, 2006.

²Shaffer HJ, Am J Public Health 89: 1369-1376, 1999.

³Guidi J, Psychiatric Res 165: 154-162, 2009.

⁴Black, DW, CNS Spectrums, 5: 26-72, 2000.

⁵[various estimates but insufficient data]

⁶ Cornelius JR, Sleep. 2010 Jan;33(1):81-7.

⁷ Pourcher E, J Neurol Sci. 2010 Mar 15;290(1-2):52-6.

⁸ Driver-Dunckley ED, Clin Neuropharmacol. 2007 Sep-Oct;30(5):249-55.



A 10-year, longitudinal assessment of dopamine agonists and methadone in the treatment of restless legs syndrome.

Silver N, et al. Sleep Med. 2011 May;12(5):440-4.

RESULTS from Johns Hopkins 10-year study:

Annual rates for discontinuing treatment

- pramipexole: 9%
- pergolide: 8%
- Methadone: 0%.

Percentage continuation over 5 years:

- pramipexole: 58%
- pergolide: 35%
- Methadone: 100%.



Opioids

- May treat sensory more than motor symptoms
- Mu opioids probably more effective
- Usual adverse events
 - Constipation
 - Idiosyncratic, e.g., activation
 - **Development of sleep disordered breathing**
- Dose often very stable over many years
- **Addiction and dependency is UNCOMMON in RLS.**

Silber MH, Becker PM, Earley C, et al. Medical Advisory Board of the Willis-Ekbom Disease Foundation. Willis-Ekbom Disease Foundation revised consensus statement on the management of restless legs syndrome. Mayo Clin Proc. 2013 Sep;88(9):977-86.



Other reasons for poor sleep



What are other reasons for poor sleep?

- Depression is 2.5 times more common in RLS
- Anxiety, including panic attacks, is 2-4 times more common.
- Stress will worsen sleep and RLS.
- Medical disorders such as sleep apnea.
- Pain disorders
- Fibromyalgia
- Inflammatory/autoimmune disorders



Power of Mind/Imagination in RLS



Use Power of Mind/Imagination in RLS Strategies from Pain Management

- Altered focus
- Dissociation
- Sensory splitting
- Mental anesthesia
- Mental analgesia
- Transfer
- Age progression/regression
- Symbolic imagery
- Positive imagery
- Counting
- RLS movement



Modified from Block, Andrew. 11 Chronic Pain Control Techniques. Website: Spine Health. 6/17/2007

Use Power of Mind/Imagination

Strategies from Pain Management

- **Altered focus:** Focus your attention on any specific non-painful part of the body (hand, foot, etc.) and alter sensation in that part of the body.
Example: imagine your hand warming up. This will take the mind away from focusing on the source of discomfort.
- **Dissociation:** mentally separating the painful body part from the rest of the body, imagining the body and mind as separate and distant.
Example: imagine that you are moving your legs in joy (walking, swimming, playing, a loving touch) and tell it to stay in the joy “over there.”
- **Sensory splitting:** Divide the sensation (fidgets, creeping, pain, burning, pins and needles) into separate parts.
Example, if the leg feels fidgety, focus just on the sensation and not on the hurt.
- **Mental anesthesia:** Imagine an injection of numbing anesthetic (like Novocain) into nerves and muscles at the top of the restless area and let it spread down to the ankles or toes. Or imagine a heating pad or cooling pack or vibration being placed onto the area of restlessness.



Use Power of Mind/Imagination 2

- **Mental analgesia:** Building on the mental anesthesia concept, imagine an injection of a strong medicine or pain killer, such as morphine, into the area. Alternatively, you can imagine your brain producing massive amount of endorphins, the natural pain relieving substance of the body, and having them flow to the painful parts of your body.
- **Transfer:** Use your mind to produce altered sensations, such as heat, cold, anesthetic, in a non-painful hand, and then place the hand on the restlessness. Envision transferring this pleasant, altered sensation into the area.
- **Age progression/regression:** Use your mind's eye to project yourself forward or backward in time to when you are pain-free or experiencing much less pain. Then instruct yourself to act "as if" this image were true.
- **Symbolic imagery:** Envision a symbol that represents your RLS, such as a loud, irritating noise or a painfully bright light bulb. Gradually reduce the irritating qualities of this symbol, for example dim the light or reduce the volume of the noise, thereby reducing the RLS.



Use Power of Mind/Imagination 3

- **Positive imagery:** Focus your attention on a pleasant place that you could imagine going - the beach, mountains, etc. - where you feel carefree, safe and relaxed.
- **Counting:** Silent counting is a good way to deal with painful episodes. You might count breaths, count holes in an acoustic ceiling, count floor tiles, or simply conjure up mental images and count them.
- **Movement:** Move sensation from one area of your body to another, where the RLS is easier to cope with. For example, mentally move your it slowly into your toes or hand, or even out of your hand through the bed and into the floor.



Summary of Imagination

- **Practice in day** for these techniques to become effective in helping alleviate chronic pain.
- **Work on these relief/coping strategies for about 30 minutes 3 times a week.** With practice, you will find that the relaxation and mastery become stronger and last longer.
- Some of these techniques are probably best learned with the **help of a professional**
- Sometimes, after you are good at using the techniques, you can produce relief and relaxation with just a few deep breaths. You can then start to use these techniques while you are engaged in any activity, working, talking, etc. With enough experience you will begin to feel a greater sense of control over RLS and its effects on your life.

Modified from Block, Andrew. 11 Chronic Pain Control Techniques. Website: Spine Health. 6/17/2007



Mastery





Question & Answer

*For more information about upcoming webinars & events visit:
www.rls.org/get-involved/education-events*

