February 28, 2019

CTS INSPIRATIONS

CTS NEWS

President's Message

Are you making the most of your CTS membership? Many of you may be aware of the two annual educational conferences that CTS now offers (and stay tuned for more information about the upcoming Southern California Conference in October 2019 and the Northern California Conference in January 2020.) However, CTS also provides many opportunities to stay up to date on the latest pulmonary concerns that may be affecting your patients, to network with colleagues throughout the state, and to advocate for the health of all Californians.

Our current committees listed below are aimed at making a difference and enable members to work closely with others who share similar interests.

- Health Policy – chaired by James Brown
- Pediatrics – chaired by Douglas Li
- Clinical Practice – chaired by Asha Devereaux
- Multidisciplinary – co-chaired by William Stringer and George Su
- Membership - co-chaired by George Chaux and Brooks Kuhn
- Nominating – chaired by Tisha Wang
- Education – co-chaired by Shazia Jamil and Michelle Cao
- Career Development – chaired by Nicholas Kolaitis

We hope that you will take this year to become more involved either by joining a committee or helping us to advocate for change or respond to key state or national proposed bills or regulations (You can get started by checking out the links to *Climate and Lung Health News* at the bottom of this CTS inspirations!)

Respectfully,

Lorriana Leard, MD
President, California Thoracic Society

2019 CTS Winter Meeting Poster Competition

Back row (left to right) – Joshua Hoerger (UCD), Jin Sol G. Lee (UCD), Matt Kim (LLUH), Pranjal Patel (Kaiser Santa Clara), Julian Choi (ARMC), Kia Nikoomanesh (ARMC), Elizabeth Lancaster (UCSF), Nasouf Lugman (UCR), Tim Morris (UCSD)

Middle row (left to right) – Katherine DesPres Wick (UCD), Reika Miyokawa (UCD), Nicholas Kolaitis (UCSF), Kimrey Van Perre (LLUH), Elaine Nguyen (LLUH), Michele Quan (LLUH), Araksi Oganesian (ARMC), Brianna Rogan (ARMC), Dan Pham (LLUH), Sandeep Nayak (LLUH), Ana Carolina Costa Monteiro (UCLA), Philippe Montgrain (UCSD), Maria Flores (Community Hospital of the Monterey Peninsula), Atul Malhotra (UCSD), Elisabeth Gerrity (Community Hospital of the Monterey Peninsula), Niranjan Jeganathan (LLUH)

Front row (left to right) – Nicholas Klimberg (UCD), George Su (UCSF), Laren Tan (LLUH), Vipul Jain (UCSF-Fresno), Janelle Pugashetti (UCD), Lorri Leard (UCSF), Shazia Jamil (UCSD), Chris Garvey (UCSF), Katie Sarmiento (UCSF), Shannon Sullivan (Stanford), Saba Hamiduzzaman (LLUH)

EDITOR'S NOTE

This month, we continue our RLS miniseries by Dr. Buchfuhrer, highlighting *pharmacologic* (Part II) and *non-pharmacologic* approaches to treatment (Part III).

Part I: *Diagnosing and Treating Restless Legs Syndrome (RLS)* can be found here https://calthoracic.org/wp-content/uploads/2019/01/CTS-Newsletter-1-30-19R.pdf

RLS Part II: A Practical Approach for Treating RLS Patients with medication

Mark J Buchfuhrer, M.D.
Stanford School of Medicine, Sleep Disorders Center

Key Points:

1) When initiating drug therapy for RLS patients, consider starting with an alpha-2-delta drug.
2) When starting a dopamine agonist (DA) drug, the long acting DA rotigotine may be the best choice. Do not exceed the recommended maximum doses and consider even lower doses when using short acting DAs.

3) Opioid therapy is often needed for refractory RLS. If you do not feel comfortable with using these drugs to treat RLS, refer these patients to an RLS specialist.

When patients have RLS symptoms for 2 days or more per week that are disruptive and not controlled with non-pharmacological treatment, medication should be started. Due to considerations with dopamine agonist (DA) induced augmentation and Impulse Control Disorders (ICD), alpha-2-delta drugs are often considered the drugs of first choice. In comparison studies, the alpha-2-delta drugs have been found to be as effective as the DAs and do not cause augmentation. These drugs also help treat insomnia and even anxiety which are both common in RLS patients. Common side effects include sedation, dizziness, confusion, weight gain, edema and depression/suicidal ideation. Gabapentin has additional issues as it gets poorly absorbed in doses higher than 400-900 mg which does not occur with the long acting gabapentin enacarbil (the has only FDA approved alpha-2-delta drug) and pregabalin. For dosing, see the table below.

Alpha-2-delta Drug	Initial dose	Increase	Maximum Dose
Gabapentin	300 mg for age < 55 200 mg for age 55-65 100 mg for age > 65 Taken 1-3 hours qhs	Every 3-7 days if needed	900-1200 mg per dose, earlier dose if necessary
Gabapentin Enacarbil	600 mg for age < 65-70 300 mg for age ≥ 65-70 Take 5-6 pm with dinner	Every 7 days if needed	Approved up to 600 mg but 1200-1800 mg may be helpful
Pregabalin	75 mg for age < 65-70 50 mg for age ≥ 65-70 Take 1-3 hours qhs	Every 3-7 days if needed	300-450 mg, earlier doses may be necessary

When alpha-2-delta drugs are not helpful due to lack of efficacy or side effects, then a DA drug should be considered. The long acting DAs seem to have less risk of augmentation so are better choices. The rotigotine patch should be started at 1 mg and increased weekly by 1 mg if needed to a maximum of 3 mg. The commonest side effect necessitating discontinuation of the rotigotine patch is skin reactions. When needed, the short acting pramipexole and ropinirole may be prescribed but caution is advised. These should be started at their lowest dose (see table) or even ½ tablet. Once an effective dose is achieved, further dose increases should be strictly avoided as augmentation is quite likely and will worsen with additional doses. The maximum doses of these drugs should not be exceeded (see table) and even lower limits (.25 mg for pramipexole and 1 mg for ropinirole) should be strongly considered. The long acting form of pramipexole and ropinirole are not approved for RLS but may be helpful for changing from short acting DAs when augmentation occurs.

Dopamine Agonist Drug	Half-life in hours	Route metabolized or eliminated	FDA approved for RLS	Individual dose range (mg)	Average daily drug dose (mg)
Pramipexole	8-12	Kidneys	Yes	.125-.5	.125-.375
Ropinirole	6	Liver	Yes	.25 – 4	.5-2
Rotigotine	N/A	Kidneys	Yes	1-3	2
Pramipexole ER	N/A	Kidneys	No	.375-.75	.375
Ropinirole XL	N/a	Liver	No	2-4	2

Refractory RLS occurs when symptoms persist despite having tried both alpha-2-delta drugs and DAs (either each one separately or in combination). This occurs most often due to augmentation. Typically, opioid therapy is necessary with low dose methadone or oxycodone (although any potent opioid may be used). These drugs are extremely effective at treating even refractory RLS symptoms and can be very safe if prescribed and monitored appropriately (see Opioid Consensus article below).

Sedative/sleeping pills have been used to treat RLS. For the most part, they do not relieve RLS symptoms but rather help RLS patients fall asleep. Although clonazepam was the first sedative recommended for treating RLS, it has greater than a 40-hour half-life so next day sedation is often an issue. Shorter acting drugs, like zolpidem or eszopiclone, are far preferred when a sleeping pill is needed.

REFERENCES

1. 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.

2. Allen RP, Chen C, Garcia-Borreguero D, et al. Comparison of pregabalin with pramipexole for restless legs syndrome. N Engl J Med 2014;370:621–31

3. Silber MH, Becker PM, Buchfuhrer MJ, et al. Scientific and Medical Advisory Board, Restless Legs Syndrome Foundation. The Appropriate Use of Opioids in the Treatment of Refractory Restless Legs Syndrome. Mayo Clin Proc. 2018 Jan;93(1):59-67.

RLS Part III: Non-pharmacological Treatment of RLS

Key Points:

1) There are many substances and medications that may worsen RLS. These should be avoided and patients can get an RLS Medical Alert Card from the RLS Foundation (www.rls.org) to be aware of these exacerbating drugs.

2) Adequate sleep, regular exercise, and some devices may help control RLS symptoms.

3) Serum iron and ferritin levels should be checked in all RLS patients even if they show no signs of anemia. Much higher standards for these levels should be considered.

4) Iron therapy may be very effective for RLS patients and may also decrease the risk of augmentation. Oral iron is less effective while intravenous iron often dramatically improves RLS symptoms. Intravenous iron supplementation (only with low molecular weight iron dextran or ferrous carboxymaltose) are the best method of effectively increasing brain iron sufficiently to improve RLS.

For patients with mild RLS symptoms, medications may not always be necessary. Typically, those with less severe RLS have symptoms that occur intermittently and are less disruptive. The first suggestion is the avoidance of substances that worsens RLS. Caffeine and nicotine have been implicated as triggers of RLS but the actual evidence is quite weak and it is more likely that they do not really exacerbate RLS symptoms. However, alcohol most often markedly worsens RLS and should be avoided or used in moderation.

There are many OTC and prescription drugs (see table below) that worsen RLS and are often taken or prescribed to RLS patients. Since RLS patients have significant insomnia, sedating antihistamines and doxepin are often used for sedation but will markedly worsen the problem rather than helping. However, there are alternative drugs noted in the table below that can be substituted for RLS sufferers.

Class of Drug	Examples of drugs	Alternative treatments
Sedating Antihistamines	Diphenhydramine, doxylamine, chlorpheniramine, dimenhydrinate, brompheniramine	Loratadine, desloratadine, fexofenadine, steroid, cromolyn or ipratropium nasal sprays, Montelukast
Anti-nausea, antiemetic or vertigo medications	Meclizine, promethazine, hydroxyzine, prochlorperazine, metoclopramide	Granisetron, ondansetron, doasetron, transdermal scopolamine patches
Antidepressant medications	SSRI and SNRI medications, Tricyclic antidepressants, Mirtazapine	Bupropion, trazodone and possibly desipramine
Neuroleptic medications	Chlorpromazine, olanzapine, risperidone, lithium, etc.	Aripiprazole, brexpiprazole and cariprazine

RLS worsens with increased sleepiness so good sleep hygiene and obtaining adequate sleep time can be very important. Regular mild to moderate exercise decreases RLS symptoms. However, vigorous exercise (such as training for a marathon) tends to markedly worsen RLS.

There are currently 2 FDA approved devices available to treat RLS. The first is the Relaxis vibration pad. The patient sleeps with this pad under their legs and after pressing a button, a customized level of vibration is provided for 30 minutes. This works as a counter-stimulus to block the annoying RLS symptoms and help the patient get to sleep. The second device is the Restiffic foot wrap. It is not clear how this device works and most of the evidence supporting its effectiveness is anecdotal.

Brain iron deficiency has been demonstrated in RLS patients and treating this problem can result in dramatic improvement of RLS symptoms. Although we use the serum iron and ferritin levels (more sensitive than serum iron) as a guideline for instituting iron supplementation, these values do not always corelate with iron levels in the brain. Often, patients will respond to iron supplementation at very high serum iron or ferritin levels. We currently recommend treating RLS patients with ferritin levels less than 50-100 mcg/L or transferrin saturations of less than 20%. It is often difficult to achieve adequate serum iron levels with oral iron therapy due to constipation and poor absorption. The current recommendation is for only one iron tablet (taken on an empty stomach with 200 mg of Vitamin C to acidify) per day or every other day. More frequent oral iron administration causes increased levels of hepcidin that feeds back to decrease oral absorption. The most effective iron therapy is intravenous. Only 2 iron preparations are effective: low molecular weight iron dextran and ferrous carboxymaltose. To be effective, 1000 mg of IV iron is administered with the goal of increasing the serum ferritin between 200-300 mcg/L. Repeat infusions may be necessary on the average of once per year.

References:

1. 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.

2. Burbank F, Buchfuhrer MJ, Kopjar B. Sleep improvement for restless legs syndrome patients. Part 1: pooled analysis of two prospective, double-blind, sham-controlled, multi-center, randomized clinical studies of the effects of vibrating pads on RLS symptoms. Journal of Parkinsonism and Restless Legs Syndrome. 2013:13(3)1 - 10.

2018 Jan;41:27-44.

3. Kuhn PJ, Olson DJ, Sullivan JP. Pressure on Abductor Hallucis and Flexor Hallucis Brevis Muscles to Manage Moderate to Severe Primary Restless Legs Syndrome. J Am Osteopath Assoc. 2016 Jul 1;116 (7):440-50.

4, Allen RP, Picchietti DL, Auerbach M, et al. International Restless Legs Syndrome Study Group (IRLSSG). Evidence-based and consensus clinical practice guidelines for the iron treatment of restless legs syndrome/ Willis-Ekbom disease in adults and children: an IRLSSG task force report. Sleep Med.

CSRC CORNER

See How Your RT Department Measures Up with AARC Benchmarking

Richard Ford BS RRT FAARC

Early last year the California Society for Respiratory Care published Safe Staffing Standards for Respiratory Care Departments. The CTS Board formally endorsed those standards and they are available to review on the CSRC Web Site: https://www.csrc.org/page-1211546.

The Safe Staffing Standards refer to tools published by the American Association for Respiratory Care, including the Uniform Reporting Manual (URM). Recently the AARC released a benchmarking program, which incorporates concepts/standards derived from the URM. All too often, hospital administration uses bad data and fails to consider value in making decisions related to staffing and the structure of respiratory care departments. Recognizing the challenges of benchmarking Respiratory Services, the AARC launched this program in early 2017. Managers and Medical Directors across the country now have a tool that provides a means to quickly identify best performers and pursue improvement.

How Does AARC Benchmarking Work?

AARC Benchmarking defines comparison groups to assess how Respiratory Care departments stack up against similar hospitals, as well as provide access to performance and outcome metrics. AARC Benchmarking captures procedures associated with CPT Codes that are common to all respiratory departments. These procedures represent a majority of the work performed in most RT departments, and mirror the data and descriptions contained in the AARC Uniform Reporting Manual. Using the tool, you can compare key metrics that use labor hours, units of service produced, selected outcomes, as well as operational information related to department structure and functions.

The AARC Benchmarking tool offers the following benefits:

- **Hospital profile and metric data are transparent to users.**
- You have **direct access to view data and reports from any participating hospital**, as well as **create compare groups using Profile Filters** to find what you're looking for.
- The program was **developed by and is serviced directly through the AARC**, so new features and improvements can be made as recommended by user clients.
- Users also have **direct access to a member of the AARC Benchmarking Committee** to get issues resolved quickly.
- Users are **auto-enrolled in the AARConnect Benchmarking Client Group** where they can ask questions, dive deeper into issues, and better identify reasons for variation in metrics/ outcomes.
- AARC Benchmarking makes the transition to comparing outcomes so we can continue to **identify and compare the true value of top performers**.

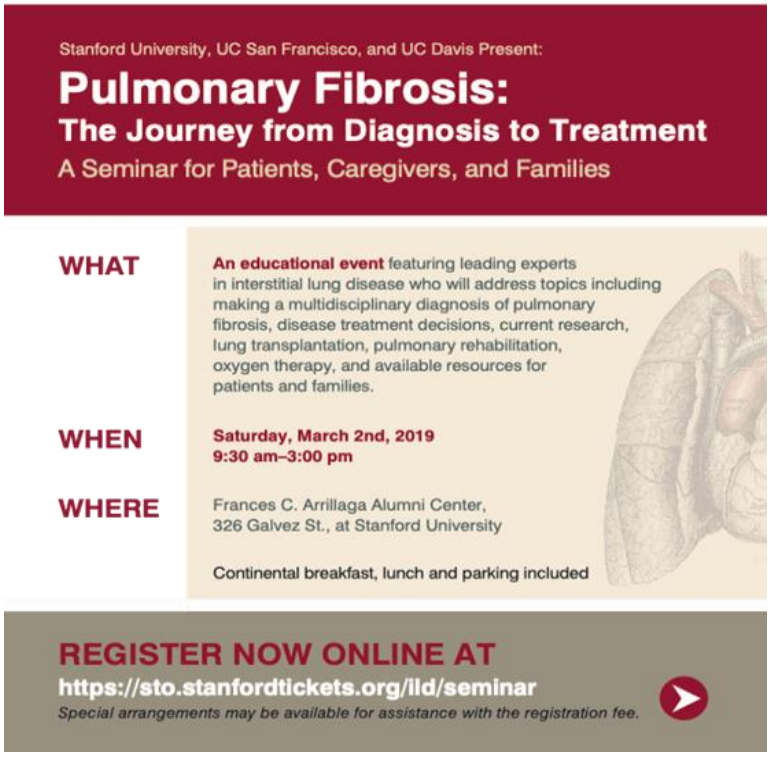
The CSRC is committed to the safe provision of respiratory services and AARC Benchmarking is another tool to help support that mission. If you are interested in finding out more, please feel free to email me at rmford@ucsd.edu, or directly contact Tim Myers at the AARC who manages this program.

Timothy Myers MBA, RRT-NPS, FAARC
Chief Business Officer
American Association for Respiratory Care
Irving, Texas USA
972-243-2272
myers@aarc.org

ANNOUNCEMENTS:

Stanford University, in collaboration with UC San Francisco and UC Davis, presents an Interstitial Lung Disease educational event for patients, families, and caregivers featuring leading experts who will address topics including making a multidisciplinary diagnosis of pulmonary fibrosis, disease treatment decisions, current research, lung transplantation, pulmonary rehabilitation, oxygen therapy, and available resources. The event will be held on the beautiful Stanford campus at the Frances C. Arrilaga Alumni Center on March 2, 2019.

For the full program, directions, and online registration information please go to:
https://tickets.stanford.edu/sites/default/files/pulmonary_fibrosis_seminar_directions_and_program.pdf



CLIMATE AND LUNG HEALTH NEWS (February2019)
http://action.lung.org/site/DocServer/hpcanewsletter_20190220.pdf?docID=43353

CLIMATE AND LUNG HEALTH NEWS (January 2019)
http://action.lung.org/site/DocServer/hpcanewsletter_20190116.pdf?docID=43352

To view Volume 18, Issue 1 of the SWJPCC Journal, click on the following link:

http://www.swjpcc.com/issues/

California Thoracic Society
18 Bartol St. #1054 | San Francisco, CA, 94133 | 415-536-0287
Connect with CTS at https://calthoracic.org/

CTS Editors:
Angela Wang, MD
Chris Garvey, NP
Laren Tan, MD