RESTLESS LEGS SYNDROME (RLS) AND ATAXIA FOR THE CLINICAL NEUROLOGIST

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Restless Legs Syndrome (RLS)
Definition: Restless leg syndrome (RLS) is a common sensorimotor disorder which causes leg discomfort, an urge to move the legs and relief with carrying out the movements. RLS causes significant distress and impairs the quality of life of the afflicted patients, but remains under-diagnosed and undertreated.
Epidemiology: Prevalence of RLS in different parts of the world
Clinical criteria for diagnosis of RLS
Differential Diagnosis of RLS:

- Primary RLS : Genetics
- Secondary RLS: Iron deficiency, Renal failure, Pregnancy, Parkinson's disease, Neuropathy and Medications that may aggravate RLS

Role of Iron in RLS and the research evidence to support it
Association between Periodic Leg Mvmts of Sleep (PLMS) and RLS

- PLMS are episodic, repetitive and highly stereotyped limb mvmts (0.5-10 sec in duration) that occur during sleep separated by intervals of 5-90 seconds. PLMS in > 80% of patients with RLS who undergo polysomnography but most people with PLMS do not have RLS. On polysomnography, PLMS are abnormal when >15/hour.

Work-up of RLS patient
Management of RLS patient
Initial management: non-pharmacologic approaches, iron replacement if ferritin is low, avoid dopaminergic meds if possible, use α2δ ligands (Gabapentin enacarbil ; pregabalin; gabapentin), etc.
Augmentation and Rebound
Augmentation: Occurrence of symptoms earlier in the day, increase of symptom severity and/or involvement of other limbs.
Rebound: Recurrence of symptoms early in the morning or late night.
Strategies for Management of patients with more advanced RLS, and patients with augementation and Rebound.

Suggested Reading:

1. Sethi KD and Mehta SH. A clinical primer on restless legs syndrome: what we know, and what we don't know. *Am J Manag Care.* 2012 Aug;18(5 Suppl):S83-8.
2. Allen RP, Picchietti DL, Garcia-Borreguero D et al. Restless legs syndrome/Willis-Ekbom disease diagnostic criteria: updated International Restless Legs Syndrome Study Group (IRLSSG) consensus criteria--history, rationale, description, and significance. *Sleep Med.* 2014 Aug;15(8):860-73.
3. Picchietti DL, Van Den Eeden SK, Inoue Y et al. Achievements, challenges, and future perspectives of epidemiologic research in restless legs syndrome (RLS). *Sleep Med.* 2016 Jul 12. pii: S1389-9457.
4. Kemlink D, Polo O, Frauscher B et al. Replication of restless legs syndrome loci in three European populations. *J Med Genet* 2009 May;46(5):315-8.
5. Haba-Rubio J, Marti-Soler H, Marques-Vidal P et al. Prevalence and determinants of periodic limb movements in the general population. *Ann Neurol.* 2016 Mar;79(3):464-74.

6. Garcia-Borreguero D, Silber MH, Winkelman JW et al. Guidelines for the first-line treatment of restless legs syndrome/Willis-Ekbom disease, prevention and treatment of dopaminergic augmentation: a combined task force of the IRLSSG, EURLSSG, and the RLS-foundation. *Sleep Med.* 2016 May; 21:1-11.

Ataxia

Ataxia denotes a syndrome of gait imbalance and incoordination with limbs, and dysarthric speech which usually results from the disorder of the cerebellum or its connections.

Classifications of Ataxias:

A) Genetic Ataxias:
   Autosomal dominant,
   autosomal recessive,
   X-linked and
   mitochondrial

B) Non-Genetic Ataxias:
   Structural/Degenerative
   Toxic/Metabolic
   Autoimmune/Inflammatory/Paraneoplastic
   Infectious
   Drug Induced

I intend to highlight treatable ataxias and the most common ataxias in each of the categories.
Highlight on Acute Ataxias (which may represent neurologic emergencies)
Clinical approach to a patient with Ataxia
   A practical algorithm for testing ranging from screening lab tests, imaging to genetic testing.
   Treatment and Management of Ataxias

Suggested Reading:

1. Anheim M, Tranchant C, Koenig M. The autosomal recessive cerebellar ataxias. N Engl J Med. 2012 Feb 16;366(7):636-46.
2. van Gaalen J, Kerstens FG, Maas RP et al. Drug-induced cerebellar ataxia: a systematic review. CNS Drugs. 2014 Dec;28(12):1139-53.
3. Sun YM, Lu C, Wu ZY. Spinocerebellar ataxia: relationship between phenotype and genotype - a review. Clin Genet. 2016;90:305–14.
4. Javalkar V, Kelley RE, Gonzalez-Toledo E et al. Acute ataxias: differential diagnosis and treatment approach. Neurol Clin. 2014 Nov;32(4):881-91.
5. Fogel BL, Lee H, Deignan JL, et al. Exome sequencing in the clinical diagnosis of sporadic or familial cerebellar ataxia. JAMA Neurol 2014; 71:1237.
6. van de Warrenburg BP, van Gaalen J, Boesch S et al. EFNS/ENS Consensus on the diagnosis and management of chronic ataxias in adulthood. Eur J Neurol. 2014 Apr;21(4):552-62.
7. van Gaalen J, van de Warrenburg BP. A practical approach to late-onset cerebellar ataxia: putting the disorder with lack of order into order. Pract Neurol. 2012 Feb;12(1):14-24.