in the vaccinia-related kinase 1 gene (VRK1). (Gonzaga-Jauregui C, Lotze T, Jamal L, et al. Mutations in VRK1 associated with complex motor and sensory axonal neuropathy plus microcephaly. **JAMA Neurol** 2013 Dec;70(12):1491-8).

COMMENTARY. Hereditary motor and sensory neuropathies (HMSNs) are a group of slowly progressive diseases genetically heterogeneous, with more than 40 disease-associated genes identified. VRK1 is a novel HMSN locus that can be associated with a complex peripheral neuropathy phenotype, an autosomal recessive axonal motor sensory neuropathy and microcephaly. Genome-wide analysis enables the identification of novel HMSN-associated genes.

AXONAL NEUROPATHY WITH NEUROMYOTONIA

Investigators from the Children's Hospital, Coimbra, Portugal, and centers in Belgium, report a 16-year-old girl with consanguineous parents who presented with progressive distal muscular atrophy and weakness, beginning at age 6 years. After 10 years follow-up, clinical myotonia developed and was confirmed by electrophysiologic studies. This severe chronic motor axonal neuropathy was associated with a homozygous mutation in HINT1 and with late onset neuromyotonia. Sensory impairment was discrete and also appeared late. (Caetano JS, Costa C, Baets J, et al. Autosomal recessive axonal neuropathy with neuromyotonia: A rare entity. **Pediatr Neurol** 2014 Jan;50(1):104-7).

COMMENTARY. Autosomal recessive axonal neuropathy with neuromyotonia is recently described in 50 patients from 33 families, with 8 different HINT1 mutations, in a report including the above patient and cited by the authors [1]. The disease presents in the first decade with distal muscle weakness in upper and lower limbs. Sensory impairment is mild in some and most develop action myotonia in the hands and orthopedic deformities.

References.

1. Zimon M, et al. Nat Genet. 2012 Oct;44(10):1080-3.

LAMBERT-EATON SYNDROME IN CHILDREN

Investigators from Boston Children's Hospital; the Lahey Clinic, Burlington, MA; and Ohio State University, report 3 children presenting between ages 9 and 10 years with proximal lower extremity weakness with areflexia and low-amplitude compound muscle action potentials, and diagnosed with Lambert-Eaton myasthenic syndrome. A literature review found 9 other pediatric cases of Lambert-Eaton myasthenic syndrome, 3 having associated malignancies, 2 with lymphoproliferative disorders and 1 with neuroblastoma. The 9 nonparaneoplastic patients with primary autoimmune disorder responded to immunomodulatory therapy, with complete remission in 2 patients. (Hajjar M, Markowitz J, Darras BT, Kissel JT, Srinivasan J, Jones HR. Lambert-Eaton syndrome, an unrecognized treatable pediatric neuromuscular disorder: Three patients and literature review. **Pediatr Neurol** 2014 Jan;50(1):11-7).

COMMENTARY. **Diagnosis of Lambert-Eaton myasthenic syndrome.** Usually diagnosed as a paraneoplastic disease affecting middle-aged adults with small-cell lung cancer, Lambert-Eaton myasthenic syndrome (LEMS) may occur as a primary autoimmune disorder in younger adults and rarely in children. Proximal muscle weakness, absent reflexes, normal serum creatine kinase, and autonomic dysfunction should prompt electrodiagnostic testing for LEMS. Low-amplitude compound muscle action potentials with >100% facilitation following 10 seconds of voluntary exercise or in response to high frequency repetitive motor nerve stimulation (when tolerated) is diagnostic. Serum titers of voltage-gated calcium channel receptor antibodies specific to LEMS will differentiate the disorder from myasthenia gravis [1][2]. Identification of LEMS will prompt a search for malignancy.

References.
1. Hajjar M, et al. Pediatr Neurol. 2014 Jan;50(1):11-7.
2. Morgan-Followell B, Reyes EL. Neurology. 2013 May 21;80(21):e220-2.

VASCULAR DISORDERS

ARTERIAL ISCHEMIC STROKE PROSPECTIVE STUDY

Investigators from Departments of Paediatric Neurology, Bristol Royal Hospital for Children, the Institute of Child Health, London, and other centers in the UK, conducted a prospective population-based study of 96 children aged 29 days to 16 years with radiologically confirmed arterial ischemic stroke (AIS) occurring over a 1-year period (July 2008 to June 2009) in southern England. The incidence of childhood AIS was 1.60 per 100,000 per year, highest under age 1 year (4.14 per 100,000 per year). Sexes were equally susceptible. Asian (relative risk 2.14) and black (2.28) children were at higher risk of AIS than white children. Prevalence in Asian children may be explained by frequency of iron deficiency anemia. The increased risk for black children was largely explained by sickle-cell disease. Focal neurologic deficits, particularly hemiparesis, were the most common presenting feature. Seizures were more common in infants (</- 1 year), occurring in 75% of those aged < 1 year, and headache more common in older children (>5 years; $p<0.0001$), possibly because of increased reporting bias. Close to half the patients had multiple risk factors, and a third of cases had an arteriopathy, possibly related to infection. (Mallick AA, Ganesan V, Kirkham FJ, et al. Childhood arterial ischemic stroke incidence, presenting features, and risk factors: a prospective population-based study. **Lancet Neurol** 2014 Jan;13(1):35-43).

COMMENTARY. Risk factors for childhood AIS include age and race but not sex. The American Heart Association Stroke Council provides recommendations for the prevention of ischemic stroke caused by sickle cell disease, moyamoya disease, cervicocephalic arterial dissection, and cardiogenic embolism. Protocols for dosing of heparin and warfarin in children are suggested. Evaluation and management of perinatal stroke are also discussed, including recommendations [1].

References.
1. Roach ES, et al. Stroke. 2008 Sep;39(9):2644-91.