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MADISON NEUROLOGY LLC

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Neurology Care 7 days a Week. Because Your Brain Matters.

Lambert-Eaton Myasthenic Syndrome (LEMS)

Patient education guide · Demyelinating & Autoimmune · Madison Neurology LLC

What is it?

LEMS is an autoimmune disorder of the nerve-muscle junction in which antibodies attack the calcium channels that release the nerve's chemical signal. It causes weakness that, unusually, may briefly improve with activity, along with dryness of the mouth and eyes and reduced reflexes. About half of cases are associated with an underlying cancer (usually small-cell lung cancer); the other half are purely autoimmune.

How does it happen?

Antibodies against P/Q-type voltage-gated calcium channels reduce acetylcholine release at the nerve terminal. In paraneoplastic LEMS, an underlying small-cell lung cancer triggers the immune response; in non-cancer LEMS, it is a primary autoimmune process, sometimes alongside other autoimmune conditions.

Common symptoms

- Leg weakness and fatigue, especially climbing stairs or rising from a chair
- Weakness that may transiently improve with brief activity (unlike myasthenia gravis)
- Dry mouth, dry eyes, constipation, erectile dysfunction (autonomic features)
- Reduced or absent reflexes that return after exercise
- Mild eyelid drooping or double vision (less prominent than in MG)

How is it diagnosed?

Voltage-gated calcium channel antibody testing, electrodiagnostic studies (showing the characteristic large increase in muscle response after brief exercise), and clinical pattern establish the diagnosis. Because of the cancer association, all patients undergo cancer screening — chest CT or PET — repeated periodically for the first few years.

How is it treated?

Amifampridine (3,4-diaminopyridine) directly improves signal release and is first-line symptomatic therapy; pyridostigmine adds modest benefit. Immunotherapy (steroids, azathioprine, mycophenolate, rituximab; IVIG for flares) treats the autoimmune process. If a cancer is found, treating it often improves the neurology.

What does the future hold?

Non-cancer LEMS is usually well controlled long-term with amifampridine and immunotherapy, and life expectancy is normal. Cancer-associated LEMS tracks with the cancer's course, though neurological symptoms often improve with cancer treatment. Regular surveillance imaging is part of early follow-up.

Questions patients commonly ask

Q: Does LEMS mean I have cancer?

A: Not necessarily — about half of cases have no cancer. Everyone gets screened at diagnosis and periodically afterward, because finding a hidden cancer early is valuable.

Q: How is this different from myasthenia gravis?

A: Different antibody target, autonomic symptoms (dry mouth), reflex changes, and weakness that can improve briefly with activity; the electrical tests clearly distinguish them.

Q: Is it hereditary?

A: No — LEMS is autoimmune, not genetic.

National support groups & resources

- **Myasthenia Gravis Foundation of America** — myasthenia.org — 1-800-541-5454
- **National Organization for Rare Disorders** — rarediseases.org — 1-800-999-6673
- **American Academy of Neurology — Brain & Life patient resources** — brainandlife.org

(Organization contact details were current at the time of compilation; please verify online.)

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