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Dietary Supplement Agmatine Beneficial in Radiculopathy

Laura Tandler

A new study has found that the dietary supplement agmatine sulfate provides neuroprotective benefits to patients with lumbar disc-associated radiculopathy. Agmatine, a metabolite of the amino acid arginine, has been found to speed pain recovery and improve quality of life (QoL) in patients with the painful condition.

Lumbar disc herniation, often called sciatica, affects approximately 1% to 2% of the population. In many patients, the symptoms can be treated with physical therapy, rest and the use of medications, including nonsteroidal anti-inflammatory drugs. For many others, pain can be a lingering and debilitating problem. It is theorized that this pain is caused by pressure on nerve roots, resulting in continuous nerve cell degeneration.

Agmatine, a naturally occurring substance found in small amounts in animals and plants, has been demonstrated in numerous laboratory studies to protect nerve cells. It seems to interact with multiple molecular targets that are affected by nerve pathologies, infection and metabolic diseases, according to Gad M. Gilad, PhD, CEO of Gilad & Gilad LLC, in Reseda, Calif. (a patent owner of an agmatine product), and lead author of the paper.

"Agmatine was discovered in 1910 by Nobel laureate Albrecht Kossel," said Dr. Gilad. "Subsequent studies in the 1920s demonstrated that it had anti-glycemic effects. Then, in the 1990s, some 70 years later, it was found that agmatine could provide neuroprotection, neuropathic pain-reducing effects and even anti-anxiety and antidepressive effects."

The two-part trial, published in *Pain Medicine* (2010;11:356-368), began with an open-label dose-escalation assessment study to examine the safety of agmatine in 34 men and women aged 28 to 70 years with lumbar disc-associated radiculopathy. Four cohorts received agmatine at doses of 1.335 g per day for 10 days, 2.670 g per day for 10 days, 3.560 g per day for 10 days and 3.560 g per day for 21 days, respectively. The supplement was found to be safe, with mild to moderate diarrhea and nausea occurring in three patients in the highest-dose cohorts (and resolving by the end of treatment).

In the follow-up study, the same patients received either agmatine (2.670 g per day for 14 days) or placebo. Subjects were allowed to remain on the conventional treatments that they already were receiving, including physical therapy, medication and epidural steroidal injections. After the treatment period, patients were assessed for pain relief and improvement in QoL. Patients who received agmatine versus those who received placebo experienced significantly greater pain relief, as measured by the visual analog scale (VAS), McGill Pain Questionnaire (MPQ) and the Oswestry Disability Index and QoL as measured by the 36-item Short-Form (SF-36) Health Survey. There was a 25% improvement in pain as assessed by VAS in patients who received agmatine, compared with 4.8% for those who received placebo ($P=0.033$), and a 28.4% improvement in those receiving agmatine versus 7.1% who received placebo as assessed by the MPQ ($P=0.032$). QoL as assessed by the SF-36 also favored agmatine: 65.5% to 76.2% improvement for patients who received agmatine versus 16% to 24% for those who received placebo. No side effects were associated with agmatine treatment.

"I've been hoping a study like this would come out on agmatine," commented John Piletz, PhD, professor of psychiatry at Loyola University Medical Center in Chicago, and co-founder of HarborWay Clinical, in Psacagoula, Miss. "I've wanted to do a study on agmatine treatment for



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depression. In animals, agmatine has been linked to different behaviors from depression to heroin use to pain. It should be looked at as an adjunct to SSRIs [selective serotonin reuptake inhibitors]. Agmatine is an endogenous, anti-inflammatory substance found in pain neurons of the body, so it makes sense to add more to the body as a dietary supplement.”

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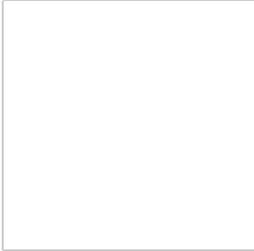
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