

Curcumin Eased Alzheimer's in Animals

Curry spice aided memory and reduced a key disease marker in rats with Alzheimer's

10/10/2013 By Craig Weatherby

Alzheimer's disease is characterized by formation of a "plaque" made of inflammation-inducing proteins called beta-amyloid, which also form wiry tangles.

It remains uncertain whether amyloid plaque and tangles cause or result from the still-mysterious process that leads to Alzheimer's disease (AD).

Drugs and nutrients that inhibit inflammation, oxidation, and formation of amyloid plaque and tangles also reduce AD symptoms.

The other key characteristic of AD is the accumulation of a mishaped protein called tau. And last year, new studies in mice showed that Alzheimer's disease spreads from brain cell to brain cell, with tau acting as the carrier.

Interestingly, recent clinical trials suggested that drugs targeting "infectious" tau proteins may be more effective than drugs that target plaque- and tangle-forming beta-amyloid proteins.

No current drugs target tau proteins effectively.

Fortunately, polyphenol-type "antioxidants" from plant foods – particularly curcumin, the orange-yellow pigment in turmeric root – hold promise as anti-tau agents.

These findings may explain the encouraging results of large, long-term epidemiological studies ... such as one from 2006, which suggested that the polyphenols in colorful fruits and vegetables may reduce the risk of Alzheimer's disease fairly dramatically (see "[Alzheimer's Risk Curbed by Antioxidants in Fruit and Vegetable Juice](#)").

Curcumin vs. Alzheimer's: The story so far

Studies show that supplemental curcumin significantly lowers levels of beta-amyloid, inflammation, and tau protein in mice with AD ... as do certain other polyphenols from plant foods, such as OPCs and resveratrol from grapes.

Back in 2005, UCLA researchers conducted a successful study of the effects of supplemental curcumin in the brain cells of rodents with AD (Yang F, 2005).

As the UCLA team wrote, "The phenolic yellow curry pigment curcumin has potent anti-inflammatory and antioxidant activities and can suppress oxidative damage, inflammation, cognitive deficits, and amyloid accumulation."

Their results showed dietary curcumin substantially reduced formation of amyloid plaques and fibrils, and dissolved existing plaques and fibrils in AD-afflicted mice.

Those indications received subsequent support from studies in cells and animals, which also show that curcumin is far more effective against amyloid plaque, compared with anti-inflammatory drugs like aspirin and ibuprofen (Thomas P et al. 2009; Wang YJ et al. 2009; Davinelli S et al. 2012; Jayasena T et al. 2013).

This is probably because, as the UCLA team put it in 2005, “the yellow pigment in turmeric ... [targets] multiple AD pathogenic [disease-causing] cascades.” (See “[Turmeric Power, Part II: Curry Spice May Curb Alzheimer’s](#)”.)

Subsequent studies from the UCLA group suggested that vitamin D3 and omega-3s enhance the body’s ability to remove amyloid plaque from the brain.

And they show that curcumin and vitamin D3 – both shown to help clear amyloid plaque from the brain – do that job better together than separately (see “[Brain-Killing Plaque Cleared by Omega-3s, Vitamin D](#)”).

A new animal study from China bolsters the idea that diets rich in turmeric and/or [supplemental curcumin](#) may help prevent and/or treat Alzheimer’s ... and possibly other tau-related degenerative brain diseases, like Parkinson’s.

Curcumin eased Alzheimer’s symptoms and signs in rodents

The curcumin study was led by researchers from Shandong, China, and involved rats suffering a disease similar to Alzheimer’s.

They divided the animals into curcumin-supplemented and control (no curcumin) groups, and then looked for two things: Changes in the rats’ spatial memory (e.g., ability to remember a maze path).

Changes in levels of a certain protein (GFAP) found in brain cells called astrocytes.

Astrocytes are the most abundant cells in the human brain, and facilitate regeneration of damaged brain cells.

The Chinese team examined changes in the genetic “expression” of a protein found in astrocytes, called GFAP (glial fibrillary acidic).

GFAP builds up in damaged, degenerating astrocytes, and rising GFAP levels in the brain’s astrocytes signal the onset of Alzheimer’s’ disease.

In Alzheimer’s patients, astrocytes located near amyloid plaques and its degenerating neurons swing into action and slow progression of the disease (Kraft AW et al. 2013).

The results show that rats fed supplemental curcumin showed improved spatial memory and lower levels of GFAP.

Numerous studies find curcumin a safe supplement, even at doses of up to 12 grams per day, though the usual doses range from one to four grams per day.

However, curcumin is not well-absorbed when extracted from turmeric ... unless it is accompanied by turmeric volatile oils ... also known as essential oils.

Accordingly, clinical studies show that [the curcumin in such extracts](#) is absorbed six to seven times better than the curcumin in conventional 95%-curcumin dietary supplements (Antony B et al. 2012).

Recent research shows that these essential oils also enhance the benefits of curcumin and provide their own ... yet other curcumin supplements rarely include any.

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