

A Cancer Treatment in the Spice Cabinet?

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A growing body of laboratory research suggests the spice turmeric has potent anticancer activity -- and researchers have launched a slew of human trials to find out just how powerful it may be.

"I think the promise is enormous," said Bharat Aggarwal, PhD, chief of the cytokine research laboratory in the department of experimental therapeutics at the University of Texas MD Anderson Cancer Center. Aggarwal has conducted numerous lab and animal studies of turmeric and its primary component, curcumin, and recently gave a lecture on the topic at the annual conference of the Society for Integrative Oncology.

Turmeric is a yellow powder made from the roots of a plant in the ginger family. It is the main ingredient in curry powder and is widely used in Indian and Southeast Asian cooking.

Many cultures also use turmeric for medicinal purposes, to treat everything from heartburn to arthritis. The idea to try turmeric against cancer developed as researchers learned about the role inflammation plays in cancer.

"Turmeric and curcumin are anti-inflammatory," Aggarwal said. "That has been described in traditional medicine like Ayurveda for thousands of years."

Lab and Animal Studies Show Effect on Many Cancers

The early lab research Aggarwal and others have done focuses on curcumin, the most active compound in turmeric. The studies show that curcumin can indeed slow inflammation. It also appears to slow the spread of cancer (metastasis), slow down the growth of new tumor blood vessels (angiogenesis), and cause cancer cells to die the way normal cells do (apoptosis).

What's more, these effects don't appear to be limited to just one type of cancer. Curcumin has shown effects in lab studies against metastatic melanoma, mantle cell lymphoma, and other cancers. Most recently, Aggarwal published a study in the journal *Clinical Cancer Research* showing that eating curcumin could keep breast cancer from spreading to the lungs -- at least in mice. In addition, it appeared to enhance the positive effects of the chemotherapy drug paclitaxel and lessen the severity of its side effects.

However, not all research on curcumin has had such positive results. At least one

laboratory study suggests curcumin may inhibit the action of other chemotherapy drugs, including camptothecin, mechlorethamine, doxorubicin, and cyclophosphamide. That's why it's so important to conduct well-designed studies in people of how curcumin affects different types of cancer.

At MD Anderson alone, Aggarwal said, doctors are testing curcumin in multiple myeloma and advanced pancreatic cancer. The institution is also seeking funding for a study of curcumin in women with breast cancer, he said. Studies from other institutions, both in the US and overseas, are looking at curcumin as a potential treatment for myelodysplastic syndromes, and for preventing colorectal cancer in individuals with familial adenomatous polyposis or with sporadic polyps. Curcumin is also being studied as a treatment for Alzheimer's disease and psoriasis.

Citation: "Curcumin Suppresses the Paclitaxel-Induced Nuclear Factor- κ B Pathway in Breast Cancer Cells and Inhibits Lung Metastasis of Human Breast Cancer in Nude Mice." Published in the Oct. 15, 2005, issue of *Clinical Cancer Research* (Vol. 11, No. 20: 7490-7498). First author: Bharat B. Aggarwal, University of Texas MD Anderson Cancer Center.