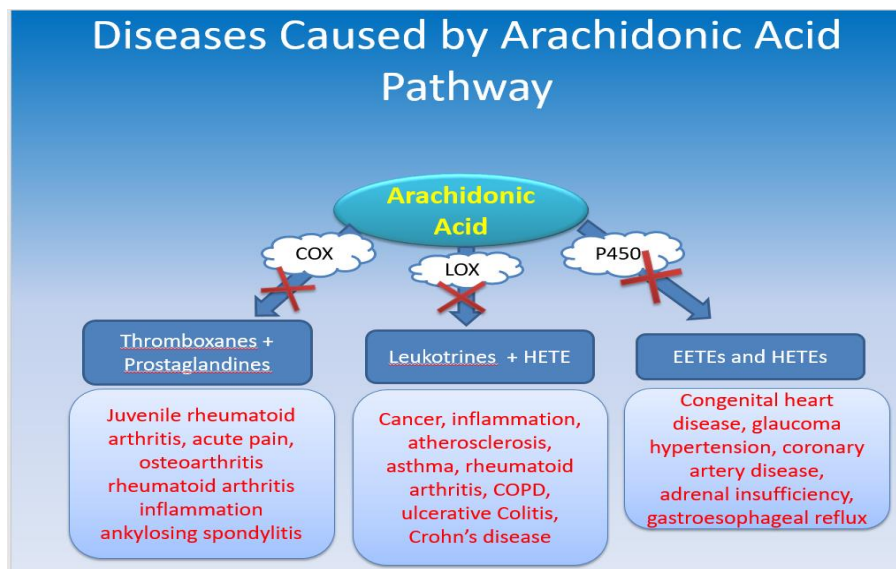


Curcumin: A True Natural Wonder Drug (Part 2)

In an article entitled, "A True Natural Wonder Drug Part 1," Robert Gadimian of Rophe Pharma described the anti-oxidant, anti-inflammatory health benefits of curcumin and how it works to interfere with the arachidonic acid pathway. In addition to acting as anti-inflammatory agent, Gadimian points out, probably the most important health benefit of curcumin is that it can aid treatment regimens employed to fight cancer.



Curcumin Spice Boosting Immune System

Curcumin aids in fighting against cancer in several ways which include strengthening the immune system. Gadimian explains that any boost to the immune system allows it to more effectively identify cancer cells and then work on the cell level to kill those cells.

Immune System Important to Fight Cancer

A number of activities of curcumin, which are exerted in a chemopreventive and a directly therapeutic manner, indicate that it may be a potential anticancer remedy. Although the results have been obtained in animal models, curcumin has been demonstrated to be active in various other in vitro models, and the dosages are comparable to those used in humans. In vitro and in vivo studies have indicated that curcumin prevents carcinogenesis by affecting two primary processes: angiogenesis and tumor growth (1).

Turmeric and curcuminoids influence tumor angiogenesis through multiple, interdependent processes (2): i) Action at the level of transcription factors associated with inflammatory processes and early growth response protein which reduces the expression of IL-8 in pancreatic and head and neck cancer cell lines and prevents the induction of VEGF synthesis; ii) inhibition of angiogenesis mediated by NO (nitric oxide) and iii) inhibition of COX-2 and 5-LOX; iv) action at the level of angiogenic factors: VEGF, the primary factor for migration, sprouting, survival and proliferation during angiogenesis, and basic fibroblast growth factor (2).

Curcumin induces cell death in numerous animal and human cell lines, including leukemia, melanoma, and carcinomas of the breast, lung, colon, kidney, ovaries and liver (3). It appears to function by caspase-dependent and independent (mitochondrial) mechanisms, which are associated with the presence and absence of p53.

Melanoma Inhibitor

Topical application of curcumin combined with the tumor promoter TPA, twice per week for 20 weeks, to female CD-1 mice markedly inhibited papilloma formation (4). In further studies, Huang et al demonstrated that curcumin inhibited UV-induced dermatitis in mouse skin (5-7).

Jiang et al demonstrated that curcumin is able to induce apoptosis and inhibit the proliferation of melanoma cells (8).

Pancreatic Tumors Reduced

In a xenograft model study, pancreatic cancer cells were injected subcutaneously into the side of the abdomen of female nude mice (9). Subsequently, liposomal curcumin was injected into these animals. This treatment reduced tumor size and decreased the expression of CD31 in addition to that of VEGF and IL-8, indicating that curcumin suppressed pancreatic carcinoma growth in murine xenograft models and inhibited tumor angiogenesis (10).

Prostate Cancer Cells Killed

Androgen-dependent LNCaP prostate cancer cells were injected subcutaneously into mice fed with a 2% curcumin containing diet for up to 6 weeks (11). Curcumin significantly increased the extent of apoptosis, as measured by an in situ cell death assay, and caused a reduction in cell proliferation, as measured by a BrdU incorporation assay (12).

Ovarian Cancer Tumor Reduced

In order to evaluate the effect of curcumin against ovarian cancer, a group of animals were treated with curcumin alone or in combination with docetaxel (13). Curcumin alone induced a 49–55% reduction in mean tumor growth compared with control animals, while the combination of curcumin with docetaxel resulted in a 77% reduction in mean tumor growth compared with the controls.

Lung Cancer Nodules Decreased

In an animal study the administration of curcumin decreased the number of lung tumor nodules and inhibited lung metastasis of melanoma (13). Therefore, it is possible to use curcumin in order to arrest the metastatic growth of tumor cells.

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