The Longwood Herbal Task Force

(http://www.mcp.edu/herbal/default.htm) and

The Center for Holistic Pediatric Education and Research

(http://www.childrenshospital.org/holistic/)

Clinician Information Summary

SHARK CARTILAGE

SUMMARY

Shark cartilage is used as an alternative cancer remedy, based on its antiangiogenic effects. It is also occasionally used for diabetic retinopathy, psoriasis and arthritis. Phase I and II trials offer some support for its use in treating adults suffering from solid tumors, but phase III trials have not been completed. There are no published reports of controlled trials evaluating its effectiveness in treating any condition. Reported side effects include nausea, vomiting, constipation, hypotension, hyperglycemia, altered mental status, generalized weakness, and decreased motor strength, sensation and performance. Shark cartilage is contraindicated during pregnancy, lactation, childhood, and any condition in which impaired angiogenesis may impair health. Shark cartilage products are expensive and may include bovine cartilage and/or fillers.

POPULAR USES: Cancer, diabetic retinopathy, psoriasis, arthritis.

CHEMICAL CONSTITUENTS: Troponin-I, tetranectin-type protein, collagenases, cartilage-derived inhibitor (CDI), tissue inhibitors of metalloproteinases (TIMPs), shyrnastin-1 and –2, galactosamine, glycosamine, chondroitin sulfate, keratan sulfate

SCIENTIFIC DATA

In vitro: Shark cartilage extracts prevent DNA damage and mutagenesis induced by 2-aminofulorene and sodium azide and mitigate against oxidant damage by hydrogen peroxide *in vitro*.

In animals: Seven studies in rabbits and mice have evaluated shark cartilage's antiangiogenic and anti-tumor effects. Four found significant effects, including dose-response relationships. One study in rats demonstrated weak anti-inflammatory and mild analgesic effects. There are no data evaluating shark cartilage products specifically for psoriasis or diabetic retinopathy.

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In humans: Several open label, Phase I and II trials in terminally ill adults with a variety of solid tumors have been conducted. Most patients had been previously treated with standard chemotherapy. Typical doses ranged from 0.5 to 2 grams/kg/day divided into two or three doses, administered po (mixed with water or fruit juice) or via enemas. Complete or partial reductions in tumor size and improved quality of life were reported in slightly more than half of patients. Gastrointestinal side effects were the most commonly reported adverse effects. About one third of patients withdrew due to side effects. No randomized, controlled double-blind Phase III trials have been reported, but one is planned to begin in 1999. There are no studies evaluating shark cartilage products specifically as treatments for arthritis, psoriasis or diabetic retinopathy.

TOXICITY AND SIDE EFFECTS

Side effects: The primary toxicity of shark cartilage products is gastrointestinal (nausea, vomiting, constipation). Hepatitis was reported in a 57 year old man who took shark cartilage for three weeks. Other side effects have been hypotension, hyperglycemia, altered mental status, and generalized weakness.

Interactions with other medications: None known

Contraindications: Surgery and other conditions in which impaired angiogenesis may be detrimental

Pregnancy and lactation: Contraindicated due to presumed antiangiogenesis

Pediatric use: Contraindicated due to presumed antiangiogenesis

ADDITIONAL RESOURCES

HOME: http://www.mcp.edu/herbal/default.htm

Shark Cartilage Complete Monograph:

http://www.mcp.edu/herbal/sharkcartilage/sharkcartilage.pdf

Shark Cartilage Patient Fact Sheet:

http://www.mcp.edu/herbal/sharkcartilage/sharkcartilage.ph.pdf

University of Texas Center for Alternative Medicine Research in Cancer:

http://www.sph.uth.tmc.edu/utcam/therapies/crtlg.htm

National Institutes of Health Office of Dietary Supplements:

http://odp.od.nih.gov/ods/databases/ibids.html