Cutting-edge in Oncology for every physician

Strategic antiangiogenic treatment – Shark cartilage and Cancer

Liquid Cartilage Extract

Serge Jurasunas ND, MD (Hom)
Member:
Society of Integrative Oncology

4th European Congress of Anti-Aging Medicine
Oct. 17-19-2008 – Paris - France
Angiogenesis and cancer – A Novel approach

-Angiogenesis promotes malignant growth

-Tumor expansion, metastasis and invasion (1) through the new formed neovascularization is an early event in the development of cancer.

Angiogenesis process: To expand and make new blood vessels the tumor need.

- Stimulation of growth factors
- More connective tissue for support to new blood vessels
- Enzymes of degradation to cleave the endothelial cells and surrounding tissue
Vascular Endothelial Growth Factor (VEGF)

- VEGF a potent mitogen produced by tumor cell.

- Unique specificity for endothelial cells, proliferation, vascular permeability and migration.

- VEGF adhere to the receptor of endothelial cells.

Matrix Metalloproteinase MMP activity in angiogenesis and metastasis formation

MMP activity and metastasis formation

1. Triggers (low O2 environment, inflammation, stress): over expression of the vascular endothelial growth factor (VEGF)
2. Matrix metalloproteinase (MMP) (enzymes) activation
3. Endothelial cell (EC) proliferation (blood vessel wall)
Vascularization of a tumor

Blood vessel growth towards

Normal vascular grid

A sarcoma

Oversize diameter and chaotic layout create irregular blood flow. Low oxygen (Hypoxia) high acidity.

Decrease immune function.

Leaky oversize poor leak fluid into interstitial fluid.

High pressure block the transport of antineoplastic agent.
A new approach to cancer: Antiangiogenic therapy (1)
Fighting cancer by attacking its blood supply

- Inhibit vascularization of the tumor and to destroy by apoptosis existing vessels.
- Selective therapy to tumor. Result reduced tumor resistance.
- Overall increasing effectiveness of standard chemotherapy regimen.

Angiogenic Therapy: Liquid Cartilage Extract (Shark Cartilage) as an inhibitor of tumor blood vascularization (1) - LCE

Highly concentrate hydrosoluble extract of liquid cartilage that contains active mucopolysaccharides and proteins with strong antiangiogenic property (2)


Liquid cartilage extract may simultaneously targets different aspects of the angiogenic cascade

- Several studies reveal that LCE interfere with the VEGF binding and signaling to VEGF receptor – inhibit migration of endothelial cells. (Bilodeau D. 2004)
- Inhibit MMP’s 2-9-12 activity
- Stimulate apoptosis of endothelial cells
- Has anti-inflammatory and analgesic activity
- Promote angiostatin in the vicinity of tumor
- Orally taken LCE shown bioavailability – Non toxic on long term administration compare to the drug Avastin
- LCE the only liquid extract demonstrating significant inhibition of angiogenesis in a double blind placebo-controlled human study.
References


L.C.E. has a market inhibitory effect on the formation of blood vessels in the chicken embryo vasculeralization assay (EVT) and endothelial cell proliferation.

The figure shows the antiangiogenic activity of L.C.E. compound to protamine used as a positive control. A negative control shows no activity on the EVT.
Liquid Cartilage Extract Inhibit Angiogenic Cascade

Inhibition of MMP’S (L.C.E.)

Apoptosis of existing vessels L.C.E.

MMP’S

L.C.E.

Inhibition of the VEGF receptor

VEGF

Receptor

Inflammation

Decreasing

Conjointly

Inhibition by Antioxidants

Increased Oxidative Stress

Macrophages

Increase Signals to Cancer Cells

Angiogenic factors

COX2 Activity

Tumor

Jurasunas Serge, ND
Liquid cartilage extract - LCE

Multiple mechanism of action

• Orally bioavailable

• Anti-angiogenic activity in vivo

• Anti-tumoral and anti-metastatic activities

• Synergy with chemotherapy

• The only liquid extract demonstrating significant inhibition of angiogenesis in double blind placebo controlled human study

Jurasunas Serge, ND
Antiangiogenic and anti-tumor properties of LCE

Figure 2: LCE inhibits angiogenesis in the Matrigel model. Following oral administration of LCE to mice, Matrigel implants were recovered and examined histologically to determine to what extent blood vessels had entered them. As expected, angiogenic activity was observed within Matrigel implants of control animals but was maintained at a normal level when LCE was orally administered.

Figure 3a: LCE synergizes with cisplatin treatment in inhibiting lung metastases in a mice LLC model. The combination of LCE (0.1 and 0.5 ml/day) and a suboptimal dose of cisplatin (2 mg/kg) had an increased antimetastatic effect (51% and 67%) when compared to cisplatin (39%, p=0.04) or LCE (33% and 56%, p<0.05 and p<0.001) alone.

Figure 3b: LCE attenuates the cachexic effect of cisplatin treatment in a mice LLC model. When given in combination with cisplatin (2 or 4 mg/kg), LCE (0.5 ml/day) attenuated the negative impact of cisplatin on the weight of treated mice.
Neovastat a concentrate LCE developed for clinical trial at MD Anderson Cancer Centre – University of Texas (Houston) USA

- 305 patients involved in a trial with advanced renal cell cancer that has stopped responding to standard therapies.
- Neovastat doubles survival time for patients with advanced cancer.
- Overall survival of 16.3 months over 8 months for the group with no further treatment.
- Treatment was well tolerated with minimum side effects.

Figure 4: Clinical phase III results: A randomized double-blind placebo-controlled trial involving 305 patients was designed to evaluate the efficacy of LCE, given as monotherapy, in prolonging survival of patients with stage IV metastatic kidney cancer not responding to conventional treatments. Results revealed a significant survival advantage for a subgroup with clear cell histology, one metastatic site, and an ECOG 0. Within this subgroup of 38 patients, those receiving LCE saw their median survival time increased from 12.6 to 26.3 months (p=0.0236) over the placebo arm.

Phase III - Clinical trial
Kidney cancer
- 305 patients, advanced stages
- At least one metastatic site
- Failed conventional treatments
- ECOG performance status of 0 or 1
- Estimated prognosis: survival time of 8-12 months

Phase I/II - Clinical trial
Kidney cancer - survival analysis

Angiogenesis

Phase III - Clinical trial
Kidney cancer: increase in life expectancy

Angiogenesis

106% increase in life expectancy


Jurasunas Serge, ND
Phase III - Clinical trial
CT Scan analysis

Baseline

Week 16

Angiogenesis
A phase I/II in patients with non-small cell lung cancer (NSCLC) refractory to standard therapy (Phase III and IV) show encouraging efficacy with increasing median survival time of up to 47% longer in patients with the higher dose (240ml) than patients who received lower doses of Neovastat.
Liquid Cartilage Extract application

Presentation: Frozen liquid extract in vial of 30ml.

Posology: 1 or 2 vial of 30ml sublingual per day during the course of chemotherapy / regimen.

Indication: wide variety of cancer, solid tumor but also non solid tumor. Prostate, lung, breast, kidney, colon, lymphoma M,M, resistant tumor (1)
- As therapeutic option during the postoperative period (Lancet Oncol. Vol.4 December 2003)

(1) Kerbel R.S. – Inhibition of tumor angiogenesis as a strategy to circumvent acquired resistance to anticancer therapeutic agents – Bioessays 13.31.36.1991

Jurasunas Serge, ND
Conclusion:

For the past 15 years LCE is systematiquely use in our Institute with most cancer patients including, stage III, IV advanced cancer, solid tumor with significative results (1)

- Significative reduction of tumor size
- Decreasing metastasis and bone lesions
- Less pains
- Decreasing antigene tumor markers
- Elimination of secondary nodules
- Long period administration with no toxicity

(1) A review of 24 clinical cases by Serge Jurasunas
Example of tumor vascularization in a case of advanced inoperable breast cancer without conventional treatment

Observation: Imaging infrared thermographic camera system

Tumor, large inflammation and vascularization

Elimination of the vascularization angiogenic. Tumor remains inactive.

Duration of the treatment: 7 months
No surgery or conventional therapy
LCE + immunomodulator

Jurasunas Serge, ND

The complete case fully illustrated is available in English and French.

X ray of the spine

After 3 months of combined therapy + chemotherapy.

Total elimination of the very large lesions in the ilium and spine.

Jurasunas Serge, ND
For more information and clinical cases

www.sergejurasunas.com

New booklet of best series cancer clinical cases
A review of 24 clinical cases by Serge Jurasunas

Available on request
info@sergejurasunas.com

Thank you for your attention