A Prospective, Controlled Study of the Botanical Compound Mixture LCS101 for Chemotherapy-Induced Hematological Complications in Breast Cancer

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ABSTRACT

Background. This prospective, controlled study evaluated the safety, tolerability, and efficacy of the mixture
of botanical compounds known as LCS101 in preventing chemotherapy-induced hematological toxicity in
breast cancer patients.

Methods. Female patients diagnosed with localized breast cancer were randomly allocated to receive
treatment with either LCS101 or placebo capsules, in addition to conventional chemotherapy. The study intervention was initiated 2 weeks prior to the initiation of chemotherapy and continued until chemotherapy was completed, with participants receiving 2 g of LCS101 capsules thrice daily. Subjects were assessed for the development of hematological and nonhematological toxicities, as well as the tolerability and safety of the study intervention.

Results. Sixty-five breast cancer patients were recruited, with 34 allocated to LCS101 and 31 allocated to
placebo treatment. Patients in the treatment group developed significantly less severe (grades 2– 4) anemia
($p < .01$) and leukopenia ($p < .03$) when comparing grades 0–1 with grades 2–4, with significantly less neutropenia ($p < .04$) when comparing grades 0 –2 with grades 3–4. This effect was more significant among patients undergoing a dose-dense regimen. No statistically significant effect was found with respect to nonhematological toxicities, and side effect rates were not significantly different between the groups, with no severe or life-threatening events observed in either group.

Conclusion. The addition of LCS101 to anthracyclineand taxane-based chemotherapy is safe and well tolerated, and may significantly prevent some chemotherapy-induced hematological toxicities in early breast cancer patients. These results should encourage further larger and more extensive
clinical trials.

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Immunomodulatory effects of the botanical compound LCS101: implications for cancer treatment .

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Abstract

***Objective**:* To examine the effects of LSC101, a botanical compound, on adaptive and innate immunity.
***Materials and methods**:* LCS101 preparations were tested for batch-to-batch consistency using HPLC. T cell activation was quantified in murine spleen cells using ^{3}H-Thymidine incorporation, and cytokine production analyzed with ELISA. NK cell activity was tested on human blood cells using flow cytometry, and cytotoxicity measured by MTT and apoptosis using a FACS caliber. Effects on interferon-γ production in 5-FU/doxorubicin-treated mice were tested with ELISA.
***Results**:* HPLC analysis demonstrated batch-to-batch consistency. T cell proliferation was increased, and a dose-dependent activation of NK cells and macrophage TNFα secretion were observed with LCS101 treatment. IFN-γ levels, reduced by 5-FU treatment, were corrected in treated animals. No toxicity or compromised treatment outcomes were associated with LCS101 exposure.
***Conclusions*:** LCS101 demonstrated significant effects on a number of immune processes. Further research is needed in order to understand the molecular immunomodulatory pathways affected by this compound, as well as clinical implications for treatment.

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Effect of Chinese Herbal Therapy on Breast Cancer Adenocarcinoma Cell Lines

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Despite the widespread use of medicinal herbs to prevent and treat many diseases, including cancer, there are insufficient scientific data on the safety and efficacy of the majority of herbal therapies. The aim of this study was to assess the effect of a unique Chinese herbal therapy (CHT) from controlled manufactured concentrated powders, on an in vitro model of breast cancer. Three breast adenocarcinoma cell lines (MDA-231, MDA-453, T47D) were exposed to CHT for 72 h. Cell viability was assessed by XTT (sodium 3′-[1-(phenylaminocarbonyl)-3, 4-tetra zolium]-bis(4-methoxy-6-nitro) benzene sulphonic acid hydrate) assay. Apoptosis and cell cycle stage were determined by fluorescence-activated cell sorting (FACS) analysis. CHT decreased cell survival in a dose-dependent manner in all tested cell lines. FACS analysis of treated and non-treated T47D cells demonstrated that the inhibitory effect of CHT was associated with an increase in apoptosis. A randomized clinical trial is currently underway to investigate CHT as supplementary therapy for breast cancer patients receiving chemotherapy.

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Effect of the Botanical Compound LCS101 on Chemotherapy-Induced Symptoms in Patients with Breast Cancer: A Case Series Report

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Abstract: The treatment of breast cancer invariably results in severe and often debilitating symptoms that can cause significant distress and severely impair daily function and quality-of-life (QOL). We treated a series of 20 female breast cancer patients with the botanical compound LCS101 as adjuvant to conventional chemotherapy. At the end of the treatment regimen, patients rated their symptoms. 70% reported that they had either no or mildly severe levels of fatigue; 60% none to mildly severe weakness; 85% none to mildly severe pain; 70% none to mildly severe nausea; and 80% none to mildly severe vomiting. Only 20% reported severe impairment of overall function, and only 40% severely impaired QOL. No toxic effects were attributed by patients to the LCS101 treatment, and 85% reported that they believed the botanical compound had helped reduce symptoms. The effects of LCS101 on clinical outcomes in breast cancer should be tested further using randomized controlled trials.

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Link with video abstract presentation:
http://www.la-press.com/effect-of-the-botanical-compound-lcs101-on-chemotherapy-induced-sympto-article-a3482

Selective anticancer effects and protection from chemotherapy by the botanical compound LCS101: Implications for cancer treatment

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Abstract: There is a need for new options for reducing the side effects of cancer treatment, without compromising efficacy, enabling patients to complete treatment regimens. The botanical compound LCS101 exhibits inhibitory effects on cancer cell growth, and reduces chemotherapy-induced hematological toxicities. The aim of the present study is to examine the selectivity of the effects of the compound, alone and in conjunction with conventional chemotherapy agents, on cancer cell proliferation. The effects of LCS101 were tested on a number of cancer cell lines (breast, MCF7, MDA-MB‑231; colorectal, HCT116; prostate, PC-3, DU-145) and on non-tumorigenic normal human epithelial cells (breast, MCF10A; prostate, EP#2). Cell viability was analyzed using an XTT assay and observed by light microscopy. Necrosis and apoptosis were examined using FACS analysis and immunoblotting. LCS101 selectively induced cell death in breast, colon and prostate cancer cell lines, as measured by XTT assay. Light microscopy and FACS analysis showed changes indicative of a necrotic process. LCS101 was also found to induce PARP-1 reduction in breast cancer cells, with no effect on non-tumorigenic breast epithelial cells. While LCS101 increased cell death in cancer cells exposed to doxorubicin and 5-FU, it showed a protective effect on non-tumorigenic human epithelial cells from chemotherapy-induced cell death. A similar selective effect was observed with apoptosis-associated PARP-1 cleavage. The findings demonstrate that the anti-proliferative effects exhibited by the botanical compound LCS101 are selective to cancer cells, and offer protection to non-tumorigenic normal epithelial cells from chemotherapy agents.

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