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-- PRESS BRIEFING SATURDAY, JUNE 2, 9:30 AM CDT --

**STUDIES EXAMINE EFFICACY OF COMPLEMENTARY
AND ALTERNATIVE MEDICINE FOR CANCER**

**-- Ginseng May Help Combat Fatigue in Cancer Patients;
Flaxseed May Stall Prostate Cancer Growth;
Shark Cartilage Extract Does Not Improve Survival in Patients with
Non-Small Cell Lung Cancer --**

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CHICAGO—Studies examining the efficacy of several complementary and alternative treatments for cancer and its side effects were discussed today at a press briefing of the 43rd Annual Meeting of the American Society of Clinical Oncology (ASCO).

“The use of complementary and alternative medicine to treat cancer and its side effects has been widespread, but there have been few studies designed to scientifically evaluate whether a particular approach is effective,” said Bruce D. Cheson, MD, head of hematology at the Lombardi Comprehensive Cancer Center and Georgetown University Hospital, and moderator of the press briefing. “Today we report on two dietary supplements that show early promise for helping cancer patients, and another controversial treatment that provides no benefit at all in lung cancer patients.”

Study findings include:

- The herb ginseng may decrease fatigue, one of the most common and debilitating side effects of cancer and its treatment.
- Flaxseed may slow the growth of prostate tumors.
- Adding shark cartilage extract to treatment with standard chemotherapy and radiation therapy does not improve survival in patients with advanced non-small cell lung cancer.

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For consumer-oriented information on these studies and more than 120 cancer types and cancer-related syndromes, please refer your readers to ASCO's oncologist-vetted patient Web site, www.plwc.org.

This study is embargoed for release until 9:30 AM CDT, Saturday, June 2.

**ORAL PRESENTATION
SUNDAY, JUNE 3, 9:30 AM CDT
ROOM S100b**

**Lead Author:
Debra L. Barton, PhD
Mayo Clinic
Rochester, Minn.**

Ginseng May Help Combat Fatigue in Cancer Patients

A pilot study shows that the herb ginseng may decrease fatigue in cancer patients. Fatigue is one of the most common and debilitating side effects of cancer and its treatment.

“Fatigue is a major complaint for many cancer patients and can greatly affect their quality of life,” said Debra Barton, PhD, an associate professor of oncology at the Mayo Clinic and the study’s lead author. “Identifying options to effectively treat this serious side effect is an important research priority.”

While ginseng is already used by many cancer patients based on animal experiments and anecdotal human evidence that it can increase energy and reduce fatigue, its effectiveness has never been rigorously tested in people. Different ginseng varieties contain different amounts of the steroid-like compounds known as ginsenosides. This study used Wisconsin ginseng from a single crop, which was tested to confirm a uniform concentration of ginsenosides. The ginseng was powdered and given in capsule form.

This randomized pilot study followed 282 patients for eight weeks across four arms: placebo, 750 mg of ginseng per day, 1,000 mg per day and 2,000 mg per day. Patients had a variety of cancers and a life expectancy of at least six months. Those actively undergoing chemotherapy or radiation treatment at the time of the trial and those who had completed treatment were divided evenly among the various arms. All patients had a history of fatigue, which they had experienced for at least the previous month. Although fatigue can be caused by both cancer treatment and cancer itself, this study did not differentiate between the two. The study measured fatigue in several ways in order to capture the different aspects of cancer patient fatigue.

Patients were surveyed about their levels of fatigue at the beginning of the study, at four weeks and at eight weeks. The 1,000 mg and 2,000 mg doses of ginseng were associated with greater reductions in fatigue than the 750 mg dose and placebo. Twenty-five percent of patients taking 1,000 mg and 27 percent of patients taking 2,000 mg of ginseng reported that their fatigue levels were “moderately better” or “much better,” compared with 10 percent of patients taking 750 mg of ginseng and the same proportion for placebo.

“While the results of this study are very promising, further studies are needed to determine the definitive benefit, and we cannot recommend routine use of ginseng for fatigue in cancer patients at this time,” Dr. Barton added. “Because this was a pilot study, we cannot be certain that ginseng really works to decrease fatigue, and if it does, what dose works best. Further study will also help us determine which patients are most likely to benefit.” The authors also cautioned against store-bought ginseng supplements, citing the lack of regulation and inconsistent quality and safety.

***9001**

A pilot, multi-dose, placebo-controlled evaluation of american ginseng (*panax quinquefolius*) to improve cancer-related fatigue: NCCTG trial N03CA

D. L. Barton, G. S. Soori, B. Bauer, J. Sloan, P. A. Johnson, C. Figueras, S. Duane, S. Dakhil, H. Liu, C. L. Loprinzi

Background: Fatigue is one of the most common symptoms in people diagnosed with cancer. Ginseng is a popular herb for treatment of this. It has been termed an “adaptogen”, felt to be able to restore balance to the body; its potential anti-fatigue efficacy is supported by animal data. The purpose of this pilot trial was to evaluate three doses of American Ginseng versus placebo for cancer-related fatigue. **Methods:** Patients with a

life expectancy = 6 months and a history of cancer-related fatigue who had been experiencing fatigue = 1 month were eligible. Exclusion criteria included prior use of ginseng, chronic systemic steroids and brain malignancies. Other etiologies for fatigue, such as pain, were also excluded. Participants were randomized to receive, in a double blind manner, placebo, 750 mg/d, 1,000 mg/d or 2,000 mg/d of American Ginseng in BID dosing for 8 weeks. Endpoints included The Brief Fatigue Inventory (BFI), the Vitality Subscale of the SF-36 and several numeric analogue questions of perceived benefit; endpoints were measured at baseline, 4 weeks and 8 weeks. Area under the curve (AUC) and change from baseline were calculated. **Results:** Two hundred eighty two patients (69-72 per arm) were enrolled from 10/21/2005 to 07/05/2006. Available 8-week data are provided in the table below; higher numbers are better.

Endpoints	Placebo	750 mg Ginseng	1,000 mg Ginseng	2,000 mg Ginseng
Mean AUC BFI activity interference	460	467	480	551
AUC Usual fatigue BFI	410	425	448	491
Vitality subscale mean change from baseline	7.3	7.8	14.6	10.5
Mean change in overall physical well being	5.6	5.3	12.0	6.5
% perceiving moderate to very much better fatigue levels as a result of study drug	10	10	25	27
% satisfied with treatment	13	24	33	34

There were no statistically significant differences in any grade of toxicity between active and placebo arms, and an equivalent number of patients discontinued the study due to adverse events in each arm. **Conclusion:** This randomized pilot trial provided data to suggest that American Ginseng doses of 1000-2000 mg/d may be effective for alleviating cancer related fatigue. Therefore, further study of American Ginseng in cancer survivors appears warranted.

Disclosures for Research Team: Nothing to disclose.

This study is embargoed for release 9:30 AM CDT, Saturday, June 2.

**ORAL PRESENTATION
SUNDAY, JUNE 3, 1:00 PM CDT
ROOM S100b**

**Lead Author: Stephen L. George, PhD
Presenting Author:
Wendy Demark-Wahnefried, PhD
Duke University Medical Center
Durham, N.C.**

Flaxseed May Stall Prostate Cancer Growth

A new study of flaxseed supplementation and dietary fat restriction suggests that flaxseed may slow the growth of prostate tumors, but that reducing dietary fat does not appear to have any effect on prostate cancer growth.

Flaxseed is rich in omega-3 fatty acids, which are believed to influence cell signaling and the production of cell membranes and to reduce cell proliferation. Flaxseed also has high quantities of lignan, which binds to hormones like testosterone and estrogen, and may block their cancer-promoting effects. In previous studies, lignan slowed the growth of prostate cancer cells that were grown in laboratories, and flaxseed reduced tumor size in mice with prostate cancer. Various forms of flaxseed are widely used as dietary supplements for a range of purposes, but this is the first study to rigorously test its effects against prostate cancer. Researchers also looked at dietary fat restriction because previous studies have suggested that low-fat diets may slow prostate cancer growth. The investigators also speculated that reducing the intake of other fats in the diet might enhance the activity of the omega-3 fatty acids within the flaxseed.

“We know that many of our patients take a variety of dietary supplements. These results demonstrate that flaxseed may well protect against prostate cancer growth,” said Wendy Demark-Wahnefried, PhD, a professor in the school of nursing and the department of surgery at Duke University Medical Center and the study’s senior author. “But this is just the first study. We will need to replicate these results before we can make recommendations.”

This multi-center, randomized phase II trial followed 161 men who had been diagnosed with prostate cancer and then scheduled surgery to have their prostates removed at least three weeks later. The men were randomized into four arms: a control group that maintained their regular diets, men who took flaxseed (30 grams per day), men who restricted their dietary intakes of fat (to less than 20 percent of their total calories) and men who took flaxseed and also restricted their intake of dietary fat.

The flaxseed was ground and mixed with food or drink. After a median follow-up of 30 days, patients had surgery to remove their prostates, and the pathology of the tumors was studied. The primary endpoint of the study was prostate cancer cell proliferation rates, measured as a ratio of the number of cancer cells actively dividing versus those that were not dividing. The scores were 2.38 for the control group, 1.71 for the flaxseed group, 2.93 for the low-fat group, and 1.58 for the combined flaxseed and low-fat group. These scores indicated that cancer cells in the two flaxseed groups grew at a significantly slower rate (roughly 30 to 40 percent slower) than the placebo or dietary fat groups.

In order to further assess flaxseed’s anti-cancer effects, future studies will likely focus on men with prostate cancer who have selected watchful waiting (close monitoring of the cancer but no active treatment) and men who are at risk of prostate cancer recurrence after treatment. Investigators also plan to look at dose levels for flaxseed supplementation and the effects of taking it for longer periods of time.

***1510**

Impact of flaxseed supplementation and dietary fat restriction on prostate cancer proliferation and other biomarkers: Results of a Phase II randomized controlled trial (RCT) using a presurgical model

S. L. George, T. J. Polascik, D. M. Albala, P. J. Walther, J. Moul, J. F. Madden, D. C. Snyder, V. Hars, B. R. Switzer, R. T. Vollmer, W. Demark-Wahnefried

Background: Diet may play a key role in the etiology of prostate cancer (PC). Dietary fat restriction (DFR) and flaxseed supplementation (FS) may reduce risk, though results are mixed. We undertook an RCT to test the comparative effects of these dietary regimens on the biology of the prostate and other biomarkers. **Methods:** PC patients (N=161) scheduled ≥ 21 days prior to prostatectomy were block randomized on race (black vs non-black) and biopsy Gleason sum (<7 vs 7+) to these diets: 1) control; 2) FS (30 g/day); 2) DFR (<20% total energy); or 4) FS+DFR. Blood was drawn upon accrual and prior to surgery and analyzed for prostate specific antigen (PSA), sex hormone binding globulin (SHBG), total testosterone (T), insulin-like growth factor 1 (IGF1), IGF binding protein 3 (IGFBP3), c-reactive protein (CRP), and total and low density lipoprotein cholesterol (TC & LDL-C). Proliferation (MIB-1) and apoptosis (TUNEL) was assessed in the malignant and benign prostate. **Results:** Complete data were collected on 93% of the sample; mean length on protocol was 30 days. Median MIB-1 positive (+) cells/total nuclei ratios were: 1=2.38;2=1.71;3=2.93;4=1.58. Primary analyses suggest a significant protective effect ($p=0.016$) of FS. Secondary analyses of MIB-1 + nuclei (controlling for total cell counts) show increased proliferation with DFR ($p=.017$), and a significant interaction with FS and DFR ($p<.0001$). No differences were observed between groups with regard to PC apoptosis, and histology of benign tissue. No differences were observed between arms for PSA, SHBG, T, IGF1, IGFBP3 or CRP. Significant differences were observed between arms for changes in serum lipids and body weight [??C = +9/-26/-46/-37 mg/dL; ?LDLC = -14/-17/-29/-21 mg/dL and ? weight = +0.3/-1.3/-1.7/-1.1 kg ($p's<.05$)]; effects were attributed to DFR and not FS. Side effects did not differ between arms. **Conclusions:** Preliminary findings suggest that FS is safe and exerts a protective effect (main effect or via interaction with DFR) on PC. Data also provide further support of DFR for cardiovascular disease, though its role in PC is less clear. Further controlled analyses and additional studies are needed to confirm findings.

Disclosures for Research Team: Nothing to disclose.

This study is embargoed for release until 8:00 AM CDT, Saturday, June 2.

POSTER PRESENTATION
SATURDAY, JUNE 2, 8:00 AM CDT
ROOM E451a
POSTER DISCUSSION
SATURDAY, JUNE 2, 12:00 PM CDT
ROOM E354a

Lead Author:
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Shark Cartilage Extract Does Not Improve Survival in Patients with Non-Small Cell Lung Cancer

Results from a large, multicenter phase III study show that adding shark cartilage extract to standard chemotherapy and radiation therapy for patients with advanced non-small cell lung cancer does not improve survival.

Non-small cell lung cancer is the most common type of lung cancer, comprising nearly 80 percent of cases. This study focused on patients with advanced disease that cannot be surgically removed; such patients are typically treated with a combination of chemotherapy and radiotherapy.

Shark cartilage products have been marketed as alternative medicine cancer “cures” that work by blocking the formation of blood vessels that feed tumors. Various forms of shark cartilage have been studied in the past, none of which showed a survival benefit. This trial evaluated the shark cartilage extract Æ-941 (Neovastat) in 384 patients at 53 sites in the United States and Canada. The study was sponsored by the U.S. National Cancer Institute and Aeterna Zentaris (the Canadian biopharmaceutical company that manufactures Æ-941).

Patients were randomized to receive either the standard treatment plus shark cartilage or the standard treatment plus placebo. The extract was given to patients as a liquid, which they drank twice a day. After a median follow-up of 3.7 years, investigators found no significant difference in overall survival between the two groups (14.4 months for the shark cartilage arm versus 15.6 months for the placebo arm).

“These results definitively demonstrate that this shark cartilage extract is not effective against lung cancer when combined with chemoradiotherapy,” said Charles Lu, MD, associate professor in the department of thoracic and head and neck medical oncology at The University of Texas M. D. Anderson Cancer Center and the study’s lead author. “These negative results are disappointing, but this study shows the benefit of conducting scientifically rigorous studies on potential anti-cancer agents, including those that some may consider to be alternative therapies.”

***7527**

A Phase III study of Æ-941 with induction chemotherapy (IC) and concomitant chemoradiotherapy (CRT) for stage III non-small cell lung cancer (NSCLC) (NCI T99-0046, RTOG 02-70, MDA 99-303)

C. Lu, J. J. Lee, R. Komaki, R. S. Herbst, W. K. Evans, H. Choy, P. Desjardins, B. T. Esparaz, M. Truong, M. J. Fisch

Background: Æ-941 is a shark cartilage extract with antiangiogenic properties. We conducted a placebo-controlled trial testing Æ-941, with IC and CRT, in unresectable stage III NSCLC. **Methods:** Eligibility criteria included performance status (PS) < 2, weight loss < 10%. Subjects received one of two treatment regimens depending on site of enrollment: carboplatin (C) (AUC 6) and paclitaxel (P) (200 mg/m²) x 2 cycles followed by CRT (60 Gy/30 fractions) with weekly C (AUC 2) and P (45 mg/m²) x 6 doses or cisplatin (CDDP) (75 mg/m², d1) and vinorelbine (V) (30 mg/m², d1 and 8) x 2 cycles followed by CRT (60 Gy/30 fractions) with CDDP (75 mg/m², day 1) and V (15 mg/m², d1 and 8) x 2 cycles. Subjects were randomized to receive Æ-941 (Arm A) or placebo (Arm B), 120 mL orally twice daily, at the start of IC and continuing after CRT as maintenance therapy. Randomization was stratified for stage, gender, and type of chemotherapy. The primary endpoint was overall survival (OS), with a planned sample size of 756 subjects providing 80% power to detect a 25% difference in OS, assuming a control arm median survival time (MST) of 13 months, type I error 0.05. **Results:** Between 6/00 and 2/06, 384 subjects were enrolled onto the trial and randomized. In 2/06 the trial was closed to new patient entry due to insufficient accrual. This final analysis is based on 379 randomized and eligible subjects (188 arm A, 191 arm B). Subject characteristics: 60% male, median age 63 years (range 37-84), 56% stage IIIB, 58% C-based chemotherapy, median follow-up 3.7 years. There was no significant difference in OS between arms A and B, with MSTs of 14.4 (95% CI 12.6-17.9) and 15.6 (95% CI 13.8-18.1) months, respectively (log-rank p=0.73). OS by pre-specified stratification factors: stage IIIB vs IIIA (MST 13.9 vs. 17.4 months,

p=0.25), C vs. CDDP chemotherapy (MST 14.4 vs. 16.7 months, p=0.13), and male vs. female (MST 15.7 vs. 15.1 months, p=0.74). The study drug was well tolerated. Fewer subjects in arm A experienced grade 3 or higher adverse events (66% vs. 77%, p=0.018). **Conclusions:** The addition of Æ-941 to IC and CRT does not improve OS in patients with unresectable stage III NSCLC.

Disclosures for Research Team: Nothing to disclose.

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Moderator Dr. Cheson had nothing to disclose.

The American Society of Clinical Oncology (ASCO) is the world's leading professional organization representing physicians of all oncology subspecialties who care for people with cancer. ASCO's nearly 25,000 members from the United States and abroad set the standard for patient care and lead the efforts to discover more effective cancer treatments, increase funding for clinical and translational research and ultimately, improve cancer care for the estimated 10 million people diagnosed with cancer worldwide each year. ASCO publishes the *Journal of Clinical Oncology*, the preeminent, peer-reviewed medical journal on clinical cancer research and produces People Living With Cancer (www.plwc.org), a comprehensive consumer Web site providing oncologist-vetted cancer information to help patients and families make informed health care decisions.

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