

Flaxseed May Prevent Growth of Prostate Cancer

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June 5, 2007 (Chicago) — Flaxseed supplementation significantly reduced tumor proliferation rates in prostate cancer patients in a trial reported here at the American Society of Clinical Oncology (ASCO) 43rd Annual Meeting. "These results demonstrate that flaxseed may well protect against prostate cancer growth," said lead researcher Wendy Demark-Wahnefried, PhD, from Duke University Medical Center, in Durham, North Carolina. "But this is just the first study," she added. "We will need to replicate the results before we can make recommendations."

The study was highlighted in an ASCO press conference and was also discussed at 2 overview sessions during the meeting. "It is very provocative," commented Bruce Cheson, MD, from the Lombardi Comprehensive Cancer Center and Georgetown University Hospital, in Washington, DC. "There is a hint of something there," he told journalists when moderating the press briefing.

However, all of the experts highlighting the finding emphasized that further research is needed.

The study was funded by grants from the National Cancer Institute and National Institutes of Health, and the flaxseed was donated by Enreco Inc. The dose was 30 g/day, which is about 3 round tablespoons, and the flaxseed was ground and mixed with food and drink, as "on its own it has a mild nutty taste," Dr. Demark-Wahnefried commented. Flaxseed is one of the richest sources of lignan, which has several activities that could be useful in cancer, she explained. Lignan affects androgen metabolism, has antimitotic and antioxidant activity, has an impact on the eicosanoid milieu, and is a rich source of omega-3 fatty acids.

The researchers also investigated the role of a low-fat diet (with fat contributing less than 20% of the total energy) in the same study. As a result, the trial had 4 groups: placebo control, flaxseed, low-fat diet, and the combination of low-fat diet with flaxseed. It was conducted in 161 patients scheduled for a prostatectomy, and the median age of 59 years was lower than that of the average prostate cancer patient (68 years), Dr. Demark-Wahnefried commented. Men participated in the study for a mean duration of 30 days and then underwent surgery; the removed tissue was sent to 2 pathologists for analysis.

A primary analysis showed a significant reduction in the mean tumor proliferation rate in the 2 groups on flaxseed ($P = .0013$), and a reduction that was not statistically significant in the group just on the low-fat diet ($P = .053$). (The figures presented at the meeting are based on reports from both pathologists and differ from the figures in the abstract, which were from only 1 report available at the time it was written, Dr. Demark-Wahnefried explained.)

These results suggests that the cancer cells were growing at a significantly slower rate (roughly 30% to 40% slower) in the 2 groups taking flaxseed than in the group on placebo or on the low-fat diet alone, she added. The finding fits in with previous research conducted in vitro, which showed that lignan slowed the rate of growth of prostate cancer cells, she noted.

Mean Tumor Proliferation Rates

Control	Flaxseed	Low-Fat Diet	Flaxseed Plus Low-Fat Diet
3.23	1.66	2.56	1.55

Secondary analyses, which included prostate cancer apoptosis and histology of benign tissue, showed no significant differences between the groups, but the patients on the low-fat diet showed — unsurprisingly — a significant reduction in serum cholesterol, she said.

In answer to a question from the audience, Dr. Demark-Wahnefried noted that the greatest effect of flaxseed was seen in men with the lower Gleason score (< 7 , in 68% of the men) and hence milder disease, which is "what you would expect." She hesitated, however, over questions about mechanism of action behind the effect seen, noting that there was no reduction in testosterone, which had been expected. There may be an effect of omega-3 fatty acids on how the cancer cells stick together, and lignan may also have antiangiogenic properties and deprive the tumor of its blood supply, but further work is needed on the mechanisms involved. "We also need to disentangle the effect of flaxseed from that of the low-fat diet," she added.

"We are excited that this study showed that flaxseed is safe and associated with a protective effect on prostate cancer," Dr. Demark-Wahnefried said. The results are "compelling, but preliminary," she added, noting that her team is now planning another trial.

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