

TWO RECENT STUDIES SUPPORT THE ROLE OF ANTIOXIDANT SUPPLEMENTS AND A LOW FAT DIET IN THE PREVENTION OF OVARIAN CANCER

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More than 15,000 American women die each year from ovarian cancer, making it the most common cause of death in women from gynecological malignancies. Contributing to the high mortality rate associated with this tumor is the advanced stage of disease at the time of diagnosis. Early-stage disease is rarely symptomatic, making early detection difficult. Epithelial carcinomas account for >90% of ovarian neoplasms, with the median age of diagnosis, ~63. Despite the fact that this tumor represents a disease of great public health importance, little is known regarding its etiology. Although a family history of ovarian cancer is recognized as a risk factor, only ~5% of cases are considered to be of an hereditary nature. Previous epidemiological studies suggest that multiple factors may influence disease risk. These include hormones, environmental exposures, diet and genetics. Hormone/reproductive factors such as pregnancy and use of oral contraceptives decrease ovarian cancer, with multiple births having an increasingly protective effect. Conversely, infertility appears to increase disease risk, and use of drugs such as clomiphene to stimulate ovulation is associated with a two- to threefold increase in risk. In general however, the worldwide variation in ovarian cancer risk suggests very strongly that environmental factors, particularly diet, play a very prominent role in determining risk of ovarian cancer in North American women. Migration studies support this notion as well. Women emigrating from Japan (a low-risk country) to the United States (a high-risk country) show that ovarian cancer rates increase among these women to levels experienced by American women, in concert with altering their dietary patterns to a more North American style of food selection.

Dietary Fat and Ovarian Cancer

A number of epidemiological studies have examined the relationship between fat consumption and risk of ovarian cancer previously, but in Volume 40 of Nutrition and Cancer in the year 2001, Michael Huncharek and Bruce Kupelnick published the results of their meta-analysis on this subject, after pooling all available observational studies. Their data showed that ovarian cancer risk was increased by 70% in women consuming a high animal fat diet as compared to women consuming a low animal fat diet. High dietary fat in general was associated with a 24% increased risk of ovarian cancer, regardless of the source or type of fat consumed. This may partially explain why Asian women following a traditional diet have very low rates of ovarian cancer, in that the traditional Asian diet is only 15-20% calories as fat, with little contribution from animal fat. In support of their findings, the authors point out that international comparisons show that incidence rates for ovarian cancer are positively associated with per capita dietary fat consumption, with additional evidence to support this hypothesis coming from several case-control studies.

Antioxidants and Ovarian Cancer

In the same edition of Nutrition and Cancer, Aaron Fleischauer et al, presented the results of their case-control study, which compared the lifelong dietary and supplementation patterns of 168 women (>18 yrs of age) who developed invasive ovarian cancer to 159 control subjects who were free from ovarian cancer, but were similar to the

ovarian cancer patients in regards to other environmental and socio-economic variables. This study demonstrated that, after controlling for other confounding variables, there was a 60% reduced risk of ovarian cancer among women who used vitamin C supplements (>90 mg per day), compared with non-users. For vitamin E there was a 67% reduced risk of ovarian cancer for those who used supplements containing >30 mg per day (~ 40 IU). Intake of vitamin A, beta-carotene, and selenium from supplements was not related to risk. For women consuming both vitamin C and vitamin E (total combined intake of 150-1000 mg per day), they demonstrated a 63% reduced risk of ovarian cancer, compared to women ingesting supplement doses below this threshold level. Of note is the fact that antioxidant consumption from food alone was not associated with a reduction in risk; only users of vitamin supplements derived the risk reduction benefit. Based upon these findings, and the other studies cited by these authors revealing a protective effect of higher intake and blood levels of antioxidants against many degenerative diseases, Fleischauer et al conclude that their results support an increase in RDA levels for vitamin C and vitamin E, where minimum protective doses are each 1.5 times the current RDA values. This argument has been made previously by Carr and Frei who indicate that a substantial amount of clinical and epidemiological data suggest that an intake of 90-100 mg/day of vitamin C is required for optimum reduction of chronic disease. The current RDA for vitamin C remains at 60 mg.

The recently published studies cited above add to the compelling evidence, which suggests that dietary patterns and supplementation practices can strongly influence a woman's risk of ovarian cancer. As there are no risks associated with these interventions and the potential benefit may be substantial, primary health practitioners should consider educating their female patients as to the importance of following a low-fat, and low-animal fat diet, and using antioxidant supplements containing at least 90 mg of vitamin C and at least 30 mg (40 IU) of vitamin E. Particularly due to the fact that ovarian cancer is so difficult to detect in the early stages of the disease, it is vitally important to encourage patients to act on any viable proactive interventions that may serve to prevent the development of this prevalent, life-threatening malignancy.

References:

- 1) Huncharek M et al, Dietary fat intake and risk of epithelial ovarian cancer: A meta-analysis of 6,689 subjects from 8 observational studies. *Nutrition and Cancer*. 2001; 40, 2: 87-91.
- 2) Fleischauer A et al, Dietary antioxidants, supplements, and risk of epithelial ovarian cancer. *Nutrition and Cancer*. 2001; 40, 2: 92-98.
- 3) Carr AC and Frei B, Toward a new recommended dietary allowance for vitamin C based on antioxidant and health effects in humans. *Am J Clin Nutr*. 1999; 69: 1086-1107.