More nutrition is not necessarily the answer

WHEN IT COMES TO NUTRITION in patients receiving cancer treatments, more is not better. In fact, with certain foods or nutritional supplements, even a little can be counter-productive to chemotherapy. Many nutritionists and dieticians espouse that nutritional intake in the range between recommended dietary allowance (RDA) and tolerable upper intake level (UL) is generally thought of as safe, but this view needs to be carefully considered in the cancer patient undergoing treatment.

Scientists from Canada and the United States are working together to update their nutrient recommendations. New harmonized values called DRIs (dietary reference intakes) are replacing 1990 Canadian RNIs (recommended nutrient intakes) as they become available. Health Canada recommends that the DRIs be used in individual counselling situations as they represent the most current information.

Anti-oxidants

Pharmacists generally tell breast cancer patients undergoing chemotherapy with doxorubicin to avoid products high in anti-oxidant activity. The reason is because one of the mechanisms of doxorubicin is to create free radicals. In theory, anti-oxidants remove these free radicals, opposing the mechanism of doxorubicin. No information currently exists saying anti-oxidants are safe to use during this type of chemotherapy, and since there is a theoretical risk of drug interaction, doses of anti-oxidants should not exceed those found in a daily multi-vitamin and mineral supplement.

But studies are being done to examine the potential impact of dietary agents on the efficacy of cancer chemotherapy. At the Lineberger Comprehensive Cancer Center at the University of North Carolina at Chapel Hill, a study by S. Somasundaram, N. Edmund, D. Moore, G. Small, Y. Shi and R. Orlowski examined dietary curcumin inhibiting chemotherapy-induced apoptosis in models of human breast cancer.

They report that curcumin, a major component of the spice tumeric, has attracted interest because of its anti-inflammatory and chemopreventative activities. This agent, however, inhibits the generation of reactive oxygen species (ROS) and the c-Jun NH (2)-terminal kinase (JNK) pathway. Because many chemotherapeutic drugs generate ROS and activate JNK in the course of inducing apoptosis, this study investigated the possibility that curcumin might antagonize the drugs' antitumor efficacy.

Using an in vivo model of human breast cancer, dietary supplementation with curcumin was found to significantly inhibit cyclophosphamide-induced tumor regression. Such dietary supplementation was accompanied by a decrease in the activation of apoptosis by cyclophosphamide, as well as decreased JNK activation.

These findings support the hypothesis that dietary curcumin can inhibit chemotherapy-induced apoptosis through inhibition of ROS generation and blockade of JNK function, and suggest that additional studies are needed to determine whether breast cancer patients undergoing chemotherapy should avoid curcumin supplementation, and possibly even limit their exposure to curcumin-containing foods. **—Corey Van't Haaff**

Nutrition **Research**

Alcohol intake could affect neonate's Ca risk

CAN ALCOHOL EXPOSURE *in utero* increase breast cancer risk in the daughters of mothers who ingested alcohol in moderate or higher quantities during pregnancy? Georgetown University researchers, presenting at the American Association for Cancer Research's first annual Frontiers in Cancer Prevention Research meeting in Boston said animal trials lend support to the theory.

Said Dr. Leena Hilakivi-Clarke, professor of oncology and director of tumor biology: "Our earlier studies have shown that what a mother eats during her pregnancy may affect her daughter's future risk of breast cancer."