

Concurrent Session 3: Immune Function, Cancer, Type 2 Diabetes

Increasing prevalence of atopic disease

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Food allergy is a common problem. It is estimated that 4-6% of children and 2-4% of adults have a definable food allergy. Epidemiological studies have however been hampered by variation in methodology. Large scale cohort studies with exposure data and allergy testing are likely to provide the most robust data on the prevalence of food allergy in a community. The testing should be followed by double blind food challenges. The expense of these studies is prohibitive and furthermore the prevalence may change rapidly as a result of immigration and the introduction of new foods into the diet. There is no data for food allergy in New Zealand. It is assumed that prevalence data are similar to Europe and North America. It should be noted however that the diet and ethnic makeup is unique and data obtained overseas may not be applicable to New Zealand. We are currently designing a large food allergy database to identify the patterns of food allergy in New Zealand. The project will be largely web-based and will seek detailed information on food allergy. It is hoped that patterns of food allergy will be identified, which may result in better medical services for patients. In the longer term we plan to follow a cohort of well-characterised food allergy patients to better understand the natural history of food allergy in New Zealand.

Effect of flaxseed lignans on biomarkers of breast cancer risk in postmenopausal women

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Background – Flaxseed is reported to have numerous chemoprotective effects *in vivo* and *in vitro* which may be mediated through its antiestrogenic effects and/ or its influence on endogenous sex hormone production, metabolism and biological activity.

Objective – To assess the effects of flaxseed lignans on biomarkers of breast cancer risk in postmenopausal women.

Design – Healthy postmenopausal subjects (n=41) consumed 50mg or 100mg of purified lignans or a placebo daily for a period of 7 weeks in a double blind, placebo controlled, randomized three-way cross over intervention trial. Blood and urine samples were taken from subjects at the beginning and end of each intervention and analysed for lignan metabolites enterolactone (ENL) and enterodiol (END) (Time Resolved Fluoro Immunoassay), sex hormone binding globulin (SHBG) (Radio Chemiluminescence Immunoassay), estradiol (Antibody Immunoassay) and estrogen metabolites 2-hydroxyl estrone and 16 α -hydroxyl estrone (2-OHE & 16 α OHE) (Enzyme Immunoassay). Dietary patterns were monitored throughout.

Outcomes – Levels of ENL and END increased in a dose responsive manner ($P = 0.000$). 2-OHE and 2-OHE/16 α OHE-1 metabolite ratio showed an increasing trend but did not reach significance. There was no treatment effect or treatment x order effect in levels of SHBG, 16 α OHE or Estradiol.

Conclusion – Flaxseed lignans were metabolized to ENL and END in a dose response manner and were therefore available to exert antiestrogenic effects and influence endogenous sex hormone production, metabolism and biological activity. Estrogen metabolism is forced to the less estrogenic 2-hydroxylation pathway due to the higher phytoestrogen (phenolics) load. Whether this decreases the risk of breast cancer remains to be established.