RESEARCH UPDATES

For the latest in worldwide integrated cancer care

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InspireHealth
INTEGRATED CANCER CARE

In this issue

Research Updates is produced once a month by InspireHealth to inform those interested of newly published articles in integrative cancer care. Authoritative articles are selected based on their evidence and their relevance to this area of medicine.

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Breast

Blackmore, KM, M. Lesosky, H. Barnett, J. M. Raboud, R. Vieth and J. A. Knight. **Vitamin D from Dietary Intake and Sunlight Exposure and the Risk of Hormone-Receptor-Defined Breast Cancer.** *Am J Epidemiol.* 2008 Oct 15; 1688: 915-924.
Evidence has emerged for a role of vitamin D in the development of breast cancer, and there is some suggestion that its antiproliferative effect is greater in hormone-receptor-positive cells. Few epidemiologic studies have considered the association between vitamin D and hormone-receptor-defined breast cancer, and the results are conflicting. Considering 759 cases and 1,135 controls from a case-control study (Ontario, Canada, 2003-2005), the authors examined the association between vitamin D intake at specific ages and combined estrogen-receptor- (ER) and progesterone-receptor- (PR) defined breast cancer. While increased intake of vitamin D (from the sun and diet) was most consistently associated with a significantly reduced risk of ER+/PR+ tumors (e.g., odds ratio = 0.76, 95% confidence interval: 0.59, 0.97 for use of cod liver oil during adolescence), comparable nonsignificant associations were found for receptor-negative (ER-/PR-) (odds ratio = 0.74, 95% confidence interval: 0.53, 1.04) and mixed (ER+/PR-) (odds ratio = 0.79, 95% confidence interval: 0.51, 1.22) tumors. This study suggests that vitamin D is associated with a reduced risk of breast cancer regardless of ER/PR status of the tumor. Future studies with a larger number of receptor-negative and mixed tumors are required.

Deandrea, S, R. Talamini, R. Foschi, et al. **Alcohol and Breast Cancer Risk Defined by Estrogen and Progesterone Receptor Status: A Case-Control Study.** *Cancer Epidemiology Biomarkers and Prevention.American Association for Cancer Research Inc.* 2008 August; 178: 2025-2028.
Background: Alcohol consumption increases breast cancer risk. Some studies suggested that this association is stronger or limited to tumors expressing estrogen receptors (ER). Methods: We investigated the role of alcohol according to ER and progesterone receptor (PR) status in a case-control study on breast cancer conducted from 1991 to 1994 in three Italian areas. Cases were 989 women with incident, histologically confirmed breast cancer. Controls were 1,350 women admitted to hospitals in the same catchment areas for acute nonneoplastic diseases. A validated food-frequency questionnaire was used to collect information on dietary habits and lifetime consumption of various alcoholic beverages. Multiple logistic regression models were used to estimate odds ratios and 95% confidence interval (95% CI). Results: Alcohol drinking was associated with ER+ tumors (odds ratio, 2.16; 95% CI, 1.68-2.76 for an intake of [greater-than or equal to]13.8 g/d as compared with nondrinkers). The odds ratio was 1.13 (95% CI, 1.07-1.20) for a 10-g increase in daily intake. For ER- tumors, the relation with alcohol consumption was not significant (odds ratio, 1.36; 95% CI, 0.93-2.01). When breast cancers were further classified according to PR, the findings for ER+PR+ cancers were similar to those for all ER+ ones, with an odds ratio of 2.34 (95% CI, 1.81-3.04) for an intake of [greater-than or equal to]13.8 g/d. No significant association emerged for ER-PR-tumors (odds ratio, 1.25; 95% CI, 0.81-1.94). Conclusion: This study supports the hypothesis that alcohol is more strongly related to ER+ than to ER-breast tumors. Copyright copyright 2008 American Association for Cancer Research.

Lee, J, M. J. Dodd, S. L. Dibble and D. I. Abrams. **Nausea at the End of Adjuvant Cancer Treatment in Relation to Exercise during Treatment in Patients with Breast Cancer** *Oncol Nurs Forum.* 2008 09; 355: 830-835.
Purpose/Objectives: To evaluate the relationship between nausea and exercise during and after adjuvant cancer treatment (chemotherapy and radiation therapy or chemotherapy alone).Design: Secondary data analysis from a longitudinal, single-blinded, three-arm, randomized controlled trial. The trial failed to show a significant effect of an exercise intervention on nausea control (by intent to treat analysis); therefore, patients were analyzed together to evaluate the relationship between nausea and actual exercise behavior.Setting: Outpatient cancer treatment clinics.Sample: 112 female patients with breast cancer who were receiving adjuvant cancer treatment.Methods: Actual exercise behavior-based analysis was conducted with nausea intensity and the participant's exercise status measured three times during and after adjuvant cancer treatment. Participants were considered

exercisers if actual exercise behaviors corresponded to the recommendation of the American College of Sports Medicine: aerobic exercise at a minimum of moderate intensity, 20 minutes per session, and three times per week. Mann-Whitney U tests evaluated the difference in nausea intensity depending on actual exercise status.Main Research Variables: Nausea intensity and exercise status.Findings: Exercisers experienced significantly less intense nausea than nonexercisers at the completion of adjuvant cancer treatment.Conclusions: A moderate level of aerobic exercise is related to less intense nausea at the completion of adjuvant cancer treatment.Implications for Nursing: A moderate level of aerobic exercise is recommended during adjuvant cancer treatment because of the possibility of reducing nausea intensity as well as alleviating other symptoms from adjuvant cancer treatment.

Schulz, M, K. Hoffmann, C. Weikert, U. Nothlings, M. B. Schulze and H. Boeing. **Identification of a Dietary Pattern Characterized by High-Fat Food Choices Associated with Increased Risk of Breast Cancer: The European Prospective Investigation into Cancer and Nutrition (EPIC)-Potsdam Study**. *British Journal of Nutrition.Cambridge University Press.* 2008 1005: 942-946. Epidemiological studies conducted thus far have mainly used a single-nutrient approach which may not be sufficient in detecting diet-cancer relationships. The aim of the study was to examine the association of a food pattern based on explained variations in fatty acid intake by means of reduced rank regression with breast cancer risk. Study participants were female subjects (n 15 351) of the European Prospective Investigation into Cancer and Nutrition (EPIC)-Potsdam Study free of cancer at baseline and with complete dietary and outcome information followed for an average of 6-0 years. Among those, 137 incident cases of invasive breast cancer were identified. We identified a food pattern characterized by low consumption of bread, and fruit juices, and high consumption of processed meat, fish, butter and other animal fats, and margarine explaining >42 % of total variation in fatty acid intake (SFA, MUFA, n-3 PUFA, n-6 PUFA). Intake of all four fatty acid fractions was positively associated with the pattern score. Adherence to this food pattern adjusted for covariates was associated with a two-fold risk (hazard ratio 2.00; 95% CI 1.30, 3.09) of breast cancer comparing extreme tertiles of the pattern score. There was no evidence of effect modification by menopausal status, overweight status and use of hormone replacement therapy, respectively. In conclusion, a food pattern characterized by high-fat food choices was significantly associated with increased risk of breast cancer. Given that the food pattern was high in all fatty acid fractions, we found evidence for total dietary fat rather than for specific fatty acids to be associated with breast cancer risk. copyright The Authors 2008.

Prostate

Roddam, AW, N. E. Allen, P. Appleby, et al. **Insulin-Like Growth Factors, their Binding Proteins, and Prostate Cancer Risk: Analysis of Individual Patient Data from 12 Prospective Studies**. *Annals of Internal Medicine.American College of Physicians.* 2008 07 Oct; 1497: 461-471. Background: Some, but not all, published results have shown an association between circulating blood levels of some insulin-like growth factors (IGFs) and their binding proteins (IGFBPs) and the subsequent risk for prostate cancer. Purpose: To assess the association between levels of IGFs and IGFBPs and the subsequent risk for prostate cancer. Data Sources: Studies identified in PubMed, Web of Science, and CancerLit. Study Selection: The principal investigators of all studies that published data on circulating concentrations of sex steroids, IGFs, or IGFBPs and prostate cancer risk using prospectively collected blood samples were invited to collaborate. Data Extraction: Investigators provided individual participant data on circulating concentrations of IGF-I, IGF-II, IGFBP-II, and IGFBP-III and participant characteristics to a central data set in Oxford, United Kingdom. Data Synthesis: The study included data on 3700 men with prostate cancer and 5200 control participants. On average, case patients were 61.5 years of age at blood collection and received a diagnosis of prostate cancer 5 years after blood collection. The greater the serum IGF-I concentration, the greater the subsequent risk for prostate cancer (odds ratio [OR] in the highest vs. lowest quintile, 1.38 [95% CI, 1.19 to 1.60]; P < 0.001 for trend). Neither IGF-II nor IGFBP-II concentrations were associated with prostate cancer risk, but statistical power was limited. Insulin-like growth factor I and IGFBP-III were correlated (r = 0.58), and although IGFBP-III concentration seemed to be associated with prostate cancer risk, this was secondary to its association with IGF-I levels. Insulin-like growth factor I concentrations seemed to be more positively associated with low-grade than high-grade disease; otherwise, the association between IGFs and IGFBPs and prostate cancer risk had no statistically significant heterogeneity related to stage or grade of disease, time between blood collection and diagnosis, age and year of diagnosis, prostate-specific antigen level at recruitment, body mass index, smoking, or alcohol intake. Limitations: Insulin-like growth factor concentrations were measured in only 1 sample for each participant, and the laboratory methods to measure IGFs differed in each study. Not all patients had disease stage or grade information, and the diagnosis of prostate cancer may differ among the studies. Conclusion: High circulating IGF-I concentrations are associated with a moderately increased risk for prostate cancer. copyright 2008 American College of Physicians.

Thank you to the **BC Foundation for Prostate Disease** for their generous support.
www.BCPROSTATECANCER.org

Colorectal

Bobe, G, L. B. Sansbury, P. S. Albert, et al. **Dietary Flavonoids and Colorectal Adenoma Recurrence in the Polyp Prevention Trial.** *Cancer Epidemiology Biomarkers and Prevention.American Association for Cancer Research Inc.* 2008 June; 176: 1344-1353. Two recent case-control studies suggested that some flavonoid subgroups may play a role in preventing colorectal cancer. Previous prospective cohort studies generally reported no association; however, only a small subset of flavonoids was evaluated and partial flavonoid databases were used. We used the newly constructed U.S. Department of Agriculture flavonoid database to examine the association between consumption of total flavonoids, 6 flavonoid subgroups, and 29 individual flavonoids with adenomatous polyp recurrence in the Polyp Prevention Trial. The Polyp Prevention Trial was a randomized dietary intervention trial, which examined the effectiveness of a low-fat, high-fiber, high-fruit, and high-vegetable diet on adenoma recurrence. Intakes of flavonoids were estimated from a food frequency questionnaire. Multivariate logistic regression models (adjusted for age, body mass index, sex, regular non-steroidal anti-inflammatory use, and dietary fiber intake) were used to estimate odds ratios and 95% confidence intervals for both any and advanced adenoma recurrence within quartiles of energy-adjusted flavonoid intake (baseline, during the trial, and change during the trial). Total flavonoid intake was not associated with any or advanced adenoma recurrence. However, high intake of flavonols, which are at greater concentrations in beans, onions, apples, and tea, was associated with decreased risk of advanced adenoma recurrence (4th versus 1st quartile during the trial; odds ratio, 0.24; 95% confidence interval, 0.11, 0.53; Ptrend = 0.0006). Similar inverse associations were observed to a smaller extent for isoflavonoids, the flavonol kaempferol, and the isoflavonoids genistein and formononetin. Our data suggest that a flavonol-rich diet may decrease the risk of advanced adenoma recurrence. Copyright copyright 2008 American Association for Cancer Research.

Mizoue, T, Y. Kimura, K. Toyomura, et al. **Calcium, Dairy Foods, Vitamin D, and Colorectal Cancer Risk: The Fukuoka Colorectal Cancer Study.** *Cancer Epidemiology Biomarkers and Prevention.American Association for Cancer Research Inc.* 2008 October; 1710: 2800-2807.
Epidemiologic evidence supporting a protective role of calcium and vitamin D in colorectal carcinogenesis has been accumulating in Western populations, but it is limited in Asian populations, whose intake of calcium is relatively low. We investigated the association of intakes of these nutrients with colorectal cancer risk in Japanese. Study subjects were participants of a large-scale case-control study in Fukuoka, Japan. Diet was assessed through interview regarding 148 dietary items by showing typical foods or dishes on the display of a personal computer. In a multivariate analysis adjusting for potential confounding variables, calcium intake was significantly, inversely associated with colorectal cancer risk (P for trend = 0.01); the odds ratio for the highest versus lowest quintile of calcium intake was 0.64 (95% confidence interval, 0.45-0.93). Higher levels of dietary vitamin D were significantly associated with decreased risk of colorectal cancer among those who had fewer chances of sunlight exposure at work or in leisure (P for trend = 0.02). A decreased risk of colorectal cancer associated with high calcium intake was observed among those who had higher levels of vitamin D intake or among those who had a greater chance of daily sunlight exposure, but not among those with medium or lower intake of vitamin D or among those with potentially decreased sunlight exposure. These results add to support for a joint action of calcium and vitamin D in the prevention of colorectal carcinogenesis. Copyright copyright 2008 American Association for Cancer Research.

Skin

Fortes, C, S. Mastroeni, F. Melchi, et al. **A Protective Effect of the Mediterranean Diet for Cutaneous Melanoma.** *International Journal of Epidemiology.Oxford University Press.* 2008 375: 1018-1029.
Background: Many studies have investigated the Mediterranean diet as a risk factor for cancer, none of which has included cutaneous melanoma. The latter is usually fatal, rendering knowledge about prevention extremely important. We assessed the role of some food components of the Mediterranean diet and cutaneous melanoma. Methods: A hospital-based case-control study was conducted in the inpatient wards of IDI-San Carlo Rome, Italy including 304 incident cases of cutaneous melanoma and 305 controls, frequency matched to cases. Information on socio-demographic characteristics, medical history, smoking, sun exposure, pigmentary characteristics and diet was collected. Logistic regression was the method used to estimated odds ratio and 95% CIs. Results: After careful control for several sun exposure and pigmentary characteristics, we found a protective effect for weekly consumption of fish (OR, 0.65, 95%CI = 0.43-0.97), shellfish (OR, 0.53, 95%CI = 0.31-0.89), fish rich in n-3 fatty acids (OR, 0.52, 95%CI = 0.34-0.78), daily tea drinking (OR, 0.42, 95%CI, 0.18-0.95; Ptrend = 0.025) and high consumption of vegetables (OR, 0.50, 95%CI = 0.31-0.80, Ptrend = 0.005) in particular carrots, cruciferous and leafy vegetables and fruits (OR, 0.54, 95%CI =0.33-0.86, P trend = 0.013), in particular citrus fruits. No association was found for alcohol consumption and any other food items. Conclusion: Overall, our findings suggest that some dietary factors present in the Mediterranean diet might protect from cutaneous melanoma. copyright The Author 2008; all rights reserved.

Gastrointestinal

Schatzkin, A, Y. Park, M. F. Leitzmann, A. R. Hollenbeck and A. J. Cross. **Prospective Study of Dietary Fiber, Whole Grain Foods, and Small Intestinal Cancer.** *Gastroenterology.W.B.Saunders.* 2008 October; 1354: 1163-1167.
Background & Aims: Although a number of epidemiologic studies have found dietary fiber and whole grains to be inversely associated with colorectal cancer incidence, studies of dietary and other risk factors for small intestinal cancer have been sparse and all of a case-control design. We conducted a prospective cohort study to determine the relationship between intake of dietary fiber/whole grains and the incidence of small intestinal cancer. Methods: We analyzed dietary data collected in 1995 and 1996 from 293,703 men and 198,618 women in the National Institutes of Health-AARP Diet and Health Study. We used multivariate Cox proportional hazards models to estimate relative risk (RR) and 2-sided 95% confidence intervals (CIs) for quintiles of dietary fiber and whole grain intake. Results: Through 2003, 165 individuals developed small intestinal cancers. Dietary fiber/whole grain intake was generally associated with a lower risk of small intestinal cancer. The multivariate RRs (95% CIs; 5th vs 1st intake quintile) were 0.79 (0.43-1.44; P trend, .41) for total dietary fiber, 0.51 (0.29-0.89; P trend, .01) for fiber from grains, and 0.59 (0.33-1.05; P trend, .06) for whole grain foods. Conclusions: Intake of fiber from grains and whole-grain foods was inversely associated with small intestinal cancer incidence; the RR values were consistent with those from the same dietary factors for large bowel cancer in this cohort. In conjunction with the anatomic and physiologic commonalities of the large and small bowel, as well as the mutually increased risks for second cancer for both organs, grain fiber and whole grain foods seem to protect against lower gastrointestinal cancers. copyright 2008 AGA Institute.

Vioque, J, X. Barber, F. Bolumar, et al. **Esophageal Cancer Risk by Type of Alcohol Drinking and Smoking: A Case-Control Study in Spain.** *BMC Cancer.* 2008 8221.
BACKGROUND: The effect of tobacco smoking and alcohol drinking on esophageal cancer (EC) has never been explored in Spain where black tobacco and wine consumptions are quite prevalent. We estimated the independent effect of different alcoholic beverages and type of tobacco smoking on the risk of EC and its main histological cell type (squamous cell carcinoma) in a hospital-based case-control study in a Mediterranean area of Spain. METHODS: We only included incident cases with histologically confirmed EC (n = 202). Controls were frequency-matched to cases by age, sex and province (n = 455). Information on risk factors was elicited by trained interviewers using structured questionnaires. Multiple logistic regression was used to estimate adjusted odds ratios and 95% confidence intervals (CI). RESULTS: Alcohol drinking and tobacco smoking were strong and independent risk factors for esophageal cancer. Alcohol was a potent risk factor with a clear dose-response relationship, particularly for esophageal squamous-cell cancer. Compared to never-drinkers, the risk for heaviest drinkers (> or = 75 g/day of pure ethanol) was 7.65 (95%CI, 3.16-18.49); and compared with never-smokers, the risk for heaviest smokers (> or = 30 cigarettes/day) was 5.07 (95%CI, 2.06-12.47). A low consumption of only wine and/or beer (1-24 g/d) did not increase the risk whereas a strong positive trend was observed for all types of alcoholic beverages that included any combination of hard liquors with beer and/or wine (p-trend<0.00001). A significant increase in EC risk was only observed for black-tobacco smoking (2.5-fold increase), not for blond tobacco. The effects for alcohol drinking were much stronger when the analysis was limited to the esophageal squamous cell carcinoma (n = 160), whereas a lack of effect for adenocarcinoma was evidenced. Smoking cessation showed a beneficial effect within ten years whereas drinking cessation did not. CONCLUSION: Our study shows that the risk of EC, and particularly the squamous cell type, is strongly associated

with alcohol drinking. The consumption of any combination of hard liquors seems to be harmful whereas a low consumption of only wine may not. This may relates to the presence of certain antioxidant compounds found in wine but practically lacking in liquors. Tobacco smoking is also a clear risk factor, black more than blond.

Acupuncture

Standish, LJ, L. Kozak and S. Congdon. **Acupuncture is Underutilized in Hospice and Palliative Medicine** *AM J HOSP PALLIAT MED.* 2008 08; 254: 298-308. Acupuncture is a complementary and alternative medical modality. A considerable body of acupuncture research has accumulated since 1998. Acupuncture has been integrated into palliative care settings in the United Kingdom but is yet to be widely offered in the United States. The literature was searched to identify clinical trials involving acupuncture, palliative care, hospice, chronic obstructive pulmonary disease, bone marrow, and cancer. Twenty-seven randomized controlled clinical trials of acupuncture were found that reported on conditions common to the hospice and palliative care setting, including dyspnea, nausea and vomiting, pain, and xerostomia, and 23 reported statistically significant results favoring acupuncture use for the conditions investigated. Acupuncture is safe and clinically cost-effective for management of common symptoms in palliative care and hospice patients. Acupuncture has potential as adjunctive care in palliative and end-of-life care, and the evidence warrants its inclusion in reimbursed palliative and end-of-life care in the United States.

Fatigue

Kangas, M, D. H. Bovbjerg and G. H. Montgomery. **Cancer-Related Fatigue: A Systematic and Meta-Analytic Review of Non-Pharmacological Therapies for Cancer Patients.** *Psychol Bull.* 2008 Sep; 1345: 700-741. Cancer-related fatigue (CRF) is a significant clinical problem for more than 10 million adults diagnosed with cancer each year worldwide. No "gold standard" treatment presently exists for CRF. To provide a guide for future research to improve the treatment of CRF, the authors conducted the most comprehensive combined systematic and meta-analytic review of the literature to date on non-pharmacological (psychosocial and exercise) interventions to ameliorate CRF and associated symptoms (vigor/vitality) in adults with cancer, based on 119 randomized controlled trials (RCTs) and non-RCT studies. Meta-analyses conducted on 57 RCTs indicated that exercise and psychological interventions provided reductions in CRF, with no significant differences between these 2 major types of interventions considered as a whole. Specifically, multimodal exercise and walking programs, restorative approaches, supportive-expressive, and cognitive-behavioral psychosocial interventions show promising potential for ameliorating CRF. The results also suggest that vigor and vitality are distinct phenomena from CRF with regard to responsiveness to intervention. With improved methodological approaches, further research in this area may soon provide clinicians with effective strategies for reducing CRF and enhancing the lives of millions of cancer patients and survivors.

Psychosocial

Lehto, U-, M. Ojanen, A. Vakeva, A. Aromaa and P. Kellokumpu-Lehtinen. **Noncancer Life Stresses in Newly Diagnosed Cancer.** *Supportive Care in Cancer.Springer Verlag.* 2008 November; 1611: 1231-1241.
Goals of work: Noncancer life stresses affect psychosocial stress processes and have an impact on quality of life (QOL) of the patients. However, investigating life stresses in cancer is a recent development. We evaluated the life stresses of newly diagnosed melanoma, breast cancer, and prostate cancer patients in detail and investigated their impact on QOL outcomes after localized cancer diagnosis. Materials and methods: Life change events from the previous year (negative events, positive events, total impact of events, impacts of the negative events, and impacts of loss events) and chronic ongoing life strains were measured with the Life Experience Survey and the Chronic Strains Survey in newly diagnosed patients 3 months after the diagnosis. Also, perceived symptoms and QOL were measured, and in melanoma and breast cancer, these were repeated up to 2 years later. Results: Noncancer life stress was common in newly diagnosed cancer patients: Both acute and chronic life stresses were experienced by four-fifths. Loss events (fateful negative events or social loss events) were reported by one-third. Many patients had a preceding chronic illness. Along with the cancer and treatment stresses, the noncancer life stresses predicted poorer QOL, particularly psychological and depressive symptoms. Different life stresses predicted slightly different domains of QOL, and depressive symptoms tended to be predicted by several kinds of life stresses. Baseline life stresses had impact also on later QOL in breast cancer. Conclusions: Noncancer life stresses are common among newly diagnosed cancer patients and have impact on QOL, and thus they should be taken into account in cancer care. Screening for noncancer life stresses may offer means to enhance QOL outcomes in cancer.

CAM of the Month

Tiemann, P, M. Toelg, F. Ramos and M.H. **Administration of Ratanhia-Based Herbal Oral Care Products for the Prophylaxis of Oral Mucositis in Cancer Chemotherapy Patients: A Clinical Trial**. *Evidence-based Complementary and Alternative Medicine.Oxford University Press.* 2007 September; 43: 361-366. Oral complications are a common side effect of cancer chemotherapy, as antineoplastic agents affect both the immune system and the oral mucosa. This study demonstrates preventive and therapeutic effects of dental treatment and regular use of Weleda Ratanhia-Mundwasser (herbal mouthwash) and Weleda Pflanzen-Zahngel (herbal toothgel) on oral mucositis during chemotherapy. Thirty-two female patients with breast cancer starting on chemotherapy were evaluated in this study. Plaque index, gingival index, degree of mucositis and 10 single symptoms were monitored once weekly for four consecutive weeks. After four weeks, plaque and gingival indexes were slightly decreased compared to baseline values. The degree of mucositis was increased by one grade in 15.6 % of the patients and over 70 % remained without symptoms. On the whole, single symptoms decreased from day 7 since beginning of chemotherapy to day 28. Mucositis symptoms were moderate in severity, and the results indicate a positive influence of using Weleda Ratanhia-Mundwasser and Weleda Pflanzen-Zahngel. Further studies might be promising.

InspireHealth provides an integrated whole person approach to health for individuals living with cancer. Our medical doctors guide patients to explore and learn about a variety of wellness approaches to health and healing in addition to conventional cancer treatment. This integrated medical model, which engages people in their own care, improves quality of life and reduces the likelihood of cancer recurrence. The editorial board includes: Dr. Hal Gunn, CEO and Co-founder, Dr. Janice Wright, Dr. Teresa Clarke, Dr. Ron Puhky, and Dr. Walter Lemmo, ND.

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