RESEARCH UPDATES

FOR THE LATEST IN WORLDWIDE INTEGRATED CANCER CARE

INside

IN THIS ISSUE:

Vlajinac et al. found that consumption of meat and fat play a role in the development of prostate cancer. Epplein and associates found that psychological well being in the first year after breast cancer diagnosis is important for survival and recurrence prevention. Grant and associates indicated that the single most important thing that can improve health outcomes for African Americans is improving their vitamin D status. Khanal and colleagues found that honey helps to decrease the severity of mucositis in oral cancer patients undergoing radiation therapy. Chuang and colleagues found that music therapy was useful for promoting relaxation in cancer survivors. Dou and associates found that the Dixiong Decoction was useful for reducing lung injury and improving the quality of life of lung cancer patients. In our study of the month, Yao et al. found that high serum levels of vitamin D were associated with reduced risk of breast cancer.

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PROSTATE CANCER

Vlajinac, H, M. Ilic, J. Marinkovic et al.

Nutrition and Prostate Cancer

Journal of B.U.On. 2010 154: 698-703.

PURPOSE: Since an association between prostate cancer and some foods or food groups like meat, milk and dairy products, tomato foods, and allium vegetables, has been suggested, we analyzed the possibility that some food items or some food groups could be related to prostate cancer in some other way and not only through their nutrients. The purpose of this study was to test some hypotheses about diet as risk factor for prostate cancer. **METHODS:** This case-control study comprised 101 cases of prostate cancer and 202 hospital controls individually matched for age (+/- 2 years), hospital admission and place of residence. Dietary information of 150 food items was obtained by a quantitative history approach.

RESULTS: Multivariate logistic regression analysis indicated as risk factors for prostate cancer high intake of fruit, processed meat, fish (most frequently canned) and butter. High intake of chicken, potato and rice exhibited a protective effect.

CONCLUSION: These results support the hypothesis that consumption of meat and fat play a role in the development of prostate cancer. The findings that consumption of processed meat only (not fresh) and fish increased the risk of prostate cancer, as well as the protective effect of chicken, potato and rice consumption should be corroborated by other investigators.

BREAST CANCER

Epplein, M, Y. Zheng, W. Zheng, et al.

Quality of Life After Breast Cancer Diagnosis and Survival

Journal of Clinical Oncology. 2011 Feb 1; 294: 406-412.

PURPOSE: To examine the association of quality of life (QOL) after diagnosis of breast cancer with mortality and recurrence. **PATIENTS AND METHODS:** From 2002 to 2004, a total of 2,230 breast cancer survivors completed the General Quality of Life Inventory-74 6 months after diagnosis as part of the Shanghai Breast Cancer Survivor Study. Also collected at baseline was information on demographic and clinical characteristics. At 36 months postdiagnosis, 1,845 of these women were re-evaluated for QOL. Outcomes were ascertained by in-person interview and record linkage to the vital statistics registry. The association of QOL with total mortality and cancer recurrence was assessed by using Cox regression analysis.

RESULTS: During a median follow-up of 4.8 years after the 6-month postdiagnosis QOL assessment, 284 deaths were identified. Recurrence was documented in 267 patients after 108 patients with stage IV breast cancer or recurrence before study enrollment were excluded. Women with the highest tertile of social well-being QOL score, compared with those with the lowest score, had a 38% decreased risk of mortality (95% CI, 0.46 to 0.85; P for trend = .002) and a 48% decreased risk of breast cancer recurrence (95% CI, 0.38 to 0.71; P for trend < .001). QOL assessed at 36 months postdiagnosis was not significantly associated with subsequent risk of mortality or recurrence.

CONCLUSION: Social well-being in the first year after cancer diagnosis is a significant prognostic factor for breast cancer recurrence or mortality, suggesting a possible avenue of intervention by maintaining or enhancing social support for women soon after their breast cancer diagnosis to improve disease outcomes.

PANCREATIC CANCER

Gapstur, SM, E. J. Jacobs, A. Deka, et al.

Association of Alcohol Intake with Pancreatic Cancer Mortality in Never Smokers

Arch Intern Med. 2011 14 Mar 2011; 1715: 444-451.

BACKGROUND: An international panel of experts characterized the evidence linking alcoholic beverage consumption to pancreatic cancer as limited. Primary concerns include inconsistent results from underpowered studies, residual confounding by smoking, and the question of whether the association varies by type of alcoholic beverage. **METHODS:** The association of alcohol intake with pancreatic cancer mortality was examined using data from the Cancer Prevention Study II, a prospective study of US adults 30 years and older. Alcohol consumption was self-reported on a 4-page questionnaire in 1982. Based on follow-up through December 31, 2006, there were 6847 pancreatic cancer deaths among 1 030 467 participants. Multivariable-adjusted relative risks (RRs) and 95% confidence intervals (CIs) were computed using Cox proportional hazards regression analysis controlling for age, sex, race/ethnicity, education, marital status, body mass index, family history of pancreatic cancer, and personal history of gallstones, diabetes mellitus, or smoking.

RESULTS: The RRs (95% CIs) of pancreatic cancer mortality associated with current intake of less than 1, 1, 2, 3, and 4 or more drinks per day compared with nondrinkers were 1.06 (0.99-1.13), 0.99 (0.90-1.08), 1.06 (0.97-1.17), 1.25 (1.11-1.42), and 1.17 (1.06-1.29), respectively (P < .001 for trend). Consumption of 3 or more drinks per day was associated with pancreatic cancer mortality in never smokers (RR, 1.36; 95% CI, 1.13-1.62) and in ever smokers (RR, 1.16; 95% CI, 1.06-1.27). This association was observed for consumption of liquor (RR, 1.32; 95% CI, 1.10-1.57) but not beer (RR, 1.08; 95% CI, 0.90-1.30) or wine (RR, 1.09; 95% CI, 0.79-1.49).

CONCLUSION: These results strengthen the evidence that alcohol consumption, specifically liquor consumption of 3 or more drinks per day, increases pancreatic cancer mortality independent of smoking.

PUBLIC HEALTH

Grant, WB and A. N. Peiris.

Possible Role of Serum 25-Hydroxyvitamin D in Black-White Health Disparities in the United States

Journal of the American Medical Directors Association. 2010 Nov; 119: 617-628.

BACKGROUND: Significant health disparities exist between African Americans (AAs) and White Americans (WAs). The all-cause mortality rate for AAs in 2006 was 26% higher than for non-Hispanic WAs. **METHODS:** Explanations for the disparities usually include socioeconomic status, lifestyle behaviors, social environment, and access to preventive health care services. However, several studies indicate that these factors do not account for the observed disparities. Many studies report that vitamin D has important health benefits through paracrine and autocrine mechanisms and that higher serum 25-hydroxyvitamin D (25[OH]D) levels are associated with better health outcomes.

RESULTS: AAs have a population mean serum 25(OH)D level of 16 ng/mL, whereas WAs have a level of 26 ng/mL. From preliminary meta-analyses of serum 25(OH)D level-disease outcome from observational studies, differences in serum 25(OH)D level for AAs and WAs can explain many of the health disparities. The ratios of mortality rates for AAs to WAs for female breast cancer, colorectal cancer, cardiovascular disease, and all-cause mortality rate in 2006 were 1.34, 1.43, 1.29, and 1.26, respectively. The 25(OH)D level-disease outcome ratios for 16 ng/mL versus 26 ng/mL for the same diseases were 1.26, 1.44, 1.27, and 1.26, respectively. The close agreement between these 2 sets of numbers suggests that low serum 25(OH)D level is an important health risk for AAs.

CONCLUSION: Given the widespread vitamin D deficiency in the AA population and the potential widespread health benefits that accompany adequate replacement, we believe that addressing this issue may be the single most important public health measure that can be undertaken.

COLORECTAL CANCER

Chan, AT, S. Ogino, E. L. Giovannucci et al.

Inflammatory Markers are Associated with Risk of Colorectal Cancer and Chemopreventive Response to Anti-Inflammatory Drugs

Gastroenterology. 2011 March 2011; 1403: 799-808.

BACKGROUND & AIMS: Aspirin and non-steroidal anti-inflammatory drugs (NSAIDs) lower the risk of colorectal cancer (CRC). We investigated whether plasma inflammatory markers were associated with risk of CRC and if use of anti-inflammatory drugs was differentially associated with risk of CRC according to levels of inflammatory markers. **METHODS:** We measured levels of high-sensitivity C-reactive protein (CRP), interleukin (IL)-6, and the soluble tumor necrosis factor receptor 2 (sTNFR-2) in blood samples from 32,826 women, collected from 1989 to 1990. Through 2004, we documented 280 cases of incident CRC; each case was matched for age to 2 randomly selected participants without cancer (controls). Information on anti-inflammatory drug (aspirin and NSAIDs) use was collected biennially.

RESULTS: Compared with women in the lowest quartile of plasma levels of sTNFR-2, women in the highest quartile had an increased risk of CRC (multivariate relative risk [RR], 1.67; 95% confidence interval [CI], 1.052.68; P for trend = .03). Among women with high baseline levels of sTNFR-2, those who initiated aspirin/NSAID use after blood collection had significant reductions in subsequent risk of CRC (multivariate RR, 0.39; 95% CI, 0.180.86). In contrast, among women with low baseline levels of sTNFR-2, initiation of aspirin/NSAID use was not associated with significant risk reduction (multivariate RR, 0.86; 95% CI, 0.411.79). Plasma levels of CRP and IL-6 were not significantly associated with CRC risk.

CONCLUSIONS: Plasma levels of sTNFR-2, but not CRP or IL-6, are associated with an increased risk of CRC. Anti-inflammatory drugs appear to reduce risk of CRC among women with high, but not low, baseline levels of sTNFR-2. Certain subsets of the population, defined by inflammatory markers, may obtain different benefits from anti-inflammatory drugs.

HONEY

Khanal, B, M. Baliga and N. Uppal.

Effect of Topical Honey on Limitation of Radiation-Induced Oral Mucositis: An Intervention Study

International Journal of Oral & Maxillofacial Surgery. 2010 Dec; 3912: 1181-1185.

BACKGROUND: Radiation therapy for oral carcinoma is therapeutically useful in dose of at least 6000 cGy but causes mucositis that severely interferes with oral function. **METHODS:** The literature indicates that honey appears to promote wound healing, so the authors investigated whether its anti-inflammatory properties might limit the severity of radiation-induced oral mucositis. A single-blinded, randomized, controlled clinical trial was carried out to compare the mucositis-limiting qualities of honey with lignocaine. A visual assessment scale permitted scoring of degrees of mucositis and statistical evaluation of the results was performed using the (2) test.

RESULTS: Only 1 of 20 patients in the honey group developed intolerable oral mucositis compared with the lignocaine group, indicating that honey is strongly protective (RR=0.067) against the development of mucositis. The proportion of patients with intolerable oral mucositis was lower in the honey group and this was statistically significant (p=0.000).

CONCLUSION: Honey applied topically to the oral mucosa of patients undergoing radiation therapy appears to provide a distinct benefit by limiting the severity of mucositis. Honey is readily available, affordable and well accepted by patients making it useful for improving the quality of life in irradiated patients.

TRADITIONAL CHINESE MEDICINE

Dou, Y-, M. -H Yang, Z. -M Wei, et al.

The Study of Early Application with Dixiong Decoction for Non-Small Cell Lung Cancer to Decrease the Incidence and Severity of Radiation Pneumonitis: A Prospective, Randomized Clinical Trial

Chinese Journal of Integrative Medicine. 2010 October 2010; 165: 411-416.

OBJECTIVE: To evaluate the efficacy of compound Dixiong Decoction (a Chinese herbal decoction) on early prevention of radiation pneumonitis. **METHODS:** Forty-six patients with non-small cell lung cancer who were planning to receive radiotherapy were randomly assigned to the treatment group treated with the compound Dixiong Decoction and the control group treated with a commonly used herbal decoction which has the effects of supplementing qi and nourishing yin, clearing heat and detoxifying at the time of radiotherapy. Primary measure was the incidence of radiation pneumonitis after radiotherapy. Secondary outcomes included Watters clinical radiographic physiologic (CRP) dyspnea score, the Radiation Therapy Oncology Group (RTOG) grading score, Karnofsky Performance Status (KPS) score, and the application of corticosteroids.

RESULTS: The incidence of radiation pneumonitis in the treatment group was 10.0%, while that in the control group was 26.3% (P=0.0032). The Watters CRP dyspnea score and RTOG grading score in the treatment group were significantly lower than those in the control group (P<0.05). The KPS score in the treatment group was significantly higher than that in the control group (P<0.01). The dosage of corticosteroids was smaller with a shorter duration of therapy in the treatment group than that in the control group.

CONCLUSION: The early application of the Chinese herbal decoction compound Dixiong Decoction can decrease the incidence of radiation pneumonitis, reduce the injury of the lung, and improve the life quality of the patients.

MUSIC THERAPY

Chuang, CY, W. R. Han, P. C. Li et al.

Effects of Music Therapy on Subjective Sensations and Heart Rate Variability in Treated Cancer Survivors: A Pilot Study

Complement Ther Med. 2010 Oct; 185: 224-226.

OBJECTIVE: Data on the effects of music therapy on subjective sensations and the physiological parameters of heart rate variability (HRV) in treated cancer survivors are scarce. The aim of this study was to determine whether or not music therapy affects the sensations of fatigue, comfort, and relaxation in cancer survivors, and affects the activities of the sympathetic and parasympathetic nervous systems as indicated by HRV parameters. **METHODS:** Twenty three patients aged 30-67 years and with cancer that had been treated at least 6 months previously received music therapy for about 2h, which included singing, listening to music, learning the recorder, and performing music. Subjective sensations and electro-cardiogram were recorded before and after the music therapy. The low-frequency and high-frequency components of HRV were assessed by the frequency analysis of sequential R wave to R wave intervals of electrocardiogram obtained from 5-min recordings. Subjective sensations were quantitatively assessed using a visual analog mood scale.

RESULTS: Two hours of music therapy significantly increased relaxation sensations and significantly decreased fatigue sensation in treated cancer survivors. Moreover, the HRV parameters showed that parasympathetic nervous system activity increased and sympathetic nervous system activity decreased.

CONCLUSION: This study provides preliminary evidence that music therapy may be clinically useful for promoting relaxation sensation and increasing parasympathetic nervous system activity in treated cancer survivors.

CHRONIC KIDNEY DISEASE

Na, SY, J. Y. Sung, J. H. Chang, et al.

Chronic Kidney Disease in Cancer Patients: An Independent Predictor of Cancer-Specific Mortality

Am J Nephrol. 2011 March 2011; 332: 121-130.

BACKGROUND/AIMS: The effects of chronic kidney disease (CKD) on the risk of death for patients with malignant disease are uncertain. The aim of this study was to determine the association between the presence of CKD and mortality in cancer patients. **METHOD:** We retrospectively reviewed the cases of 8,223 cancer patients with one or more serum creatinine measurements from January 1, 2000 to December 31, 2004. The key outcome was cancer-specific mortality within the follow-up period. The cumulative incidence rate for death from cancer was estimated using methods of competing risks survival analysis. Cox proportional-hazards regression with the use of Fine and Gray's proportional-hazards model were evaluated in multiple analyses.

RESULTS: CKD was associated with an increased risk of death in cancer patients. The adjusted hazard ratios were 1.12 for patients with an estimated glomerular filtration rate (eGFR) of 30-59 ml/min/1.73 m2 (95% confidence interval 1.01-1.26, p = 0.04) and 1.75 for patients with an eGFR (95% confidence interval 1.01-1.26, p = 0.04) and 1.75 for patients with an eGFR 2 (95% confidence interval 1.32-2.32, p < 0.001).

CONCLUSIONS: CKD should be considered a risk factor for survival among patients with cancer.

STUDY OF THE MONTH

Yao, S, L. E. Sucheston, A. E. Millen, et al.

Pretreatment Serum Concentrations of 25-Hydroxyvitamin D and Breast Cancer Prognostic Characteristics: A Case-Control and a Case-Series Study

PLoS ONE. 7251 Article Number: e1; 6 (2) , 2011ate of Pubaton: 2011.

BACKGROUND: Results from epidemiologic studies on the relationship between vitamin D and breast cancer risk are inconclusive. It is possible that vitamin D may be effective in reducing risk only of specific subtypes due to disease heterogeneity.

METHODS AND FINDINGS: In case-control and case-series analyses, we examined serum concentrations of 25-hydroxyvitamin D (25OHD) in relation to breast cancer prognostic characteristics, including histologic grade, estrogen receptor (ER), and molecular subtypes defined by ER, progesterone receptor (PR) and HER2, among 579 women with incident breast cancer and 574 controls matched on age and time of blood draw enrolled in the Roswell Park Cancer Institute from 2003 to 2008. We found that breast cancer cases had significantly lower 25OHD concentrations than controls (adjusted mean, 22.8 versus 26.2 ng/mL, $p<0.001$). Among premenopausal women, 25OHD concentrations were lower in those with high- versus low-grade tumors, and ER negative versus ER positive tumors ($p<=0.03$). Levels were lowest among women with triple-negative cancer (17.5 ng/mL), significantly different from those with luminal A cancer (24.5 ng/mL, $p = 0.002$). In case-control analyses, premenopausal women with 25OHD concentrations above the median had significantly lower odds of having triple-negative cancer (OR = 0.21, 95% CI = 0.08-0.53) than those with levels below the median; and every 10 ng/mL increase in serum 25OHD concentrations was associated with a 64% lower odds of having triple-negative cancer (OR = 0.36, 95% CI = 0.22-0.56). The differential associations by tumor subtypes among premenopausal women were confirmed in case-series analyses.

CONCLUSION: In our analyses, higher serum levels of 25OHD were associated with reduced risk of breast cancer, with associations strongest for high grade, ER negative or triple negative cancers in premenopausal women. With further confirmation in large prospective studies, these findings could warrant vitamin D supplementation for reducing breast cancer risk, particularly those with poor prognostic characteristics among premenopausal women.

"*Not everything that counts can be counted, and not everything that can be counted counts.*"
- Albert Einstein

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