



# RESEARCH UPDATES

For the latest in worldwide integrated cancer care

September 2009

## Breast

Mignone, LI, E. Giovannucci, P. A. Newcomb, et al. **Dietary Carotenoids and the Risk of Invasive Breast Cancer.** *International Journal of Cancer.* 2009 Jun 15; 12412: 2929-2937. Certain classes of vitamins and nutrients found in fruits and vegetables have been of particular interest in relation to cancer prevention, owing to their potential anticarcinogenic properties. We examined the association between certain fruits, vegetables, carotenoids, and vitamin A and breast cancer risk in a large population-based case-control study of women residing in the states of Massachusetts, New Hampshire and Wisconsin. The study was comprised of 5,707 women with incident invasive breast cancer (2,363 premenopausal women and 3,516 postmenopausal women) and 6,389 population controls (2,594 premenopausal women and 3,516 postmenopausal women). In an interview, women were asked about their intake of carotenoid rich fruits and vegetables 5 years prior to a referent date. An inverse association observed among premenopausal women was for high levels of vitamin A (OR: 0.82, 95% CI: 0.68-0.98, p for trend = 0.01), beta-carotene (OR: 0.81, 95% CI 0.68-0.98, p for trend = 0.009), alpha-carotene (OR: 0.82, 95% CI: 0.68-0.98, p for trend = 0.07) and lutein/zeaxanthin (OR: 0.83, 95% CI 0.68-0.99, p for trend = 0.02). An inverse association was not observed among postmenopausal women. Among premenopausal women who reported ever smoking, these results were stronger than among never smokers, although tests for interaction were not statistically significant. Results from this study are comparable to previous prospective studies, and suggest that a high consumption of carotenoids may reduce the risk of premenopausal but not postmenopausal breast cancer, particularly among smokers. Copyright 2008 UICC.

Velentzis, LS, M. M. Cantwell, C. Cardwell, M. R. Keshtgar, A. J. Leatham and J. V. Woodside. **Lignans and Breast Cancer Risk in Pre- and Post-Menopausal Women: Meta-Analyses of Observational Studies.** *Br J Cancer.* 2009 May 5;1009:1492-1498. Phyto-oestrogens are plant compounds structurally similar to oestradiol, which have been proposed to have protective effects against breast cancer. The main class of phyto-oestrogens in the Western diet is lignans. Literature reports on the effect of lignans in breast cancer risk have been conflicting. We

performed three separate meta-analyses to examine the relationships between (i) plant lignan intake, (ii) enterolignan exposure and (iii) blood enterolactone levels and breast cancer risk. Medline, BIOSIS and EMBASE databases were searched for publications up to 30 September 2008, and 23 studies were included in the random effects meta-analyses. Overall, there was little association between high plant lignan intake and breast cancer risk (11 studies, combined odds ratio (OR): 0.93, 95% confidence interval (95% CI): 0.83-1.03, P=0.15), but this association was subjected to marked heterogeneity (I(2)=44%). Restricting the analysis to post-menopausal women, high levels of plant lignan intake were associated with reduced breast cancer risk (7 studies, combined OR: 0.85, 95% CI: 0.78, 0.93, P<0.001) and heterogeneity was markedly reduced (I(2)=0%). High enterolignan exposure was also associated with breast cancer (5 studies, combined OR: 0.73, 95% CI: 0.57, 0.92, P=0.009) but, again, there was marked heterogeneity (I(2)=63%). No association was found with blood enterolactone levels (combined OR: 0.82, 95% CI: 0.59-1.14, P=0.24). In conclusion, plant lignans may be associated with a small reduction in post-menopausal breast cancer risk, but further studies are required to confirm these results.

## Prostate

Amato, RJ, N. Drury, S. Naylor, et al. **Vaccination of Prostate Cancer Patients with Modified Vaccinia Ankara Delivering the Tumor Antigen 5T4 (TroVax) A Phase 2 Trial.** *Journal of Immunotherapy.* 2008 31(6pp 577-585: ate of Pubaton: July-August 2008. The attenuated vaccinia virus, modified vaccinia Ankara, has been engineered to deliver the tumor antigen 5T4 (TroVax). TroVax has been evaluated in an open-label phase 2 trial in hormone refractory prostate cancer patients in which the vaccine was administered either alone or in combination with granulocyte macrophage-colony stimulating factor (GM-CSF). The comparative safety and immunologic and clinical efficacy of TroVax alone or in combination with GM-CSF was determined. Twenty-seven patients with metastatic hormone refractory prostate cancer were treated with TroVax alone (n=14) or TroVax+GM-CSF (n=13). 5T4-specific cellular and humoral responses were monitored throughout the



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study. Clinical responses were assessed by quantifying prostate-specific antigen concentrations and measuring changes in tumor burden by computer-assisted tomography scan. TroVax was well tolerated in all patients with no serious adverse events attributed to vaccination. Of 24 immunologically evaluable patients, all mounted 5T4-specific antibody responses. Periods of disease stabilization from 2 to >10 months were observed. Time to progression was significantly greater in patients who mounted 5T4-specific cellular responses compared with those who did not (5.6 vs. 2.3 mo, respectively). There were no objective clinical responses seen in this study. In this study, the combination of GM-CSF with TroVax showed similar clinical and immunologic responses to TroVax alone. The high frequency of 5T4-specific immune responses and relationship with enhanced time to progression is encouraging and warrants further investigation. copyright 2008 by Lippincott Williams & Wilkins.

Capodice, JL, P. Gorroochurn, A. S. Cammack, et al. **Zyflamend in Men with High-Grade Prostatic Intraepithelial Neoplasia: Results of a Phase I Clinical Trial.** *Journal Of The Society For Integrative Oncology.* 2009 72: 43-51. Subjects diagnosed with high-grade prostatic intraepithelial neoplasia (HGPIIN) at biopsy are at increased risk for developing prostate cancer (CaP). A prospective clinical trial was done to determine the safety and tolerability of a novel herbal amalgam, Zyflamend (New Chapter, Inc., Brattleboro, VT), with various dietary supplements in subjects with HGPIIN. Men ages 40 to 75 years with HGPIIN were eligible. Subjects were evaluated for 18 months. Every 3 months, standard blood chemistries and prostate-specific antigen (PSA) were monitored. Rebiopsy was done every 6 months. Tissue was evaluated for HGPIIN or CaP and stained for cyclooxygenase-2, nuclear factor kappaB (NF-kappaB), interleukin-6, and thromboxane. Twenty-three subjects were evaluable. The median age was 64.1 years (range 46-75 years), and the mean (+/-SD) PSA level was 6.13 +/- 3.56 ng/mL. Side effects, when present, were mild and gastrointestinal in nature. There were no reported serious adverse events or toxicities. No significant changes in blood chemistries, testosterone, or cardiac function were noted. Forty-eight percent of subjects demonstrated a 25 to 50% decrease in PSA after 18 months. Of subjects who had the 18-month biopsy, 60% (9 of 15) had benign tissue, 26.7% (4 of 15) had HGPIIN in one core, and 13.3% (2 of 15) had CaP at 18 months. A reduction in serum C-reactive protein was observed (95% confidence interval [CI] 0.7-1.7, p = .045). Immunoreactive staining demonstrated a reduction in NF-kappaB in the 18-month samples (95% CI 0.8-3.0, p = .017). Zyflamend alone and in combination with various dietary supplements is associated with minimal toxicity and no serious adverse events when administered orally for 18 months. Further studies are warranted to evaluate these agents in patients who are at risk for CaP.

 Thank you to the **BC Foundation for Prostate Disease** for their generous support.  
[www.BCPROSTATECANCER.org](http://www.BCPROSTATECANCER.org)

## Colorectal

Huxley, RR, A. Ansary-Moghaddam, P. Clifton, S. Czernichow, C. L. Parr and M. Woodward. **The Impact of Dietary and Lifestyle Risk Factors on Risk of Colorectal Cancer: A Quantitative Overview of the Epidemiological Evidence.** *International Journal of Cancer.* 2009 Jul 1; 1251: 171-180. Colorectal cancer is a major cause of cancer mortality and is considered to be largely attributable to inappropriate lifestyle and behavior patterns. The purpose of this review was to undertake a comparison of the strength of the associations between known and

putative risk factors for colorectal cancer by conducting 10 independent meta-analyses of prospective cohort studies. Studies published between 1966 and January 2008 were identified through EMBASE and MEDLINE, using a combined text word and MESH heading search strategy. Studies were eligible if they reported estimates of the relative risk for colorectal cancer with any of the following: alcohol, smoking, diabetes, physical activity, meat, fish, poultry, fruits and vegetables. Studies were excluded if the estimates were not adjusted at least for age. Overall, data from 103 cohort studies were included. The risk of colorectal cancer was significantly associated with alcohol: individuals consuming the most alcohol had 60% greater risk of colorectal cancer compared with non- or light drinkers (relative risk 1.56, 95% CI 1.42-1.70). Smoking, diabetes, obesity and high meat intakes were each associated with a significant 20% increased risk of colorectal cancer (compared with individuals in the lowest categories for each) with little evidence of between-study heterogeneity or publication bias. Physical activity was protective against colorectal cancer. Public-health strategies that promote modest alcohol consumption, smoking cessation, weight loss, increased physical activity and moderate consumption of red and processed meat are likely to have significant benefits at the population level for reducing the incidence of colorectal cancer.

Rohrmann, S, S. Hermann and J. Linseisen. **Heterocyclic Aromatic Amine Intake Increases Colorectal Adenoma Risk: Findings from a Prospective European Cohort Study.** *Am J Clin Nutr.* 2009 May; 89: 1418-1424.

**BACKGROUND:** Heterocyclic aromatic amines (HCAs), which arise from cooking meat and fish at high temperatures, may increase the risk of colorectal adenomas. Conversely, flavonoids might counteract the negative effects of HCAs. **OBJECTIVE:** The association between dietary HCA intake and colorectal adenoma incidence was investigated in a prospective cohort study. **DESIGN:** At recruitment (1994-1998), detailed information on diet, anthropometric measures, lifestyle, and medication use was assessed in 25,540 participants of the European Prospective Investigation into Cancer and Nutrition-Heidelberg cohort study. Dietary HCA intake was estimated by using information from food-frequency questionnaires on meat consumption, applied cooking methods, and preferred degree of browning. Until June 2007, 516 verified incident colorectal adenomas were identified. Participants with negative colonoscopy (n = 3966) were also included in the analytic cohort. Multivariate Cox proportional hazards regression was used to examine the association between colorectal adenoma risk and intake of 2-amino-1-methyl-6-phenylimidazo[4,5-b]pyridine (PhIP), 2-amino-3,8-dimethylimidazo[4,5-f]quinoxaline (MeIQx), and 2-amino-3,4,8-dimethylimidazo[4,5-f]quinoxaline (DiMeIQx). **RESULTS:** In multivariate analyses, the intake of PhIP as the most abundant dietary HCA was associated with an increased risk of colorectal adenoma (relative risk: 1.47; 95% CI: 1.13, 1.93; quartile 4 compared with quartile 1; P for trend = 0.002), but no statistically significant associations were observed for MeIQx and DiMeIQx intakes. In addition, adenoma risk also increased with the consumption of strongly or extremely browned meat (P for trend = 0.04). The association of PhIP intake with adenoma risk was most pronounced for small adenomas (P for trend = 0.01) and adenomas localized in the distal colon (P for trend = 0.002). **CONCLUSION:** The results of this first European cohort study support data from case-control studies of a positive association between HCA intake and colorectal adenoma risk.

## Pancreatic

Genkinger, JM, D. Spiegelman, K. E. Anderson, et al. **Alcohol Intake and Pancreatic Cancer Risk: A Pooled Analysis of Fourteen Cohort Studies.** *Cancer Epidemiology Biomarkers and Prevention.* 2009 2009. March; 18(3pp 765-776: Background: Few risk factors have been implicated in pancreatic

cancer etiology. Alcohol has been theorized to promote carcinogenesis. However, epidemiologic studies have reported inconsistent results relating alcohol intake to pancreatic cancer risk. Methods: We conducted a pooled analysis of the primary data from 14 prospective cohort studies. The study sample consisted of 862,664 individuals among whom 2,187 incident pancreatic cancer cases were identified. Study-specific relative risks and 95% confidence intervals were calculated using Cox proportional hazards models and then pooled using a random effects model. Results: A slight positive association with pancreatic cancer risk was observed for alcohol intake (pooled multivariate relative risk, 1.22; 95% confidence interval, 1.03-1.45 comparing [greater-than or equal to]30 to 0 grams/day of alcohol; P value, test for between-studies heterogeneity = 0.80). For this comparison, the positive association was only statistically significant among women although the difference in the results by gender was not statistically significant (P value, test for interaction = 0.19). Slightly stronger results for alcohol intake were observed when we limited the analysis to cases with adenocarcinomas of the pancreas. No statistically significant associations were observed for alcohol from wine, beer, and spirits comparing intakes of [greater-than or equal to]5 to 0 grams/day. A stronger positive association between alcohol consumption and pancreatic cancer risk was observed among normal weight individuals compared with overweight and obese individuals (P value, test for interaction = 0.01). Discussion: Our findings are consistent with a modest increase in risk of pancreatic cancer with consumption of 30 or more grams of alcohol per day. Copyright copyright 2009 American Association for Cancer Research.

## Brain

Hogervorst, JG, L. J. Schouten, E. J. Konings, R. A. Goldbohm and P. A. van den Brandt. **Dietary Acrylamide Intake and Brain Cancer Risk.** *Cancer Epidemiology, Biomarkers & Prevention.* 2009 May; 185: 1663-1666. BACKGROUND: Acrylamide is a probable human carcinogen, which is present in several heat-treated foods. In epidemiologic studies, positive associations with endometrial, ovarian, and renal cell cancer risk have been observed. The incidence of central nervous system tumors was increased upon acrylamide administration in drinking water to rats. In the current study, the association between dietary acrylamide intake and human brain cancer risk was investigated for the first time. METHODS: In 1986, 120,852 persons (ages 55-69 years) were included in the Netherlands Cohort Study on diet and cancer. At baseline, a random subcohort of 5,000 participants was randomly selected from the total cohort for a case-cohort approach. Acrylamide intake was assessed with a food frequency questionnaire at baseline and based on acrylamide analyses in relevant Dutch foods. Hazard ratios (HR) were calculated using Cox proportional hazards analysis. Subgroup analyses were done for microscopically verified brain cancer, astrocytic gliomas, high-grade astrocytic gliomas, and never-smokers. The acrylamide risk estimates were adjusted for possible brain cancer risk factors. RESULTS: After 16.3 years of follow-up, 216 brain cancer cases were available for analysis. The multivariable-adjusted HR per 10 microg/d increment of acrylamide intake was 1.02 (95% confidence interval, 0.89-1.16). HRs were not significantly increased either when dietary acrylamide intake was analyzed as a categorical variable. Also, there was no association in the subgroups based on histology and smoking. CONCLUSION: In this prospective cohort study, acrylamide intake was not associated with brain cancer risk.

## Exercise

Jones, LW, N. D. Eves, M. Haykowsky, S. J. Freedland and J. R. Mackey. **Exercise Intolerance in Cancer and the Role of**

**Exercise Therapy to Reverse Dysfunction** *Lancet Oncology.* 2009 Jun; 106: 598-605. Exercise tolerance reflects the integrative capacity of components in the oxygen cascade to supply adequate oxygen for ATP resynthesis. Conventional cancer therapies can simultaneously affect one or more components of this cascade and reduce the body's ability to deliver or utilise oxygen and substrate, leading to exercise intolerance. We propose that molecularly-targeted therapy is associated with a further, more subtle, negative effect on the components that regulate exercise limitation. We outline possible causes of exercise intolerance in patients with cancer and the role of exercise therapy to mitigate or prevent dysfunction. We also discuss possible implications for exercise-regulated gene expression for cancer biology and treatment efficacy. A better understanding of these issues might lead to more effective integration of exercise therapy to optimise the treatment and management of patients with cancer. [References: 73]

Ruiz, JR, X. Sui, F. Lobelo, et al. **Muscular Strength and Adiposity as Predictors of Adulthood Cancer Mortality in Men.** *Cancer Epidemiology, Biomarkers & Prevention.* 2009 May; 185: 1468-1476.

BACKGROUND: We examined the associations between muscular strength, markers of overall and central adiposity, and cancer mortality in men. METHODS: A prospective cohort study including 8,677 men ages 20 to 82 years followed from 1980 to 2003. Participants were enrolled in The Aerobics Centre Longitudinal Study, the Cooper Institute in Dallas, Texas. Muscular strength was quantified by combining 1-repetition maximal measures for leg and bench presses. Adiposity was assessed by body mass index (BMI), percent body fat, and waist circumference. RESULTS: Cancer death rates per 10,000 person-years adjusted for age and examination year were 17.5, 11.0, and 10.3 across incremental thirds of muscular strength (P = 0.001); 10.9, 13.4, and 20.1 across BMI groups of 18.5-24.9, 25.0-29.9, and > or =30 kg/m(2), respectively (P = 0.008); 11.6 and 17.5 for normal ( or =25%), respectively (P = 0.006); and 12.2 and 16.7 for normal (102 cm), respectively (P = 0.06). After adjusting for additional potential confounders, hazard ratios (95% confidence intervals) were 1.00 (reference), 0.65 (0.47-0.90), and 0.61 (0.44-0.85) across incremental thirds of muscular strength, respectively (P = 0.003 for linear trend). Further adjustment for BMI, percent body fat, waist circumference, or cardiorespiratory fitness had little effect on the association. The associations of BMI, percent body fat, or waist circumference with cancer mortality did not persist after further adjusting for muscular strength (all P > or = 0.1). CONCLUSIONS: Higher levels of muscular strength are associated with lower cancer mortality risk in men, independent of clinically established measures of overall and central adiposity, and other potential confounders.

## Endometrial Endometrioid Adenocarcinoma

Kakuta, Y, N. Nakaya, S. Nagase, et al. **Case-Control Study of Green Tea Consumption and the Risk of Endometrial Endometrioid Adenocarcinoma.** *Cancer Causes and Control.* 2009 20(5pp 617-624: ate of Pubaton: July 2009. Objective: To investigate the association between green tea consumption and the risk of endometrial cancer restricted to endometrioid endometrioid adenocarcinoma (EEA) using a case-control design in Japan. Methods: The cases were 152 patients with histopathologically diagnosed EEA, and the controls were 285 healthy women who were matched for age and area of residence with individual cases. The subjects completed a questionnaire regarding health-related lifestyle and reproductive history, and a food frequency questionnaire. Odds ratios (ORs) of EEA for frequency of green tea consumption were calculated by conditional logistic regression analysis. Results: We observed a significant inverse association between green tea consumption and the risk of

EEA with a dose-response relationship. The multivariate-adjusted OR of EEA was 0.77 (95% CI: 0.37-1.58) for those in the second quartile of green tea consumption (5-6 cups/week-1 cup/day), 0.61 (0.30-1.23) in the third quartile (2-3 cups/day), and 0.33 (0.15-0.75) in the highest quartile ([greater-than or equal to]4 cups/day), as referenced with those in the lowest quartile ([less-than or equal to]4 cups/week; p for trend = 0.007). This inverse association was consistently observed regardless of the presence or absence of factors such as obesity and menopause. Conclusion: Green tea consumption may be associated with a lower risk of EEA. copyright 2008 Springer Science+Business Media B.V.

## Homeopathic Remedies

Kassab, S, M. Cummings, S. Berkovitz, R. van Haselen and P. Fisher. **Homeopathic Medicines for Adverse Effects of Cancer Treatments** *Cochrane Database of Systematic Reviews*. 2009 2: 004845.  
BACKGROUND: Homeopathic medicines are used by patients with cancer, often alongside conventional treatment. Cancer treatments can cause considerable morbidity and one of the reasons patients use homeopathic medicines is to help with adverse effects. OBJECTIVES: Evaluate effectiveness and safety of homeopathic medicines used to prevent or treat adverse effects of cancer treatments. SEARCH STRATEGY: The following were searched up to November 2008: Cochrane PaPaS Trials Register; Cochrane Central Register of Controlled Trials (CENTRAL); MEDLINE; EMBASE; CINAHL; BNI; CancerLIT; AMED; CISCOP; Hom-Inform; SIGLE; National Research Register; Zetoc; [www.controlled-trials.com](http://www.controlled-trials.com); <http://clinicaltrials.gov>; Liga Medicorum Homeopathica Internationalis (LMHI, Liga) conference proceedings; reference lists of relevant studies were checked; and homeopathic manufacturers, leading researchers and practitioners were contacted. SELECTION CRITERIA: Randomised controlled trials (RCTs) of homeopathic medicines in participants with a clinical or histological diagnosis of cancer where the intervention was aimed at preventing or treating symptoms associated with cancer treatments. All age groups, and all stages of disease were included. DATA COLLECTION AND ANALYSIS: Two review authors independently assessed studies for inclusion and two review authors extracted data. Three review authors independently assessed trial quality using the Delphi List and the Cochrane Collaboration's tool for assessing risk of bias. Disagreements were resolved by consensus. Where available, data were extracted for analysis. MAIN RESULTS: Eight controlled trials (seven placebo controlled and one trial against an active treatment) with a total of 664 participants met the inclusion criteria. Three studied adverse effects of radiotherapy, three studied adverse effects of chemotherapy and two studied menopausal symptoms associated with breast cancer treatment. Two studies with low risk of bias demonstrated benefit: one with 254 participants demonstrated superiority of topical calendula over trolamine (a topical agent not containing corticosteroids) for prevention of radiotherapy-induced dermatitis, and another with 32 participants demonstrated superiority of Traumeel S (a proprietary complex homeopathic medicine) over placebo as a mouthwash for chemotherapy-induced stomatitis. Two other studies reported positive results, although the risk of bias was unclear, and four further studies reported negative results. No serious adverse effects or interactions were reported attributable to the homeopathic medicines used. AUTHORS' CONCLUSIONS: This review found preliminary data in support of the efficacy of topical calendula for prophylaxis of acute dermatitis during radiotherapy and Traumeel S mouthwash in the treatment of chemotherapy-induced stomatitis. These trials need replicating. There is no convincing evidence for the efficacy of homeopathic medicines for other adverse effects of cancer treatments. Further research is required. [References: 23]

**Lifestyle Study.** *Cancer Epidemiology, Biomarkers & Prevention*. 2009 May; 185: 1419-1428.  
Millions of Americans use dietary supplements with little knowledge about their benefits or risks. We examined associations of various herbal/specialty supplements with lung and colorectal cancer risk. Men and women, 50 to 76 years, in the VITamins And Lifestyle cohort completed a 24-page baseline questionnaire that captured duration (years) and frequency (days per week) of use of commonly used herbal/specialty supplements. Dose was not assessed due to the lack of accurate potency information. Supplement exposure was categorized as "no use" or "any use" over the previous 10 years. Hazard ratios (HR) were estimated by multivariate Cox regression models. Incident lung (n = 665) and colorectal cancers (n = 428) were obtained from the Surveillance, Epidemiology, and End Results cancer registry. Any use of glucosamine and chondroitin, which have anti-inflammatory properties, over the previous 10 years, was associated with significantly lower lung cancer risk: HR 0.74 [95% confidence interval (95% CI), 0.58-0.94] and HR 0.72 (95% CI, 0.54-0.96) and colorectal cancer risk: HR 0.73 (95% CI, 0.54-0.98) and HR 0.65 (95% CI, 0.45-0.93), respectively. There were also statistically significantly inverse associations of fish oil: HR 0.65 (95% CI, 0.42-0.99), methylsulfonylmethane: HR 0.46 (95% CI, 0.23-0.93), and St. John's wort: HR 0.35 (95% CI, 0.14-0.85) with colorectal cancer risk. In contrast, garlic pills were associated with a statistically significant 35% elevated colorectal cancer risk. These results suggest that some herbal/specialty supplements may be associated with lung and colorectal cancer risk; however, these products should be used with caution. Additional studies examining the effects of herbal/specialty supplements on risk for cancer and other diseases are needed.

## CAM of the Month

Zhou, LY, Z. Z. Shan and J. L. You. **Clinical Observation on Treatment of Colonic Cancer with Combined Treatment of Chemotherapy and Chinese Herbal Medicine.** *Chinese Journal of Integrative Medicine*. 2009 Apr; 152: 107-111.  
OBJECTIVE: To observe the clinical effect of combined chemotherapy and Chinese herbal medicine in treating colonic cancer. METHODS: One hundred and sixty-three patients were assigned, according to their will, to two groups, 105 in the traditional Chinese medicine treated group (Group A) and 58 in the combined treatment group (Group B). The Chinese herbal drug Zhao's Weitiao No. 3 (3, ZW3) was given to both groups, twice a day, 40 mL each time, 30 days as one cycle, and over 6 cycles applied in total. For patients in Group B, the chemotherapy of OLF protocol (L-OHP+LV+5-FU) was given for 4-6 cycles. The effects of treatment on the main symptoms, tumor mass, patients' quality of life (QOL) and body weight, changes of carcino-embryonic antigen (CEA), as well as the integral effect and survival rate were observed and compared. RESULTS: The total effective rate in Group A and Group B was 89.52% and 86.21% respectively, on the main clinical symptoms; 86.67% and 93.10% on tumor mass, 82.86% and 77.59% on QOL, 85.71% and 75.86% on body weight and 76.19% and 79.31% on CEA. The integral efficacy of total beneficial rate was 73.33% and 68.97%; and the 3-year survival rate 49.52% and 46.65% in Group A and Group B. These data showed that the effect in Group A was better than in Group B in terms of clinical symptom improvement, QOL, body weight and integral beneficence increase and survival rate, though it was inferior in reducing the tumor mass and CEA level. CONCLUSION: Chinese drug ZW3 for the treatment of colonic cancer could improve the main clinical symptoms, improve the QOL, increase body weight and prolong the survival time of patients, showing a favorable integral effect.

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