Nutrient Chemo Prevent to Enhance Cancer Prevention: A Review

Nabeel Khater, B.Sc. RN *

Jordan University Hospital

Master's Student of Oncology Nursing, The Hashemite University, Faculty of Nursing

P.O. Box 150459, Zarqa 13115, Jordan

Email address; Nabeel_khater@yahoo.com

Nijmeh M. AL- Atiyyat, RN, M.Sc., Ph.D.

The Hashemite University, Faculty of Nursing, P.O. Box 150459, Zarqa 13115, Jordan

E mail aw9594@hotmail.com

Abstract

Introduction: Nutrients Chemoprevention is dietary compounds to reduce the incidence of cancer, and the dietary compounds could be fibers, nutrients, or vitamins.**Purpose:** the aim of this integrative literature review to determine effect of nutrients chemo-prevents to reduce risk of cancer.**Design:** integrative literature review.**Method:** the electronic databases of CINAHL with full text MEDLINE with full text for article published between 2009 and 2014.**Finding:** most of nutrients chemo prevents reduce risk some type of cancer. **Conclusion:** review the nutrients chemo prevents enhance cancer prevention and reduce risk of cancer, so all of country's must be educate the people about the important the nutrition to prevent cancer and enhance health care provider to apply this finding when they make education for the patient or clients, and this topic need more study to become evidence based practice**.**

Keywords: Chemo Prevent, Cancer Prevention, Dietary Intake.

1. Background

Diet contains more than thousands of chemical nutrients and non nutrients. Nutrient can be dividing to macronutrient (Protein, Fat, and Carbohydrates) and micronutrients (Vitamins, minerals, and Trace elements). All nutrients are necessary to support the life and build the body and decrease the toxicity. Non nutrient dietary constituents can be dividing to natural or synthetic; synthetic in the diet is contaminates or food additive, and natural occurring non nutrients can comprise compounds with mere adverse potential (natural toxicants) and compounds with beneficial potential (dietary chemoprevention).

Nutrients Chemoprevention is dietary compounds to reduce the incidence of cancer, and the dietary compounds could be fibers, nutrients, or vitamins. (Oxford Hand Book of Oncology, Jim Cassidy, Donald Bissett, Roy AJ Spence OBE).

1.2 Introduction

Cancer is the second cause of the death in the world after heart disease and results from a combination of genetic, epigenetic, and environmental factors(Lamprecht, 2003).

According to Globocan 2012, an estimated 14.1 million new cancer cases and 8.2million cancer-related deaths occurred in 2012, compared with 12.million and 7.6 million, respectively in 2008. Prevalence estimates for 2012 show that there were 32.6 million people (over the age of 15 years) alive who had had a cancer diagnosed in the previous five years (W H O, 12 December 2013).

Diet is widely believed to reduce some type of cancer, and some biological mechanisms give a theoretical relationship between micronutrients and reduce risk of cancer. Numerous dietary nutrients, such as vitamin C, vitamin E, carotenoids, and selenium have antioxidant properties (Borek, 2004). Another property for these nutrients is inhibiting tumor development by stimulating the immune system (Herszenyi, 2008). Most of country failed to educate peoples to enhance cancer prevention by using nutrients chemo-prevent and that related to little of studies give accurate results for nutrients chemo-prevent to enhance cancer prevention, so the purpose of this integrative literature review to determine the effect of nutrients chemo-prevents to reduce risk of cancer.

1.3 Theoretical farm work: in this integrative literature review apply Nola Pender Conceptual Model for Preventative Health Behavior.

2 Method

To critically examine body of knowledge related to nutrients chemo-prevent to enhance cancer prevention, integrative literature review was conducted using the electronic databases of CINAHL with full text MEDLINE

with full text for article published between 2009 and 2014 (Three old information take in this review, 2003, 2004, and 2008).

The following key words were use to search the electronic databases: nutrients chemo prevents, nutrition, cancer prevention. The key words were used in multiple combinations to conduct an extensive search of these databases. Computerized listings from CINAHL and MEDLINE contained 40 and 25 research articles. All were obtained and reviewed for possible inclusion in this review based on specific inclusion criteria established.

Article inclusion criteria for research review were the following:
1- It is research with full text.
2-It is update for 5 years (2009-2014).
3-It is has abstract.
4-It is written in the English language.

Based on the inclusion criteria, a total of 8 articles published from 2009 to 2014 were selected and formed the basis of this review. Three articles published in 2009, and two articles published in 2010, and three articles published in2012. All articles published in non- nursing journals. Study included on this review focused on nutrients chemo-prevent to enhance cancer prevention. Countries within which the studies for this review were conducted include the United State, Italy, North Carolina, Mexico, and Fukuoka.

2.1 Methodological Characteristics
All 8 studies composing this integrative literature review were quantitative studies. Six studies were case control study, one study was prospective flow up study, and the last one was survey. Although 8 studies were included in this review, a wide variety of instrument was used to measure concepts related to type and amount food intake and another concepts related to cancer type. The most common questionnaire used in this review collected information to measure the type of food include vitamins, fiber, selenium, float, B-carotene and other question according the type of cancer such as if the participant has history of cancer, make screening, exams , and make lab tests. All of studies didn't base on theoretic formwork.

2.2 Sample Characteristics
Sample size in the 8 studies was on range 284 to121, 700 clients and the range of age was 17 to 79 years men and women, percentage men and women according type of cancer (Prostate Cancer 100% male, Breast Cancer 100%) and another 5 studies the percentage men and women the population was around(60%) women.

3 Finding
All of the studies that used in this integrative literature review gave positive outcome. The purpose of (John et al., 2009) study was identify the nutritional factors that contribute to Prostate Cancer by comparing dietary intake of healthy controls and recently diagnosed cases and dietary intake pattern between African Americans and Caucasians, the sample size 860 participants, 747 from participants were Caucasians and 113 participants were African Americans. Control made by making routine screening with normal PCA or digital rectal examination, and African Americans control overlapping to increase statistical power. John selected Case Control Study Design and he used self administered questioner to collect demographic data and he used 100-item Block Food Frequency Questioner to evaluate food intake, and he used ANOVA and Chi-square in his study. The result of John study was 1- Caucasians surviving intake to vegetables, fruits, and juice fruits more than African Americans. 2- The incidence case in both group reported low take the vitamins A, C, fiber, a-carotene, b-carotene, and float. So the significant trends to reduce Prostate Cancer is higher in peoples how are take the vitamins A, C, fiber, a-carotene, b-carotene, and float than peoples how take protein and carbohydrate.

The purpose of (Ettore et al., 2009) study was to investigate the role dietary vitamins E and C in the etiology of the Prostate Cancer, the sample size was 1294 men, and the range of age was 46 to74 years with incidence and histological confirmed Prostate Cancer. The control was 1451 men range of age is 46 to 74 years and in the same geographical area and admitted to hospital to another case of disease not malignant or neoplasm, the two groups were used the same questioners; the first questioners have demographic data such as (age, gender) and the second is FFQ usual diet the two years before the diagnosis. The FFQ include 78 food, food group or recipes divided in to seven section, at the end of each section one or two open question were used to report the food not include the questioner and eat at least one in week . Ettore used Case Control Design in his study, and used unconditional multiple logistic regression to estimate Odd Ratio and confidence interval. The result of Ettere was an inverse association dietary intake of Vitamin E and C and Prostate Cancer incidence, however when the increase the dietary Vitamin E and C intake decrease the incidence Prostate Cancer.

The purpose of (Marcia et al., 2009) study was to evaluate dietary intake of nutrients involved in one carbon metabolism and genotype of MTHFR677TT with respect Gastric Cancer, the sample size was 248

patients newly diagnosed and histological confirmed adenocarcinoma in the stomach, the age is more than 20 years, and at least 3years in Mexico, the control group was any healthy people and same age in Mexico, and they was selected randomly by using simple random sample, the participants were makes interview to take the demographical data, and FFQ questioner used to collect the dietary intake foliate , B12, B6, Choline, Methinonin, and another test and procedure. Marcia was used Case Control Study in this study, and he/she used T-test, Logistic Regression to estimate Odd ratio. The result of Marcia study was significant reduction in defuses Gastric Cancer risk among individual with high consumption of Foliate, B6, B12, choline.

The purpose of (Christina et al., 2010) was to investigate the relationship between antioxidant nutrients and DNA methylation-related nutrients and Distal Colorectal Cancer risk in Whites and African Americans. The sample size was 945 patients, the rang of age was 40 to 79 years how didn't have previous diagnosed Colon or Rectal Cancer, the interview selected to get the demographical data, the randomized selected to control, the age under 65years is control, she used probability for race and sex and age group. Data collection in this study don as questioners, the nurse treaded to how take the demographical information, the dietary information was taken during the interview by using 124 items Diet History Questioner. She used Chi square, Wilcoxon rank-sum, Multivariate Logistic Regression used to estimate Odd Ratio and Confidence Interval.

The result of (Christina) study was 1- in Whites; highly intake the antioxidant and DNA methylation decrease the risk of Distal Colorectal Cancer. 2-In African Americans; highest category of selenium from food only had a marginally significant inverse association with Distal Colorectal Cancer risk and Supplements did not provide additional risk reduction.

The purpose of (Kazuhiro et al., 2010) study was investigate associations of dietary fiber to colorectal cancer risk in Fukuoka. The sample size after exclusion criteria 833 participants, the rang of age 20 to74 years and they lived around study area and hadn't have any colorectal disease, the random selection used in the sample. Data collection in this study don as questioners, the nurse treaded to how take the demographical information and activity and life style the dietary information was taken during interview by using the computer system.

Kazuhiro Uchida was used the Control Case Study, and Logistic Regression to estimate the Odd Ratio and confidence interval, and the result of his study was decrease risk of colorectal cancer associate with rice computation.

The purpose of (Qian et al., 2012) study was evaluate the hypothesis that relation of breast cancer associated with dietary fiber intakes varies by type of fiber, menopausal, and the tumor's hormone receptors, the sample was 553 after executed criteria, the rang of age was 30 to79 years and they hadn't previous diagnoses Breast Cancer, the random selection applied on the sample. The data collected by the interview on the phone or by physicians and this data was demographic and life style data, and for the dietary information taken according FFQ questioners. She was used Control Case Study in her study, she was used unconditional logistic regression to estimate Odd Ratio and Confidence interval, the result was higher intake soluble fiber among pre menopausal women reduced risk of Breast Cancer.

The purpose of (Ting et al., 2012) study was investigate vitamin D associate with lung cancer, the sample size was 16693, and the study design was survey and the result show the vitamin D decrease the risk of lung cancer associate with vitamin A, C, B-clorhn.

The purpose of (Eunyoung et al., 2012) study was examine the effect of the vitamin B6, B12, Foliate, and another nutrients on reduced renal caner, the sample size was 121,700 nurse women and 51,529 nurse men ,and the rang of age was 30 to 55years for women and 45 to 70 years man. The study design was Prospective Flow up Study, and the Eunyoung was used Relative Riske statistical analyses, the result was little of evidence the higher intake that nutrients decrease risk of renal cancer.

3.1 Conclusion
According to this literature review the nutrients chemo prevents enhance cancer prevention and reduce risk of cancer, so all of country's must be educate the people about the important the nutrition to prevent cancer and enhance health care provider to apply this finding when they make education for the patient or clients , and this topic need more study to become evidence based practice, however some of limitation for this integrative literature review we couldn't generalize this finding on all of cancer type.

References
– Banqué, M., Raidó, B., Masuet, C., & Ramon, J. M. (2012). Food groups and nutrient intake and risk of colorectal cancer: a hospital-based case-control study in Spain. *Nutrition and cancer*, *64*(3), 386-392.
– Banqué, M., Raidó, B., Masuet, C., & Ramon, J. M. (2012). Food groups and nutrient intake and risk of colorectal cancer: a hospital-based case-control study in Spain. *Nutrition and cancer*, *64*(3), 386-392.
– Borek, C, 2004.

– Cheng, T. Y. D., & Neuhouser, M. L. (2012). Serum 25-hydroxyvitamin D, vitamin A, and lung cancer mortality in the US population: a potential nutrient–nutrient interaction. *Cancer Causes & Control*, *23*(9), 1557-1565.

– Cho, E., Giovannucci, E. L., & Joh, H. K. (2013). Nutrients related to one-carbon metabolism and risk of renal cell cancer. *Cancer Causes & Control*,*24*(2), 373-382.

– Dunn, B. K., Richmond, E. S., Minasian, L. M., Ryan, A. M., & Ford, L. G. (2010). A nutrient approach to prostate cancer prevention: The Selenium and Vitamin E Cancer Prevention Trial (SELECT). *Nutrition and cancer*, *62*(7), 896-918.

– Galván-Portillo, M. V., Cantoral, A., Oñate-Ocaña, L. F., Chen, J., Herrera-Goepfert, R., Torres-Sanchez, L. ... & López-Carrillo, L. (2009). Gastric cancer in relation to the intake of nutrients involved in one-carbon metabolism among MTHFR 677 TT carriers. *European journal of nutrition*, *48*(5), 269-276.

– Herszenyi, L, 2008.

– Hu, J., Vecchia, C. L., Gibbons, L., Negri, E., Mery, L., & Canadian Cancer Registries Epidemiology Research Group. (2010). Nutrients and risk of prostate cancer. *Nutrition and cancer*, *62*(6), 710-718.

– Lamprecht, 2003.

– Lewis, J. E., Soler-Vilá, H., Clark, P. E., Kresty, L. A., Allen, G. O., & Hu, J. J. (2009). Intake of plant foods and associated nutrients in prostate cancer risk.*Nutrition and cancer*, *61*(2), 216-224.

– Li, Q., Holford, T. R., Zhang, Y., Boyle, P., Mayne, S. T., Dai, M., & Zheng, T. (2013). Dietary   fiber intake and risk of breast cancer by menopausal and estrogen receptor status. *European journal of nutrition*, *52*(1), 217-223.

– Oxford Hand Book of Oncology, Jim Cassidy, Donald Bissett, Roy AJ Spence OBE).

– Park, S. Y., Ollberding, N. J., Woolcott, C. G., Wilkens, L. R., Henderson, B. E., & Kolonel, L. N. (2013). Fruit and vegetable intakes are associated with lower risk of bladder cancer among women in the Multiethnic Cohort Study. *The Journal of nutrition*, *143*(8), 1283-1292.

– Williams, C. D., Satia, J. A., Adair, L. S., Stevens, J., Galanko, J., Keku, T. O., & Sandler, R. S. (2010). Antioxidant and DNA methylation-related nutrients and risk of distal colorectal cancer. *Cancer causes & control*, *21*(8), 1171-1181.

– Li, Q., Holford, T. R., Zhang, Y., Boyle, P., Mayne, S. T., Dai, M., & Zheng, T. (2013). Dietary fiber intake and risk of breast cancer by menopausal and estrogen receptor status. *European journal of nutrition*, *52*(1), 217-223.

– Banqué, M., Raidó, B., Masuet, C., & Ramon, J. M. (2012). Food groups and nutrient intake and risk of colorectal cancer: a hospital-based case-control study in Spain. *Nutrition and cancer*, *64*(3), 386-392.

– Cheng, T. Y. D., & Neuhouser, M. L. (2012). Serum 25-hydroxyvitamin D, vitamin A, and lung cancer mortality in the US population: a potential nutrient–nutrient interaction. *Cancer Causes & Control*, *23*(9), 1557-1565.

The IISTE is a pioneer in the Open-Access hosting service and academic event management. The aim of the firm is Accelerating Global Knowledge Sharing.

More information about the firm can be found on the homepage:
http://www.iiste.org

CALL FOR JOURNAL PAPERS

There are more than 30 peer-reviewed academic journals hosted under the hosting platform.

Prospective authors of journals can find the submission instruction on the following page: http://www.iiste.org/journals/ All the journals articles are available online to the readers all over the world without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. Paper version of the journals is also available upon request of readers and authors.

MORE RESOURCES

Book publication information: http://www.iiste.org/book/

Academic conference: http://www.iiste.org/conference/upcoming-conferences-call-for-paper/

IISTE Knowledge Sharing Partners

EBSCO, Index Copernicus, Ulrich's Periodicals Directory, JournalTOCS, PKP Open Archives Harvester, Bielefeld Academic Search Engine, Elektronische Zeitschriftenbibliothek EZB, Open J-Gate, OCLC WorldCat, Universe Digtial Library , NewJour, Google Scholar