

로 조사되어(위암 32.1%, 대장암 29.1%, 유방암 14.1%, 자궁암 10.8%), 엄밀한 의미의 조기 검진으로 보기 어려웠다. 암 검진을 받지 않은 주된 이유는 60%이상에서 '증상이 없어서'라고 응답하고 있어 암 검진의 기본 의미에 대한 이해가 부족하였다. 한편 미수검 이유는 고령으로 갈수록 경제적 부담이 차지하는 비중이 높아졌다. 결론: 본 조사에서 분석된 암종별 검진 수검률은 선행 연구에 비해 전반적으로 높은 경향을 나타내고 있다. 본 조사를 통해 보다 적극적인 국가 차원의 암 검진 홍보의 필요성을 확인할 수 있었다. 향후 암 검진 수검률의 지속적인 모니터링을 통해 국가 암조기검진사업의 효과에 대한 적절한 평가가 요구된다.

KSPM-178

질산염과 항산화비타민 섭취가 위암 발생에 미치는 영향: 환자-대조군 연구

The effect of nitrate and antioxidant vitamins intake on gastric cancer : a case-control study

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Study objectives: Metabolites of nitrate, not nitrate per se, are known carcinogens. Nitrate involves in the formation of the carcinogenic N-nitroso compounds by reacting with secondary amines or amides, after reducing into nitrite. On the contrary, it has been suggested that dietary antioxidant vitamins(vitamin C, vitamin E, and carotenoids) protect against gastric cancer(GC) by inhibiting the intragastric formation of N-nitroso compounds. Therefore, we assessed the joint effect of nitrate and antioxidant vitamins from foods on gastric cancer through a case-control study in Korea.

Subjects and Methods: Trained dietitians interviewed 136 cases histologically diagnosed with GC and the same number of sex and age-matched controls by using quantitative food frequency questionnaire. Nitrate/nitrite values used in this study were taken from data analyzed by Kim and Yoon(2003) in Korea. And, the presence of H. pylori infection was determined by enzyme immunoassay serology test.

Results: The males of the subjects were 68.4% and mean age of the subjects was 57.13.9 years. A high intake of nitrate per se was not a risk factor of GC (OR=0.76, 95% CI=0.38-1.55). This result can be explained by the fact that the major food sources of nitrate were vegetables, especially Baiechu kimchi, which also have a high concentration of antioxidant vitamins and has been considered as an anticarcinogenic factor. After adjusting the intake of Baiechu kimchi and antioxidant vitamins, high intake of nitrate showed the increased tendency on the GC risk (OR=2.0, 95% CI=0.71-5.64). In the analysis for assessing the joint effects of nitrate and antioxidants intake, a significant decrease of GC risk was observed in the combination of low nitrate and high β -carotene(OR=0.12, 95% CI=0.03-0.60), compared with persons with high nitrate and low β -carotene intake. The test for an interaction between nitrate and anti-

oxidant vitamin was not significant.

Conclusion: High intake of antioxidant vitamins may contribute to the lessening of GC risk by counteracting the effect of nitrate. Therefore, the affluent intake of various foods, especially fresh vegetables and fruits containing a high level of antioxidants and other beneficial ingredients, is a key to prevent the incidence of GC.

KSPM-201

Intake of Milk and Calcium and The Risk of Breast Cancer In Korea

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목적: The role of milk in developing breast cancer is controversial. Several recent studies suggest an inverse association between milk and calcium intake and the risk of breast cancer. The data are still sparse to make any conclusion. We conducted a hospital based case-control study during 1998-2004 to investigate the association between the intake of milk and calcium and the risk of breast cancer in Korean women.

방법: Cases were newly diagnosed and pathologically confirmed, and the controls were non-cancer patients recruited from 7 clinical departments in the same hospital. The age range was between 30 and 70 years old. Participants were interviewed for dietary intake using 94 item food-frequency questionnaire. Total calorie and nutrient calculation was based on the Korean food composition table. Energy adjusted nutrient intakes were calculated using the residual method. We excluded those who reported total calories >3500 kcal/day or <500 kcal/day. A total of 1,371 breast cancer cases and 927 controls were included in the analysis. Age-adjusted (aOR) and multivariate odds ratios (mOR) and 95% confidence intervals (CI) were estimated by unconditional logistic regression.

결과: The mean intake of total milk among controls was 99.4g/day. Compared to those who didn't drink milk, those who drank milk>1/day had lower odds of having breast cancer (aOR = 0.76, 95%CI=0.61-0.94). This negative association sustained after adjusting for age, height, body mass index, age at menarche, history of benign breast cancer, family history of breast cancer, duration of education, smoking, alcohol intake, number of full term pregnancy, menopausal status, postmenopausal hormone use, and calorie intake(mOR = 0.72, 95%CI=0.57-0.90, p-trend=0.009). When we stratified the data by menopausal status, the negative association sustained in premenopausal women (922 cases, mOR=0.73, 95%CI=0.55-0.96, p-trend=0.02), but attenuated in postmenopausal women (378 cases, mOR=0.76, 95%CI=0.49-1.17, p-trend=0.33). For calcium intake, compared to those who took <=400mg/day, those who took >800mg/day had lower odds of having breast cancer (mOR=0.67, 95%CI=0.48-0.93).

고찰: Higher intake of total milk and calcium may have negative association with the risk of breast cancer in Korea. The association for total milk

was stronger in premenopausal women and could be accounted for by calcium intake. Further study which takes into account for other sources of calcium for Korean women such as Kimchi or calcium supplement should be followed.

KSPM-202

Serum Insulin-like Growth Factor(IGF)-I, Binding Protein(BP)-3 and the risk of breast cancer by menopausal status and age in Korea

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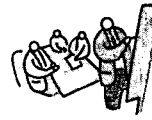
목적: Insulin-like Growth Factor(IGF)-I and its main binding protein, IGFBP-3, have been suggested to be associated with breast cancer risk, especially among premenopausal women. Epidemiological studies, including meta-analyses, show conflicting results. We examined the association between IGF-I, IGFBP-3, and the risk of breast cancer among Korean women, considering possible modifications by menopausal status and age.

방법: We conducted a hospital-based case control study on breast cancer between 1998 and 2004 in Seoul. We were able to receive informed consents for drawing blood from part of the participants. The age range was between 30 and 70. We interviewed participants regarding the known risk factors for breast cancer. Serum IGF-I and IGFBP-3 concentrations were measured by ELISA test (Diagnostic Systems Laboratories, TX). Two hundred sixty eight cases and 291 controls were included in the analysis. Age-adjusted (aOR) and multivariate odds ratios (mOR) and 95% confidence intervals (CI) were estimated by unconditional logistic regression. IGF-I and IGFBP-3 were adjusted simultaneously.

결과: Three hundred and ninety were premenopausal, 144 were postmenopausal, and 25 were in unknown menopausal status. Serum IGF-I level was positively associated with premenopausal breast cancer risk, but not with postmenopausal breast cancer risk. In premenopausal women, compared to the women in the first quintile(q1; <96.12ng/ml) group of serum IGF-I level, women in the fifth quintile(q5; >196.5ng/ml) group had mOR of 2.60 (95% CI = 1.06-6.36, P_{trend} = 0.02). Serum IGFBP-3 increased the risk of postmenopausal breast cancer, but the trend was not significant (q5 vs. q1, mOR = 6.88, 95% CI = 1.60-29.6, P_{trend} = 0.10). IGF-I/IGFBP-3 ratio was weakly associated with premenopausal breast cancer risk (q5 vs. q1, mOR = 1.76, 95% CI = 0.88-4.04, P_{trend} = 0.03). The mean IGF-I level decreased with age in control group but not much in breast cancer group. Thus, the association between IGF-I and breast cancer risk was most pronounced in older (age ≥ 50) premenopausal women (P_{trend} = 0.006).

고찰: Serum IGF-I level was positively associated with premenopausal breast cancer risk in Korean women. Longitudinal observations on IGF-I level are needed to determine whether women whose IGF-I level does not decrease much with age are in higher risk of developing premenopausal

breast cancer.



역학 2. 감염병

KSPM-64

2004년 영천시에서 발생한 살모넬라증 역학조사

Epidemiological Investigation on an Outbreak of Salmonellosis in Yeongcheon-si, 2004

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목적: 2004년 9월 6일 경상북도 영천시 D초등학교의 교직원과 학생들에게 집단 식중독이 발생하였다. 이에 식중독의 원인을 밝혀 예방대책을 수립하고자 역학조사를 실시하였다.

방법: D초등학교에는 학생 1,167명, 교직원 50명 및 급식종사자 14명으로 총 1,230명이 재학 또는 근무하고 있었는데 이 중 설문조사 가능하였던 1,205명(97.9%)을 조사대상으로 하였다. 설문 내용에는 급식된 음식의 섭취유무, 식수섭취유무, 증상유무 등을 포함하였다. 임상검사로 설사, 복통 등의 증상을 호소한 385명의 교직원 및 학생에 대하여 직장도말검사를 실시하였다. 9월 3일 급식 보존식 7건, 급식소와 화장실 등의 수돗물 4건, 급식용 물품 9건을 수거하여 미생물 배양검사를 실시하였다. 비색기를 통한 수돗물 잔류염소 검사를 실시하였고, 교내 상수 배관도를 파악하여 배관 공사기록 및 누수여부를 조사하였다. 환례는 2004년 9월 2일 오후 설사를 1회 이상 경험하고 복통, 발열, 구토, 구역질, 두통 중에서 1개 이상의 증상이 있는 경우를 설사증 환자로 정의하였다. 확진자는 모두 설사증 환자에 포함하였다. 발생원인 음식으로 추정되는 두부계란전의 조리과정을 재연하였다.

결과: 조사대상자 1,205명 중 설사증 환자는 338명(28.1%)이었고, 직장도말검사에서 *Salmonella enteritidis*가 배양된 확진자는 197명(16.3%)이었다. 급식 보존식에서는 9월 3일 두부계란전에서 *S. enteritidis*가 배양되었고, 나머지 급식 음식과 급식용 물품에서는 배양되지 않았다. 9월 6일 채취한 급식소의 전처리실, 급식실 옆 화장실 수돗물, 9월 10일 채취한 급식실 옆 화장실 수돗물에서 일반세균이 기준치 이상으로 검출되었다. 급식실, 화장실 및 운동장 급수대 등의 수돗물에서는 염소가 검출되지 않았다. 상수 배관검사에서 급식실과 급식소 옆 화장실에 수돗물을 공급하는 상수도관은 오수에 잠겨있었다. 교내에서는 8월 한 달간 상수를 거의 사용하지 않았고 8월 중순까지 화장실 배관공사 관계로 상수밸브를 닫아두었다. 두부계란전을 섭취한 사람 중 발생자가 323명(30.6%), 섭취하지 않은 사람 중 발생자가 4명(3.8%)으로 비교위험도는 8.1(95% 신뢰구간: 3.1-21.3)이었다. 두부는 급기 전에 수돗물에 20분간 담가 두는데 잉크를 풀은 수돗물에 담가 놓을 때 잉크가 두부 속까지 침투하는 것을 확인하였다.

결론: 상수 배관에서 직접적인 누수가 있는 곳은 찾지는 못하였으나 잔류 염소가 없는 상태에서 상수도관이 오수에 잠겨 있는 것을