Cancer and How the Community Responses to Nutrition Factors in Developing Country Nepal

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Objective: The prevalence rate of cancer in Nepal is high. Due to poverty and illiteracy, most of the patient come to the hospital in later stage. Smoking and indoor pollution is major problem in urban and rural communities. This study was to find out the epidemiology and prevalence of lung cancer in community. Methods: A case-control study involving interviews and clinical reports with 764 patients with lung cancer and 795 population-based controls was conducted in different part of Nepal, where mortality rates are high among men and women.

Results: Cigarette smoking was found to be the principal cause of lung cancer in this population, accounting for 55% of the lung cancers in males and 37% in females. The attributable risk percentage among females is high compared to elsewhere in Nepal, largely because of a higher prevalence of smoking with local made alcohol among women and poor nutrition diet. After adjustment for smoking, there were also significant increases in lung-cancer risk associated with several measures of exposure to air pollutants. Risks were twice as high among those who reported smoked outdoor environments, and increased in proportion to years of sleeping on beds heated by coal-burning stoves (chulo), and to an overall index of indoor air pollution. Threefold increase in lung cancer risk was found among men industrial occupation. The associations with both smoking and indoor air-pollution were stronger for squamous cell and small cell carcinomas than for adenocarcinoma of the lung. The patient intakes mostly smoked food and having poor vegetables and fruits regularly.

Genetic polymorphisms of metabolizing enzymes involved in detoxification of tobacco carcinogens and matrix metalloproteinase-1 in relation to lung cancer in Northern Thailand

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Background: Lung cancer is a major cause of cancer-related death in developed countries and the incidence of this type of cancer is increasing in developing countries. In Thailand, cancer incidences greatly differ from region to region, and in the Northern region lung cancer is the most frequent. Although the geographical variability in cancer patterns reflects exposure of the population to different environmental risk factors unique to the different regions, a possible role of genetic polymorphism as an individual risk modifier for lung cancer has been addressed. In this study the polymorphisms of the well-investigated genetic susceptibility genes, including cytochrome P450 (CYP1A1MspI, CYP2E1DraI, CYP2E1PstI), glutathione S-transferase (GSTM1, GSTT1) myeloperoxidase (MPO) and matrix metalloproteinase-1 (MMP-1) in relation to lung cancer in the Northern Thai population was investigated.

Methods: In 62 cases (39 males, 23 females) and 75 controls (31 males, 44 females) polymorphisms were examined by multiplex-PCR for GSTM1 and GSTT1, and by PCR-RFLP for CYP1A1MspI, CYP2E1DraI, CYP2E1PstI, MPO(-463G/A) and MMP-1(-1607G/2G). Mean (SD) age was 59.2 (9.91) and 56.4 (13.7) years in the cases and controls, respectively.

Results: The observed allele frequencies of all of the genes studied were within the range previously described for the Asian population. The overall analysis showed that polymorphisms of all the genes studied were not significantly associated with an increase risk of lung cancer. The risk of lung cancer was further examined by stratification with smoking status and the odds ratios were calculated by logistic regression with wild-type genotype as the reference group for non-smokers and adjusted for age and gender. Among non-smokers, GSTM1 null genotype significantly increased the risk of lung cancer among non-smokers (OR=15.6, 95%-CI: 1.61-142.8). None of the other polymorphisms showed any significant impact on lung cancer risk. Among smokers, odds ratio in smokers with GSTM1 null genotype (OR=52.5, 95%-CI: 5.13-537.8) was higher than those carrying GSTM1 positive genotype (OR=41.4, 95%-CI: 4.59-376.1). Although variant alleles of MPO and MMP-1 did not show any impact on lung cancer risk in non-smokers, it was found that odds ratio in smokers with MPO homozygous variants (A/A) or heterozygous variants (A/G) (OR=12.46, 95%-CI: 3.02-51.32) and smokers with MMP homoyzous variants (2G/2G) (OR=7.49, 95%-CI: 2.20-25.42) was significantly elevated compared to smokers who carried wild-type genotype of both genes, respectively (OR=6.60, 95%-CI: 2.41-18.07 and OR=2.98, 95%-CI: 0.60-14.67). This induction of OR may indicate a joint effect of the interaction between tobacco smoking and the MPO and MMP-1 polymorphism.

Conclusion: Our preliminary results indicate that polymorphisms of the GSTM1, MPO or MMP-1 have a modifying effect on smoking and lung cancer risk in the Northern Thai population; however, a larger sample population is necessary to confirm our findings.

A retrospective study of patients with advanced non-small cell lung cancer and malignant pleural effusion.

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Background: Prior studies of patients with non-small cell lung cancer (NSCLC) have shown that those diagnosed with stage IIIIB with pleural effusion (PE) have a worse prognosis than those without PE. We plan to further analyze the characteristics of 4 subgroups of patients with advanced stage non-small cell lung cancer.

Method: Data was collected retrospectively from medical records of patients identified through the cancer registry. All patients identified had a diagnosis of NSCLC stage IIIIB and IV, and were seen at University of California, San Francisco, between years 2000-2004. Statistical studies were done to find associations between baseline characteristics and survival. Survival analysis was calculated by Kaplan Meier method. Cox proportional hazards regression model was used to confirm the significance of each prognostic factor selected by univariate analysis. The Institutional Review Board approved this study.