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LIFESTYLE AND GENETIC RISK FACTORS FOR PROGRESSION OF HEPATITIS C. *S.H. Olson, N. Lau, S. Iyer, D. Egan, I. Orlow, J. Cowan, T. Markovits, and R.C. Kurtz (Memorial Sloan-Kettering Cancer Center, North General Hospital, New York, NY)

We are studying risk factors for progression of hepatitis C infection and hepatocellular carcinoma (HCC) in a hospital-based study in New York City. Our interviewers approach people at clinics, obtain informed consent, administer a questionnaire, and collect mouthwash specimens to obtain DNA. This analysis reports on 116 patients for whom data on stage based on liver biopsy were available, and includes 24 with HCC. We estimated route of infection, age at infection, and length of time infected based on the questionnaire. We studied the association of these variables, as well as age, gender, race, and GSTM1 genotype (null or present) with stage of disease, dichotomized as early (stage 0, I, II, $n = 58$) or late (stage III, IV or HCC, $n = 58$). Unadjusted odds ratios (ORs) were 6.3 for age ≥ 60 ; 2.6 for infected ≥ 35 years; 2.6 if infected in ones 20s vs earlier; and 2.6 if infected by IVDU compared to transfusion or other routes. Older age remained a significant risk factor in all multivariate analyses and was a stronger factor than number of years infected or age at infection. Adjustment for age increased the strength of the association for IVDU (OR = 5.0). Gender and race were not significantly associated with stage. With stratification by age, however, male gender increased risk among younger patients (OR = 5.3), but not among older patients (OR = 1.2). In addition, risk associated with IVDU was higher among younger patients (OR = 7.6) than among older patients (OR = 1.9). Patients who had the null genotype of GSTM1 were at higher risk, with an odds ratio of 2.4 ($p = .04$) after controlling for race.

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Reduced Cabbage/Sauerkraut is Associated with Increased Breast Cancer Risk in Polish Migrant Women; Initial Results from the Polish Women's Health Study. *DR Pathak, AD Stein, J Chazewska, JP He, L Scott, and MM Noel, (Michigan State University, E. Lansing, MI 48823)

Polish migrant women to the US experience a tripling in breast cancer (BC) mortality, reaching in their lifetime the high rates observed for US-born women. We hypothesized that reduced consumption of cabbage/sauerkraut contributes to this increase. The Polish Women's Health Study (PWHS) is an ongoing case-control study of BC in Poland and Polish-born immigrants to the US**. We ascertained food consumption during 1985–1989, a period immediately prior to introduction of the market economy in Poland, using a food frequency questionnaire. Polish migrant women in the US are also asked about their usual diet during 1985–1989. We assessed consumption of six cabbage foods: 1) raw sauerkraut salads during fall, winter and early spring (F,W,ES), 2) sauerkraut and meat stew (F,W, ES), 3) boiled sauerkraut (F,W,ES), 4) sauerkraut in any form mentioned above eaten in late spring or summer, 5) raw cabbage salads, and 6) boiled or steamed fresh cabbage. Mean total cabbage/sauerkraut consumption among 277 controls was 2.5 servings/week (SD = 1.8) and 2.0 servings/week (SD = 1.4) among 131 cases. Using logistic regression with adjustment for age, duration of residence in US and ever-parous status, we observed a significant reduction in breast cancer risk, OR = 0.87 (95% CI = 0.76, 1.00) per serving/week. These preliminary findings suggest that lower cabbage/sauerkraut consumption could be a contributor to increased breast cancer risk. **CA69670

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ASSOCIATION BETWEEN BETA-CAROTENE INTAKE AND RISK OF CANCER AT SEVERAL SITES. *M-E. Parent, J. Siemiatycki and M. Desy (INRS-Institut Armand-Frappier, Laval, Quebec, Canada, H7V 1B7).

Beta-carotene intake appears to be protective against certain epithelial cancers but its role in many other cancers remains to be clarified. A population-based case-control study was undertaken in Montreal in the 1980s to investigate the associations between a large number of occupational and lifestyle factors, and cancer at several sites. Interviews were carried out with incident male cases of cancer of the esophagus ($n = 91$), stomach ($n = 228$), colon ($n = 439$), rectum ($n = 236$), liver ($n = 34$), pancreas ($n = 94$), lung ($n = 761$), prostate ($n = 400$), bladder ($n = 439$), kidney ($n = 158$), melanoma ($n = 94$), non-Hodgkin's lymphoma ($n = 197$), Hodgkin's lymphoma ($n = 46$), and 512 population controls. The questionnaire elicited the frequency of use of nine beta-carotene containing foods or food groups. The estimated beta-carotene content of these food items was used to derive an overall beta-carotene index. Logistic regression analyses were conducted to assess the odds ratio (OR) and associated 95% confidence interval (95%CI) for each cancer site in relation to the beta-carotene index, while adjusting for potential non-occupational and occupational confounders specific to each cancer site. Men allocated to the upper tertile of the beta-carotene index had reduced risks of squamous-cell esophageal cancer (OR = 0.4, 95% CI = 0.1, 1.1) and lung cancer (OR = 0.7, 95%CI = 0.5, 1.1). Trends of lowered risk were noted for cancers of the stomach (OR = 0.8), liver (OR = 0.6), pancreas (OR = 0.7), and melanoma (OR = 0.7). A high beta-carotene index did not reduce the risk of cancers of the bladder, gallbladder, rectum, kidney, prostate, colon, and Hodgkin's and non-Hodgkin's lymphomas.

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Smokeless tobacco and oral cancer, the curious history of a "fact". *CV Phillips (University of Texas, Houston, TX, 77225.)

Most public health experts, clinicians, and lay people "know" that use of smokeless tobacco (such as snuff dipping) causes oral cancer. This strong belief, widespread among experts and non-experts, is curious, given that the evidence for this relationship is, at most, limited and highly equivocal. The claim is largely based on a single study conducted in the 1970s on a population with an unusual exposure pattern. Even ignoring evidence from the last five years that tends to support the claim of no effect of smokeless tobacco on oral cancer (or, more precisely, either no effect or an effect too small to detect statistically), it is interesting that a single study could lead to such widespread conviction. The conviction seems to have resulted from a large network of organizations, publications, and experts – particularly a 1986 U.S. Surgeon General's report and 1985 IARC monograph – citing one another to the point that the claim seems widely supported and overwhelming. This analysis takes a history of science and policy perspective to trace back the history of the claims, and finds that they are all anchored on the single study. Widespread belief that a causal relation is "proven" (or strongly supported) affects policies and health education messages, making the ethical implications of perpetuating such beliefs substantial. In this case, these implications include discouraging exploration of the harm reduction potential of smokeless tobacco as an alternative to cigarettes. Smokeless tobacco is not the only case of epidemiologic "facts" being produced by frequent citation of a small body of evidence, but it is particularly clear and traceable, so it offers lessons for recognizing and understanding other examples.