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Cancer incidence, trends, and survival among immigrants to Sweden: A population-based study

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This thesis aimed to find cancer risk and trends by site and histology in first- and second-generation immigrants compared to Swedes. We studied cancer survival in immigrants to explore factors explaining cancer survival in the whole population.

The Swedish Family-Cancer Database was used to calculate standardized incidence (SIRs) and hazard ratios (HRs) of death from cancer in 77,360 and 993,824 cases among first-generation, and 4,356 and 263,485 cases among second-generation immigrants and Swedes, respectively. Ordinal logistic regressions were used to calculate odds ratios (ORs). To catch the maximum number of cases, we classified the immigrants according to geographical setting, population, and/or cancer risk.

Compared to native Swedes the highest cancer risk was observed for nasopharyngeal carcinoma in Southeast Asian men (SIR= 35.6) and women (24.6), for hypopharyngeal carcinoma in Indian men (5.4), for squamous-cell carcinoma of esophageal in Iranian women (3.8), for cardia in East Asian women (4.2), for signet-ring cell carcinoma of stomach in Southeast Asian women (6.7), for liver in East Asian men (6.8), for gall bladder in Indian women (3.8), for pancreas in North African men (2.2), for large cell carcinoma of lung in former Yugoslavian men (4.2), for pleural mesothelioma in Turkish women (23.8), for cervix in Danes (1.6), for seminoma in Chileans (2.1), for transitional-cell carcinoma of bladder in Asian Arab men (2.3), for meningioma in former Yugoslavia (1.3), and for papillary carcinoma of thyroid in East and Southeast Asian men (3.6). No immigrant groups had an increased risk of breast, uterus, ovary, and prostate cancers and nervous system tumors. The HRs for all breast cancers were between 1.0 in low-risk Europeans and 1.2 in lowest-risk non-Europeans. Low-risk non-Europeans had a HR of 2.9 for lobular carcinoma. Low-risk non-Europeans were diagnosed in a higher T-class (OR=1.9) than Swedes. The HRs for prostate cancer were 0.6 in Turks, Middle Easterners, Asians, and Chileans.

In conclusion, environmental and behavioral factors, early-childhood exposures, and infections may play a major role for risks of esophageal, stomach, liver, nasopharyngeal and hypopharyngeal, malignant pleural mesothelioma, breast, gynecological, testicular, urinary bladder, and thyroid cancers. Pancreatic cancer and nervous system tumors may have a major genetic component in the etiology. The ethnic differences in breast cancer risk by histology had no major influence on survival. Middle Eastern, Asians and Chileans, with the lowest risk of prostate cancer, also had the most favorable survival, suggesting a biological mechanism for this finding.