Conclusion: Female population in Taiwan conferred a different epidemiological characteristic of HPV infection than Western countries. Further studies are undergoing to elucidate the consequences and underline causes of the higher prevalence of HPV infection in old women in Taiwan, the molecular characteristics of infection of the oriental-specific HPV type 52, as well as the cancer predictive value of initial HPV viral load in cervical swab. The present non-quantitative detection of high risk HPVs in a group is insufficient, more efficient tests of HPV genotyping and viral load are needed clinically. For the future vaccination of Chinese population, a different panel of coverage, i.e., HPV-16, -58, -18, -33, should be developed.

907 POSTER

From bedside to register, and back again – How can epidemiological studies using register-data influence clinical practice?

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Epidemiological studies provide powerful tools in the assessments of occurrence and cause of disease. Internal validity (how likely is the observed association to reflect reality) is a fundamental issue in epidemiological studies. Hence, a poorly performed epidemiological study may be as misleading as an experimental study with leaky test tubes. In contrast, a well-designed study performed in an appropriate context may be both highly informative and cost-effective. This "appropriate context" includes socio-economically and ethnically homogenous populations, high-quality census-data and the use of personal identifiers, a health-care system with transparent and population-based referral-patterns, a public acceptance to registration in various registers, and the existence of longitudinal data on morbidity and mortality. Many of those prerequisites are found in the Scandinavian countries. Using the clinically well-recognised problem of cancer in inflammatory bowel disease as an example, I will try to illustrate more precisely how epidemiological studies not only may contribute to our understanding of disease processes but also bridge the gap between basic science and clinical management.

Epidemiological studies of patients with ulcerative colitis or Crohn's disease have demonstrated increased risks of colorectal cancer. The same studies have also indicated that longstanding, extensive, and untreated, respectively, disease all act to further increase the cancer risk, which in absolute terms may reach as high as 35%. Since survival from inflammatory bowel disease per se nowadays is excellent, the increased occurrence of colorectal cancer has become more and more of a clinical problem, as it makes up one of the major threats to health among these patients. Accordingly, patients with inflammatory bowel disease undergo regular endoscopic surveillance, which in itself is not without risks and costs. Finding those patients among whom the yield of such surveillance efforts would be the highest is therefore clinically relevant.

We hypothesised that, apart from duration, extent, and treatment, a familial occurrence of colorectal cancer could in itself be a risk factor for colorectal cancer, just as is the case in the general population. In a retrospective cohort-study with register-based follow-up, we tested this hypothesis. Patients with inflammatory bowel disease were identified in three already existing cohorts and in the Swedish inpatient register. In total, some 20,000 patients were identified. Using the personal identifiers and the Swedish generation register, we were able to identify 114,000 first-degree relatives of these patients. We then linked patients and relatives to the Swedish cancer register and to death- and census-registers to obtain information on cancer occurrence among all individuals, as well as information on follow-up. The results confirmed the grossly increased (relative) risk of colorectal cancer among young patients with inflammatory bowel disease. With respect to our hypothesis, the results also suggested that, just as among healthy individuals, a family history of colorectal cancer was in itself associated with a doubled or so risk of colorectal cancer. Thus, our study not only provided new insight into the pathogenesis of colitis-cancer but also indicated that information on family history be a simple but important information in the care of patients with inflammatory bowel disease. Thanks to the epidemiolgical study design, no patient contact had to be established, no blood had to be drawn, and the total cost to obtain the results was moderate.

908 POSTER

Outline of proposed topic of lecture: The epidemiology of adenocarcinoma of the esophagus

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Increasing incidence: While the incidence of squamous cell carcinoma of the esophagus is stable, that of adenocarcinoma of the esophagus and gastric cardia has increased dramatically in several Western countries. The increase in incidence is more rapid than that any other cancer in the United States[1].

Poor prognosis: Esophageal cancer is one of the most lethal forms of cancer. New therapies and improved diagnostic measures might explain the improved relative survival identified in Sweden during the recent decade, but the overall 5-year survival does not exceed 15%[2].

Risk factors: In view of the increasing incidence and the poor prognosis, it is important to identify, risk factors that might make primary prevention possible. The major risk factors for esophageal squamous cell carcinoma, tobacco smoking and alcohol use, have been known since several decades, but some strong risk factors for adenocarcinoma of the esophagus has only recently been identified. Gastroesophageal reflux is strongly associated with the risk of esophageal adenocarcinoma according to Swedish case-control and cohort data[3, 4]. Increasing frequency, severity, and duration of reflux increases the risk dose-dependently. Medications that can relax the lower esophageal sphincter may induce gastroesophageal reflux[5]. The continuous use of such medications seems to increase the risk of esophageal adenocarcinoma. There is a strong and dose-dependent relation between increasing body mass index (BMI) and risk of esophageal adenocarcinoma through the entire range of BMI values[6], which is independent of reflux. The efforts needed to identify high risk persons are considerable though[7]. The risk of esophageal adenocarcinoma is not importantly associated with smoking, snuff dipping, or alcohol use[8]. Some dietary factors seem to influence the risk of esophageal adenocarcinoma. High intake of antioxidants[9] and wheat fiber[10], reduces the risk of esophageal adenocarcinoma. But the consumption of hot beverages do not seem to be associated with esophageal adenocarcinoma[11]. Recent results indicate that infection with Helicobacter pylori strongly decreased risk of adenocarcinoma of the esophagus[12].

Potential explanations for the increasing incidence of esophageal adenocarcinoma: If gastroesophageal reflux is the main reason for the increasing incidence of the adenocarcinomas, the incidence of reflux disease should have risen as well, but data are lacking on the incidence. If this incidence is rising, this increase in turn must be caused by some other environmental or hereditary factor. Such potential environmental factors are the use of medications that relax the lower esophageal sphincter (LES). Some groups of LES-inhibiting drugs were widely introduced before the start of the epidemic of esophageal adenocarcinoma, but such use can still only explain a minor part of the increasing incidence of esophageal adenocarcinoma. It would be tempting to attribute the increase in the incidence of esophageal adenocarcinoma to the increase in average BMI observed in Western populations. However, the apparently sudden deflection of the incidence curve for esophageal adenocarcinoma, the rapidity of the increase, and the marked, 6–8 fold, male predominance, are observations not entirely consistent with this interpretation[1]. In conclusion, gastroesophageal reflux, the use of medications that might cause such reflux, and obesity might be key factors to explain the increasing incidence of adenocarcinoma of the esophagus and gastric cardia, but several inconsistencies need to be resolved before this suspicion can be established.