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3501 POSTER

Progress against cancer in the Netherlands since the 1990 s: an epidemiological evaluation

H.E. Karim-Kos[1], J.W.W. Coebergh[1], M.W.J. Louwman[2], L.A. Kiemeney[3], E. de Vries[1]. *[1]Erasmus MC University Medical Centre, Public Health, Rotterdam, The Netherlands; [2]Comprehensive Cancer Centre South, Eindhoven Cancer Registry, Eindhoven, The Netherlands; [3]Radboud University Nijmegen Medical Centre, Epidemiology Biostatics and Health Technology Assessment, Nijmegen, The Netherlands*

Background: Progress against cancer through cancer prevention, early detection/screening and improved treatment is often only measured by cancer survival statistics. However, to measure real progress incidence, survival and mortality trends should be taken into account. In this study we have clustered these trends to simplify the measure of progress against cancer. Data from the Netherlands for 1989–2006 were used as an illustration.
Material and Methods: Clusters were based on all possible combinations of the incidence and survival trend and were further classified by the possible effect of those combinations on the mortality trend. Data on incidence, 5-year relative survival and mortality of 21 cancer types from 1989 to 2006 were obtained from the population-based Netherlands Cancer Registry and Statistics Netherlands. Changes in incidence and mortality rates were evaluated by calculating the estimated annual percentage change. Five-year relative survival ratios were calculated for the periods 1989–1991 and 2004–2006. Relative differences of 5% and over were determined as a changing trend.
Results: In theory, nine clusters could be made in which each cluster was divided up into three sub clusters. The three clusters with a decreasing incidence were observed for 4 cancer types among Dutch males (larynx, stomach, lung, and pancreas) and females (stomach, gallbladder, cervix, and ovary) during 1989–2006. These observed incidence decreases were followed by a decreasing mortality. Three clusters with improving survival were illustrated by an observed improving 5-year relative survival for 9 cancer types among Dutch males from which 5 showed a stable or decreasing mortality despite an increasing incidence (colorectal, prostate, thyroid, leukaemia, and Non-Hodgkin lymphoma). Among females, survival improved for patients with one of 10 cancer types of which 7 were followed by an effect on mortality (stable or decrease) (colorectal, breast, ovary, thyroid, leukaemia, Hodgkin and Non-Hodgkin lymphoma). The cluster of an increasing incidence and a deteriorating survival was not observed in the Dutch data.
Conclusions: The nine clusters could be helpful in assessing progress against cancer by incidence, survival and mortality. In the example of the Netherlands progress is made in 9 cancer types among males and in 10 among females. The decrease in incidence is most likely a result of cancer prevention. The improved survival followed by a stable or decreasing mortality is probably a result of early detection/screening and/or improved treatment.

3502 POSTER

HOGG1 Ser326Cys polymorphism plays a role in lung cancer susceptibility: Analyses stratified by histologic type and smoking status

T. Okasaka[1], K. Matsuo[1], S. Hosono[1], T. Kawase[1], H. Tanaka[1], K. Yokoi[2], K. Tajima[1]. *[1]Aichi Cancer Center Research Institute, Epidemiology and Prevention, Nagoya, Japan; [2]Nagoya University Graduate School of Medicine, Thoracic Surgery, Nagoya, Japan*

Background: Human 8-oxoguanine DNA glycosylase, coded by *hOGG1*, has a role in repair of 8-hydroxyguanine which is one of the major forms of DNA damage generated by reactive oxygen species. In *hOGG1,* the genetic polymorphism rs1052133 displays functional difference by the higher enzyme activity in *hOGG1*-Ser326 than in *hOGG1*-Cys326. It is suggested that such an inter-individual variation in DNA repair capacity is associated with cancer risk. However, findings regarding the role of rs1052133 in lung cancer susceptibility have been inconsistent. Further, the associations among this polymorphism, risk of each lung cancer histologic type, and smoking status remain unclear. Herein, we investigated the impact of rs1052133 on lung cancer susceptibility, with the association of histology and smoking status, in order to detect high-risk individuals.
Materials and Methods: We conducted a case-control study with 515 incident lung cancer cases and 1030 age- and sex-matched non-cancer controls. The impacts of rs1052133 alone and in combination with smoking were evaluated as odds ratios (ORs) after adjustment for confounders using conditional logistic models. Furthermore, we also conducted a meta-analysis to estimate summary ORs of the homozygous Cys/Cys genotype for each histologic type of lung cancer.
Results: In overall analysis, those with the homozygous Cys/Cys genotype were at increased risk of lung cancer, as compared to those with the Ser/Cys and Ser/Ser genotypes combined [OR: 1.30, 95% confidence interval (CI) 1.01−1.67]. In histology-based analysis, the Cys/Cys genotype was associated with increased risk of adenocarcinoma (OR: 1.35, 95%CI: 1.01−1.82), and small cell carcinoma (OR: 2.43, 95% CI: 1.32−4.49). As for small cell carcinoma, this association was stronger in heavy smokers (OR: 2.83, 95% CI 1.59−9.42). Meta-analyses revealed significantly higher ORs for squamous cell carcinoma (OR: 1.81, 95%CI: 1.03−3.17) and adenocarcinoma (OR: 1.45, 95%CI: 1.17−1.80) in those with Cys/Cys genotype.
Conclusions: ORs for lung cancer were increased in Japanese individuals with *hOGG1* Cys/Cys genotype. Increased risk was significantly prominent in patients with small cell carcinoma and adenocarcinoma of the lung, especially in heavy smokers. Meta-analysis also showed an increased risk for each histologic type of lung cancer in those with Cys/Cys genotype. These findings indicated that the genetic polymorphism rs1052133 has some impacts on the susceptibility to lung cancer.

3503 POSTER

Breast cancer receptor status and ethnicity: The West London Experience

V.A. Harris[1], G. Schaller[2], P. Riddle[1]. *[1]Imperial College NHS Trust, Department of Radiotherapy, London, United Kingdom; [2]Imperial College, School of Medicine, London, United Kingdom*

Background: Receptor status (ER, PR and HER2) in breast cancer is well-known to influence prognosis and the benefit of targeted treatments. Studies in the USA have shown that racial differences exist in the receptor status of White, Black and Hispanic populations. We investigated the receptor profile of women with breast cancer in an ethnically diverse population in London, to determine if there was an association between ethnicity and receptor status.
Materials and Methods: This case series analysed all primary female invasive breast cancers diagnosed between 1.1.05 and 31.12.05 in the West London Cancer Network, London, UK. Data was collected from the case notes, pathology records and imaging reports and included patient age, self-identified ethnic group, tumour size, grade, lymph node status, ER/PR expression, and HER2 status. 15 ethnic groups were recorded, but simplified into White, Asian, Black and Other for the purposes of analysis. Statistical analyses involved frequency distributions and chi-squared tests of independence.
Results: A total of 633 cases were diagnosed among women ages 21−98; of these receptor status data was available for 556 cases. Of these cases, 77.9% were white, 7.2% were black, 10.6% were asian and 4.3% were classified as 'other'. ER receptor positivity (1−3+) was seen in 82.0% of cases overall, and differed by race: white 87.0%, black 73.0% and asian 87.2%. PR receptor was 69.2% overall and differed by race: white 69.1%, black 75.0%, and asian 66.1%. HER2+ was 12.9% overall and differed by race: white 12.7%, black 15.4% and asian 12.7%. Chi squared test did not reveal any association between race and ER ($p > 0.05$), PR ($p > 0.1$) or HER2 ($p > 0.1$) receptor status. Triple negative cancers were seen in 10.3% of our cohort, and differed by race white 7.4%, black 25.0% and asian 8.5%. Chi squared test showed a significant association between race and triple negative status ($p < 0.01$).
Conclusion: Our cancer network serves an ethnically diverse population, whose composition is different to the previous studies from the USA. In our population, ER+ was seen more commonly than reported in the medical literature and PR+ was as expected. We observed a lower proportion of HER2+, and a lower frequency of triple negative than reported in literature. The rate of triple negative disease was threefold higher in the black population than other ethnic groups. We report a significant association between race and triple negative invasive breast cancer in a UK population. Analysis of the data shows a similar receptor profile in both white and asian subgroups.