Lung Cancer 67 (2010) 124–125

Contents lists available at ScienceDirect

Lung Cancer

journal homepage: www.elsevier.com/locate/lungcan

Letters to the Editor

Lung cancer in young women remains rare

Dear Editor

Anecdotal evidence suggests that oncologists in the UK are seeing increasing numbers of young women with lung cancer. A recent case report from Switzerland also suggests that women are more likely than men to be diagnosed at an early age, and that they have a greater risk of adenocarcinoma [1]. We examined data from the National Cancer Registry at the Office for National Statistics, a population-based registry covering more than 50 million people in England and Wales, and we report lung cancer incidence trends in young women over the 36-year period 1971–2006.

The crude annual incidence rate for lung cancer in women aged 15 years and over in England and Wales more than doubled between 1971 (28.9 per 100,000) and 2006 (62.3), but this increase was only seen in women aged 60 and over. Lung cancer in women under 50 remains uncommon: the annual incidence rate was 4.7 in 1971 and 3.8 in 2006. In women under 40, lung cancer remains rare: the annual incidence rate was 1.0 per 100,000 (78 cases) in 1971 and 0.8 per 100,000 (69 cases) in 2006.

We also examined trends by histological type, using the various revisions of the WHO International Classification of Diseases for Oncology (ICD-O) [2] and the Histological Typing of Lung Tumours (2nd Edition) [3]. Although the overall incidence of lung cancer in women aged 15–49 years has remained stable, the distribution of morphologic types in this age group has changed. The recorded incidence rate for lung cancers specified as adenocarcinoma increased steadily from 0.6 during 1971–1975 to 1.4 during 2001–2006. Despite small fluctuations, incidence of the other specified types of lung cancer changed very little (Fig. 1). Tumours of poorly specified morphology (malignant neoplasm or carcinoma of the lung not otherwise specified) are the exception: the proportion fell from 45% in 1971–1975 to 15% in 2001–2006.

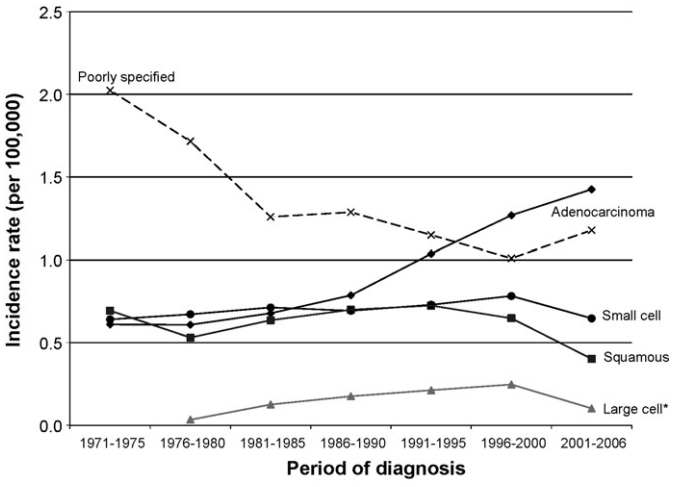

Fig. 1. Lung cancer incidence in women aged 15–49 years by histological type and calendar period: England and Wales, 1971–2006 * Large-cell tumours were coded separately from unspecified carcinoma from 1979 onwards.

In men under 50, the overall lung cancer incidence rate fell dramatically from 12.8 in 1971 to 4.1 in 2006, but the incidence of adenocarcinoma also rose (0.9 during 1971–1975, 1.2 during 2001–2006). In men under 40, the lung cancer incidence rate was also much higher than women in 1971 (2.1), but had fallen to similar levels (0.8) by 2006.

The apparent increase in the incidence of adenocarcinoma of the lung in women under 50 could be explained by better reporting of pathology, a decline in the proportion of tumours with unspecified morphology, or better classification and coding of lung cancers at cancer registration. It may also be real, since this phenomenon has been reported in the United States and elsewhere [4,5].

The key point is that lung cancer in young women in England and Wales remains rare, with around 70 cases out of a total of 14,000 lung cancers a year in women aged 15–39 years and 500 cases in women aged 15–49 years.

Conflict of interest statement

None declared.

References

[1] Frueh M, Cerny D, Ess S, Cerny T. Lung cancer in women in St Gallen, eastern Switzerland, an analysis of sex-associated differences in smoking habits, disease presentation and survival (European Multidisciplinary Conference in Thoracic Oncology: EMCTO). Lung Cancer 2009;64(Suppl. 1):32–42.
[2] World Health Organisation. International Classification of Diseases for Oncology (ICD-O), third edition. Fritz A, Percy C, Jack A, Shanmugaratnam K, Sobin LH, Parkin DM et al., editors. Geneva, World Health Organisation, 2000.
[3] World Health Organisation. The World Health Organisation Histological Typing of Lung Tumours, second edition. Am J Clin Pathol 1982; 77:123–36.
[4] Charloux E. The increasing incidence of lung adenocarcinoma: reality or artefact? A review of the epidemiology of lung adenocarcinoma. Int J Epidemiol 1997;26:14–23.
[5] Devesa SS, Bray F, Vizcaino AP, Parkin DM. International lung cancer trends by histological type: male:female differences diminishing and adenocarcinoma rates rising. Int J Cancer 2005;117:294–9.

Libby Ellis*
Cancer Research UK Cancer Survival Group, London School of Hygiene and Tropical Medicine, Keppel Street, London WC1E 7HT United Kingdom

Jesme Fox
The Roy Castle Lung Cancer Foundation, The Roy Castle Centre, Enterprise Way, Liverpool, Merseyside L13 1FB United Kingdom

Michael D. Peake
Department of Respiratory Medicine, Glenfield Hospital, Groby Road, Leicester LE3 9QP United Kingdom

Michel P. Coleman
Cancer Research UK Cancer Survival Group, London School of Hygiene and Tropical Medicine, Keppel Street, London WC1E 7HT United Kingdom

* Corresponding author. Tel.: +44 (0)20 7927 2137.
E-mail address: libby.ellis@lshtm.ac.uk
(L. Ellis)

26 October 2009

doi:10.1016/j.lungcan.2009.10.019

Human papilloma virus (HPV) in lung cancer: Unanswered questions

Dear Editor,

We read with interest the review by Klein et al. [1] highlighting the presence of human papilloma virus (HPV) in lung carcinoma samples and indicating its potential role in lung carcinogenesis. In this review, it was shown that the overall incidence of HPV in lung cancer up to date is 24.5%, which essentially renders HPV the second commonest risk factor for lung cancer if the cause–effect link is indeed valid. Interestingly, there is geographic variation with higher mean incidence rates reported in Asia (35.7%) compared to Europe (17%) and America (15%). This variation has been attributed to the different detection methods used and possibly to the epidemiology of the HPV itself, although information on HPV prevalence worldwide is absent.

The main questions therefore that need to be answered are: what is the route of transmission of HPV to lung tissue and how can it be potentially tumourogenic? It is known that HPV normally invades healthy tissue by direct mucosal contact [2] and it is postulated that it reaches the lung site via blood circulation [3], while the possibility of transmission from the cervix to the oral cavity and then to the larynx and lung is also plausible [4]. Once it presents to the host cells it is believed that it attaches to those cells expressing heparin sulphates, that act as primary receptors for HPV [5] and it is internalised to interfere with p53 and Rb proteins. This is achieved by E6 proteins, encoded by HPV, binding to the host cellular tumour suppressor proteins and triggering its degradation through the ubiquitin pathway [6]. Contrary to this theory is evidence of HPV in normal lung tissue of patients with HPV positive lung cancer and the question that arises is whether HPV is easily integrated to tumour genome than healthy cells and therefore is an epiphenomenon rather than the cause of the tumour. This remains to be answered. However, if the cause–effect link is true then molecular HPV typing could potentially be used as a marker of lung cancer [7] as well as to discriminate primary from metastatic squamous cell carcinoma [8]. In addition, early evidence shows that it can have a prognostic importance in stage I non-small cell lung carcinomas [9]. As a result, the implications for the prevention, management and prognosis of these tumours are vast and currently remain to be determined. It can be safely concluded that evidence for a causative link between HPV and lung cancer is mounting but the jury is still out.

Conflict of interest statement

There is no conflict of interest.

References

[1] Klein F, Amin Kotb WF, Petersen I. Incidence of human papilloma virus in lung cancer. Lung Cancer 2009;65:13–8.
[2] Stanley MA, Pett MR, Coleman N. HPV: from infection to cancer. Biochem Soc Trans 2007;35:1456–60.
[3] Tseng CJ, Pao CC, Lin JD, Soong YK, Hong JH, Hsueh S. Detection of human papillomavirus types 16 and 18 mRNA in peripheral blood of advanced cervical cancer patients and its association with prognosis. J Clin Oncol 1999;17:1391–6.
[4] Chen YC, Chen JH, Richard K, Chen PY, Christiani DC. Lung adenocarcinoma and human papillomavirus infection. Cancer 2004;101:1428–36.
[5] Selinka HC, Florin L, Patel HD, Freitag K, Schmidtke M, Makarov VA, et al. Inhibition of transfer to secondary receptors by heparan sulfate-binding drug or antibody induces noninfectious uptake of human papillomavirus. J Virol 2007;81:10970–80.
[6] Scheffner M, Werness BA, Huibregtse JM, Levine AJ, Howley PM. The E6 oncoprotein encoded by human papillomavirus types 16 and 18 promotes the degradation of p53. Cell 1990;63:1129–36.
[7] Cheng YW, Chiou HL, Chen JT, Chou MC, Lin TS, Lai WW, et al. Gender difference in human papillomarvirus infection for non-small cell lung cancer in Taiwan. Lung Cancer 2004;46:165–70.
[8] Weichert W, Schewe C, Denkert C, Morawietz L, Dietel M, Petersen I. Molecular HPV typing as a diagnostic tool to discriminate primary from metastatic squamous cell carcinoma of the lung. Am J Surg Pathol 2009;33:513–20.
[9] Hsu NY, Cheng YW, Chan IP, Ho HC, Chen CY, Hsu CP, et al. Association between expression of human papillomavirus 16/18 E6 oncoprotein and survival in patients with stage I non-small cell lung cancer. Oncol Rep 2009;21:81–7.

Melpomeni P. Kountouri *
Cancer Centre, Queen Elizabeth Hospital, University Hospital Birmingham, NHS Foundation Trust, Birmingham, UK

Ioannis N. Mammas
Department of Clinical Virology, University of Crete School of Medicine, Heraklion, Greece

Demetrios A. Spandidos
Department of Clinical Virology, University of Crete School of Medicine, Heraklion, Greece

* Corresponding author. Tel.: +44 7752319394.
E-mail address: melkountouri@gmail.com
(M.P. Kountouri)

28 October 2009

doi:10.1016/j.lungcan.2009.10.020