**EFFECT OF COMORBIDITY ON SURGERY AND SURVIVAL AMONG LUNG CANCER PATIENTS IN ENGLAND**

M. Lüchtenborg1, S.P. Riaz1, R.H. Jack1, M.D. Peake2, M.J. Lind3, H. Møller4

1National Cancer Intelligence Network, Public Health England, London, UK
2Department of Respiratory Medicine, Glenfield Hospital, Leicester, UK
3Queens Centre for Oncology and Haematology, Hull and East Yorkshire NHS Trust, Hull, UK
4Cancer Epidemiology and Population Health, King’s Health Partners Integrated Cancer Centre, London, UK

**Aim:** We assessed the impact of comorbidity on the odds of undergoing surgical resection among non-small cell lung cancer (NSCLC) patients, and on survival among resected NSCLC and all other lung cancer patients in England.

**Methods:** Data on 64,653 patients diagnosed with lung cancer (ICD-10 C33-C34) in England between 2008 and 2009 were extracted from the National Cancer Data Repository. Information on comorbidity for these patients was retrieved from linked Hospital Episode Statistics records and classified according to the Charlson comorbidity score (CCS 0, 1, 2, 3+). Among NSCLC patients, we calculated the odds ratio (OR) of undergoing surgical resection according CCS adjusting for case-mix (age, sex, socioeconomic deprivation, histology, performance status and clinical stage).

Using Cox proportional hazard regression analyses, we calculated the case-mix adjusted mortality hazard ratio (HR) according to CCS among NSCLC patients undergoing surgical resection and among all other lung cancer patients. Among resected NSCLC patients, case-mix adjusted HRs were also assessed in three different post-surgical time periods (<30 days, 30-365 days and >365 days).

**Results:** The likelihood of NSCLC patients undergoing surgical resection decreased with increasing severity of comorbidity [OR 0.58 (95% CI 0.46-0.74) for CCS 3+ compared with CCS 0, p-trend < 0.001]. Among resected NSCLC patients, increasing comorbidity score was associated with higher death rates [HR 1.45 (95%CI 1.07-1.98) for CCS 3+ vs. CCS 0, p-trend <0.001], and the association was most pronounced more than one year post-surgery [HR 1.67 (95% CI 1.04-2.69) for CCS 3+ compared with CCS 0, p-trend < 0.001]. Among all lung cancer patients not undergoing surgical resection, comorbidity was associated with a small increase in death rate [case-mix adjusted HR 1.07, 95% CI (1.02-1.12) for CCS 3+ vs. CCS 0, p-trend = 0.02].

**Conclusions:** Among resected NSCLC patients comorbidity is an independent prognostic factor for longer term survival. Among all other lung cancer patients not undergoing surgical resection, the effect of comorbidity is largely explained by performance status.

**Disclosure:** All authors have declared no conflicts of interest.