



The effect of emergency presentation on surgery and survival in lung cancer patients in England, 2006 to 2008

National Cancer Registration and Analysis Service data briefing

Introduction

We assessed how likely non-small cell lung cancer patients are to undergo surgical resection for their cancer depending on whether they presented as an emergency. We then examined whether presenting through an emergency route affected patients' survival among those who did and did not undergo surgery for their lung cancer.

Methods

Cancer registration records for 93,783 lung cancers diagnosed in England residents between 2006 and 2008 were extracted from the National Cancer Data Repository (2008). Lung cancer patients were grouped into one of three diagnosis routes: Emergency Presentation, Non-emergency (Two-Week Wait, GP Referral, Inpatient Elective and Other Outpatient) and Unknown. For non-small cell lung cancer (NSCLC) patients we used logistic regression to calculate case-mix adjusted odds ratios for surgical resection (adjusted for age, sex, socioeconomic deprivation, stage, histology, performance status and comorbidity). Odds ratios (OR) give the odds of something happening in one group, compared to another. The case-mix adjustment takes into account some of the differences between the patient groups who present as emergencies or non-emergencies. Survival was assessed for resected NSCLC (n=8,214) and for all other lung cancer patients (n=85,569) using Cox proportional hazards regression models, adjusted for case-mix, and computed for three time intervals: short-term (<one month), intermediate (one month to one year) and long term (>one year). Hazard ratios (HR) give the risk of something happening in one group, compared to another.

Results

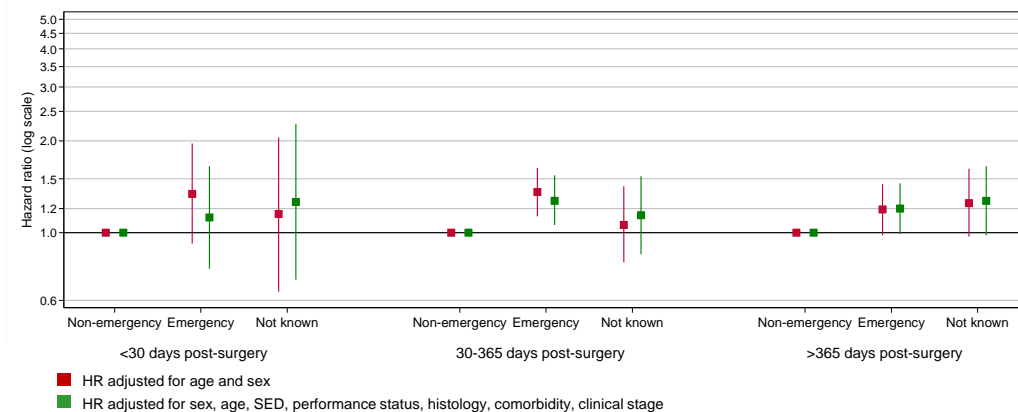
Only 2% of NSCLC patients presenting through an emergency route underwent surgery compared with 16% of those presenting through a non-emergency route. Compared with those who did not, NSCLC patients presenting through an emergency route were 78% less likely to undergo surgical resection when other factors affecting the likelihood of undergoing surgery were taken into account (adjusted OR=0.22, 95% confidence interval (CI): 0.20-0.24).

Key messages

- non-small cell lung cancer patients presenting via an emergency route were 78% less likely to undergo surgery
- non-small cell lung cancer patients presenting via an emergency route who underwent surgical resection had slightly worse survival than those who presented as a non-emergency
- lung cancer patients who presented through an emergency route and did not undergo surgical resection had much

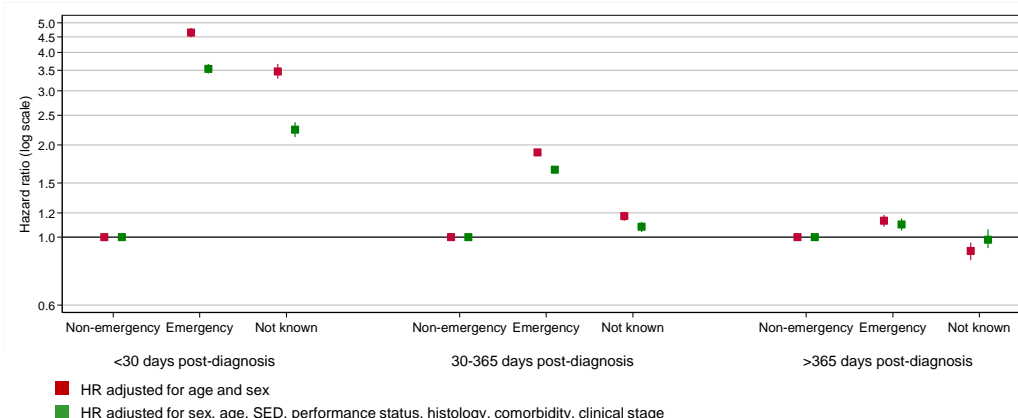
Compared with surgical patients who did not present through an emergency route, patients who underwent surgical resection after an emergency presentation had a 27% increased risk of dying in the period of one month to one year after surgery (adjusted HR 1.27, 95% CI 1.06-1.54) (Figure 1).

Figure 1. Mortality hazard ratios (HR) and 95% confidence intervals among resected non-small cell lung cancer patients by emergency presentation status, stratified by post-diagnosis follow-up period: <one month, one month to one year, and >one year after surgical resection.



Among all lung cancer patients who did not undergo surgery, the adverse effect on survival of being diagnosed through an emergency route was greatest in the first month following diagnosis. In the first month there was a greater than three-fold increased risk of dying (adjusted HR=3.54, 95% CI: 3.42-3.67) among patients who presented as an emergency compared with those who did not. The risk associated with emergency presentation diminished, but remained present over time (Figure 2).

Figure 2. Mortality hazard ratios (HR) and 95% confidence intervals among lung cancer patients who were not treated by surgical resection by emergency presentation status, stratified by post-diagnosis follow-up period: <one month, one month to one year, and >one year after diagnosis.



Conclusions

The reduced use of surgical resection and the lower survival among lung cancer patients who present through an emergency route highlights the importance of efforts to minimise emergency presentations in lung cancer.

Acknowledgment

This work is taken from the following publication: The effect of emergency presentation on surgery and survival in lung cancer patients in England, 2006-2008. Tataru D, Jack RH, Lind MJ, *et al*. *Cancer Epidemiology* (2015) 39(4): pp. 612-616 DOI information: 10.1016/j.canep.2015.04.008.

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www.ncin.org.uk/publications/reports/