Characteristics and outcomes of lung cancer patients after intensive care admission

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Lung cancer is the leading cause of cancer-related deaths accounting for 27.5% of cancer deaths in Scotland.¹ Lung cancer patients sometimes require ventilatory support for respiratory complications; however, admission to intensive care unit (ICU) is restricted due to a perception that lung cancer patients have universally poor outcomes.

Methods

We performed a multicentre retrospective observational study using linked data from west of Scotland ICUs. Data from ICU were matched to cancer registry, hospitalisation and death records between 1 January 2000 and 31 December 2011. From this population, we selected patients with diagnosis of lung cancer by ICD-10 coding. These patients were then matched to lung cancer patients who were not admitted to ICU. Statistical analyses were performed using StataCorp 2011(Stata Statistical Software: Release 12).

Results

A total of 538 patients had lung cancer and were admitted to ICU; 311 (57.8%) of ICU lung cancer patients were male, the average age was 66.9 years and APACHE-II score was 21.9 (± 7.1). Hospital and six-month mortality were 51.9% and 68.7%, respectively. Although the initial rates of mortality in ICU patients are high, survival of matched ICU

and non-ICU groups was similar when measured from 30 days after hospital discharge (Figure 1).

Factors associated with hospital mortality on multivariate analysis were surgical admission (HR: 0.57, $P = <0.001$), APACHE-II score ≥ 18 (HR: 1.90, $P = 0.001$), ≥ 2 organs supported (HR: 2.86, $P = <0.001$) and pre-ICU chemotherapy (HR: 0.49, $P = 0.003$). These factors were still significantly related to mortality at six months with the addition of lung resection surgery which conferred a strong survival advantage (HR: 0.42, $P = <0.001$)

Discussion

This study confirms that mortality rates for lung cancer patients in ICU remain high and are associated with severity of illness whilst short-term outcomes in this cohort of patients remain poor, and it is interesting to note that longer term survival in lung cancer ICU survivors does not appear to be influenced by their critical illness as mortality follows the same trajectory as a matched non-ICU cohort.

Ethical approval

Ethical approval was sought and granted.

Declaration of Conflicting Interests

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Reference

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Figure 1. Rate of mortality of lung cancer patients by ICU admission from 30 days after hospital discharge. Black = ICU, Grey = non-ICU.

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