Institutional report - Thoracic oncologic

Active treatment rates for lung cancer in south Manchester: are we doing enough?*^a

Mohan P. Devbhandari^a,*, Vijay Joshi^a, Philip Barber^a, Piotr Krysiak^a, Rajesh Shah^a, Mark T. Jones^a

^aDepartment of Cardiothoracic Surgery, University Hospital of South Manchester, Southmoor Road, Manchester M23 9LT, UK
^bDepartment of Respiratory Medicine, University Hospital of South Manchester, Manchester, UK

Received 29 November 2009; received in revised form 19 April 2010; accepted 7 May 2010

Abstract
In an effort to improve the current lung cancer treatment outcomes in Britain, National guidelines were published followed by the introduction of National Lung Cancer Audit (LUCADA) project. LUCADA has defined active treatment as any therapeutic intervention with the aim of improving the quality or length of patients’ survival irrespective of whether it is curative or palliative. From August 2003 to December 2006, all patients diagnosed to be new primary lung cancer referrals were enrolled into a prospective study. Out of the total of 433 patients the majority of patients were male (62%) and the mean age was 69 years. The histologies were small cell lung cancer (SCLC), non-small cell lung cancer (NSCLC) and other cancers in 67 (15.5%), 306 (70.7%) and 11 (2.5%) patients, respectively, while 49 (11.3%) patients had no histological confirmation. Overall, the active treatment rate was 72% with 74 (18%), 158 (36%), 66 (15%) and 11 (3%) undergoing surgery, chemotherapy, radiotherapy and other methods, respectively. The active treatment rates for histologically proven SCLC, NSCLC and all lung cancers excluding SCLC were 83%, 77% and 71%, respectively, compared to the LUCADA national average of 73.5%, 66% and 56.5%, respectively. Among the NSCLC patients overall five-year survival was 27.4%. The stage specific survivals were 64.0%, 58.3%, 60.0% and 56.5%, respectively.

1. Introduction
Lung cancer is the commonest cancer in the UK with an annual incidence of 35,000 new cases every year. The prognosis of lung cancer has remained poor with mean survival in UK of <6 months and five-year survival of 5–10% [1]. The UK has been reported to have the lowest survival and resection rate [Joint working group of the British Thoracic Society and The Society of Cardiothoracic Surgeons of Great Britain and Ireland. Critical under-provision of thoracic surgery in the UK (available at www.scts.org/doc/6168)] compared to USA and western Europe [2, 3]. Late presentation along with delays in diagnosis and staging are thought to be contributory to poor outcomes for these patients. In order to improve the management of lung cancer in the UK, the British Thoracic Society published its recommendations in 1998 [4].

The National Cancer Plan was launched in the UK in September 2000 to improve the management of all types of cancers including lung cancer. It further reinforced the guidelines by recommending the introduction of multidisciplinary team (MDT) meetings and the maximum waiting time targets for all types of cancers (source: http://www.nice.org.uk/nicemedia/pdf/CG024niceguardeline.pdf, accessed on 3 Sep 2009). The targets were rolled out in stages for different cancers. Accordingly, it was applied to breast cancer by year 2002 and extended to all cancers including lung cancer by year 2005.

National Lung Cancer Audit Project (LUCADA) was introduced in year 2005 by the UK Department of Health as the first nationwide audit of cancer with the aim of driving up the quality of care delivered in routine clinical practice [LUCADA Implementation Group. The National Lung Cancer Audit (LUCADA) Project Data Manual available at http://www.icvservices.nhs.uk/ncasp]. It was hoped that the audit data would be helpful to set a standard and it would also provide a base line data against which progress in future can be compared. The project has published the annual reports for 2005–2007. In the year 2007, data was reported on 22,628 patients from 166 National Health Service hospital trusts in England and Wales. Active lung cancer treatment rate is an important parameter in assessment of quality of lung cancer services. LUCADA has defined active treatment as any therapeutic intervention with the aim of improving the quality or length of patients’ survival irrespective of whether it is curative or palliative.

To monitor the quality of lung cancer services at the University Hospital of South Manchester Hospital Trust

---

^a*Presented at the annual meeting of the Society for Cardiothoracic Surgery in Great Britain and Ireland, Annual meeting, Edinburgh, 10–12 March 2008.
^bCorresponding author. Tel.: +44 161 9803100; fax: +44 161 2912685. E-mail address: mohandev@hotmail.com (M.P. Devbhandari).
© 2010 Published by European Association for Cardio-Thoracic Surgery
(UHSMT), all patients presenting to us with a working diagnosis of lung cancer were screened and entered prospectively into a ‘tracking study’ after confirming diagnosis. This cohort of patients was investigated to assess the proportion of patients receiving active anticancer treatment.

2. Methods

From August 2003 to December 2006, all suspected primary lung cancer referrals to North West Lung Centre in our hospital were screened. Those who were confirmed either histologically or on clinical grounds through a multidisciplinary team discussion (in the absence of histology), were entered prospectively into a ‘tracking study’. The patients were identified and their journey pathways were tracked by a dedicated audit officer. The majority of patients presenting via general practitioner (GP) as urgent referrals, tend to follow a standard pathway. However, patients presenting by other referral routes often do not follow a standard pathway and they tend to take a number of complex routes to achieve the diagnosis and treatment. To ensure satisfactory capture of all the patients presenting by standard or non-standard routes of referral, additional methods of identification of cases, such as regular interval screening of histology results, computerised tomography (CT) scan reports, International Code of Diseases (ICD) codes, thoracic surgery database and Macmillan referrals were used. For this study only patients who presented to us as primary referrals were included and those who came to us as secondary referrals for oncological services from other centres were excluded.

All suspected lung cancer referrals to UHSMT are first assessed by respiratory physicians in the out patient’s clinic or in the ward. They complete the primary diagnostic work up including chest X-ray, bronchoscopy, lung function tests, and CT-scan ± needle biopsy. The patients are then discussed in the MDT meetings. Following discussion, the treatment plans are formulated and appropriate specialist referrals are made.

In keeping with LUCADA active treatment was defined as any form of specific anticancer therapy aimed at improving the quality or length of patients’ survival irrespective of whether it is curative or palliative. Patients were divided into three groups namely small cell lung cancer (SCLC), non-small cell lung cancer (NSCLC) and all lung cancers excluding SCLC in keeping with LUCADA data manual. The first two groups had histological confirmation. The last group included patients without histological confirmation who were treated on clinical grounds as NSCLC. Our institutional active treatment rate was compared with the LUCADA data averaged for 2005 and 2006 (National Lung Cancer Audit Key findings about the quality of care for people with Lung Cancer in England and Wales available at www.ic.nhs.uk).

The survival data was obtained by linking patient records to the National Strategic Tracing Service (NSTS), which records all cause mortality in the UK, to establish current vital status. Patients were matched to the NSTS based on the patients’ unique National Health Service number and date of birth. Kaplan–Meier survival plots were obtained using SPSS version 15 software on a personal computer.

3. Results

Out of the entire suspected lung cancer referrals screened from August 2003 to December 2006, a total of 433 were confirmed to be new cases of lung cancer. Fifty-six percent of these cases were GP referrals and 44% were casualty and internal referrals. The majority of patients were male (62%) and the mean age was 69 years (range 31–90 years) at presentation. Histology/cytology was available for 384 (88.7%) patients. The cell types were SCLC, NSCLC and others in 67 (15.5%), 306 (70.7%) and 11 (2.5%) patients, respectively. Staging data were available for 331 clinical NSCLC patients. Their clinical stagings were stage I, II, IIIA, IIIB and IV in 46, 25, 38, 77 and 145 patients, respectively. Of these only 306 patients had a histological diagnosis. The remaining 25 patients were diagnosed on clinical grounds alone based on clinical presentation and radiology following a multi-disciplinary discussion.

Overall, the active treatment rate was 72% with 79 (18%), 158 (36%), 66 (15%) and 11 (3%) undergoing surgery, chemotherapy, radiotherapy and other methods, respectively, the details of which are shown in Fig. 1. Twenty-eight percent of patients did not undergo any active treatment because of deterioration or patient wishes. Active treatment rate for SCLC was 83%, which mostly comprised of chemotherapy (71%). Active treatment rate for NSCLC was 77% with chemotherapy (36%), surgery (24%), radiotherapy (18%) and combined chemo plus radiotherapy (2%). Radical treatments offered were surgery, radiotherapy and combined chemoradiation in 25%, 3% and 0.5%, respectively. Active treatment rate for all lung cancers excluding SCLC was 71%.

Percentage of patients with histological confirmation, surgical resection and active treatment in UHSM were 89, 18 and 72 compared to LUCADA average of 66, 9 and 45 (Fig. 2). Similarly the active treatment rates for histologically proven SCLC, NSCLC and all lung cancers excluding SCLC were 84%, 77% and 70.8%, respectively, compared to the LUCADA national average of 73.5%, 66% and 56.5%, respectively (Fig. 3).

Survival data was available for 325 NSCLC patients and 66 SCLC patients. Among the NSCLC patients, the five-year
overall survival was 27.4% for the entire group. Their stage specific five-year survivals were 64.0%, 58.3%, 24.1% and 11.5%, respectively, for stages I, II, III and IV (Fig. 4). The overall five-year survival for SCLC was 18.2% with stage specific survivals of 3.0% and 33.0%, respectively, for extensive and limited stages, respectively (Fig. 5).

4. Discussion

Geographical inequalities in lung cancer management and survival have been well-described in previous reports from the UK and other countries [5, 6]. However, these reports were based on data from cancer registries and lacked the prospectively collected data that we have presented here. The causes for this inequality are manifold and include factors such as, socioeconomic deprivation, specialist referral pattern, case mix and availability of resources in local health care facility [6]. Our study shows that previously reported [7, 8] regional variation in active treatment rate still persists in the UK in spite of the introduction of national lung cancer guidelines and multidisciplinary meetings. There is ample evidence in the literature to show that survival in untreated lung cancer is poor even in early stage disease [9]. On the contrary, those receiving active treatment have better outcome even after making adjustments for the other risk factors and stage of disease [10].

Our histological confirmation rate and overall surgical resection rate are 89% and 18% compared to LUCADA national average of 66% and 9%. Higher rates of histological confirmation and surgical resection have helped us to drive our active treatment rates higher than the national average. We have reported our surgical resection rate recently which is comparable to the international standards [11]. Our institution has a strong respiratory medicine department including three professorial units. In addition, it has on site thoracic surgery with very easy access to oncological services at Christie’s Hospital. This has resulted in a very active MDT meetings with a greater proportion of patients being offered active treatment.

Fig. 2. Comparison of UHSM rates of histological confirmation, surgical resection and active treatment with UK National Lung Cancer Audit Data (LUCADA). UHSM, University Hospital of South Manchester.

Fig. 3. Comparison of UHSM rates of specific anticancer treatments for NSCLC, SCLC and all lung cancers excluding SCLC with UK National Lung Cancer Audit Data (LUCADA). UHSM, University Hospital of South Manchester; NSCLC, non-small cell lung cancer; SCLC, small cell lung cancer.

Fig. 4. Kaplan–Meier survival curves for NSCLC patients according to their stages obtained by matching the patient records to NHS strategic tracing system. NSCLC, non-small cell lung cancer.

Fig. 5. Kaplan–Meier survival curves for SCLC patients according to their stages obtained by matching the patient records to NHS strategic tracing system. SCLC, small cell lung cancer.
The data presented is based on the first mode of active treatment which could be surgery, chemotherapy, chemoradiation, radiotherapy or active palliation. Some patients underwent more than one mode of therapy but they were only counted once for the purpose of this study. During the study period our management policy did not include adjuvant chemotherapy as standard following a curative resection. However, in the light of recent studies [12] we have adopted adjuvant chemotherapy as standard where feasible for stages higher than IIB since early 2008.

5. Conclusion

These reassuring results show that south Manchester has good active treatment rates for lung cancer with survival outcomes comparable to other major series. However, there is no room for complacency as there is still a lot more scope for improvement.

References