SHORT REPORT

Retrospective study of radiotherapy for lung cancer in patients aged 75 years and over

CHRIS J. PATTERSON, MARK HOCKING, MARILYN BOND, CHARLIE TEALE

Department of Medicine, Seacroft Hospital, Leeds LS14 6UH, UK
Address correspondence to: C. Teale. Fax: (+44) 113 260 2528

Abstract
Background: radiotherapy is widely used in the management of lung cancer but there are few data on its use in elderly patients.
Methods: retrospective review of case notes of all patients aged 75 years and over referred to a regional centre for radiotherapy with a diagnosis of lung cancer over 1 year.
Results: of 149 patients referred, full information was available on 144 (97%); age range 75-93 years (mean 79). Main referral sources were chest physicians [68 (44%)], general physicians [40 (28%)], and geriatricians [20 (14%)]; all patients were accepted for radiotherapy. One hundred and thirty-four (93%) had palliative treatment with most [129 (90%)] receiving 1-5 fractions over 1 week and 117 (81%) having treatment as an outpatient. Palliation appeared good for haemoptysis but less effective for the more common symptoms of dyspnoea and cough. Side effects were reported by 25 patients (18%) and were usually mild.
Conclusion: radiotherapy for lung cancer in this selected group of elderly patients is well tolerated with responses similar to those in younger patients.

Keywords: old age, lung cancer, radiotherapy

Introduction
Some 35 000 new cases of lung cancer occur each year in the UK [1]. The mean age at presentation is rising [2] and by the year 2000 more than 40% of all new cases will present in those over 75 [3]. Despite advances in staging, diagnosis and the definition of prognostic factors, there has been little improvement in survival over the last two decades [3]. Surgical resection is the first-line curative treatment but is appropriate for only a few, making radiotherapy the commonest active treatment in the UK.

Several studies have investigated the role of palliative radiotherapy in lung cancer but, although all have included a few older patients, none has looked specifically at elderly subjects. In two large Medical Research Council trials of palliative radiotherapy in non-small lung cancer fewer than one-quarter of patients were over 75 [4, 5]. Two further studies on the palliation of symptoms in lung cancer [6, 7] included patients of all ages but limited information was given on age range and distribution; the mean or median ages were under 70 years.

Radiotherapy may be effective and beneficial for lung cancer in old age. A recent study suggests that age influences the management of lung cancer and patients seeing a chest physician are more likely to receive active treatments, including radiotherapy [8]. However, in the absence of published studies, clinicians managing elderly patients with lung cancer may feel cautious about referring them for radiotherapy. Can the benefits of radiotherapy in younger patients be extrapolated to elderly patients? Are any benefits outweighed by the difficulties of giving radiotherapy or its side effects? Definitive answers to these questions will only be found if elderly patients are included in future prospective studies. In the absence of such studies, we have performed a retrospective study of older patients referred to the regional radiotherapy centre.
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Table 1. World Health Organisation classification of performance status

<table>
<thead>
<tr>
<th>Grade</th>
<th>Summary</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Normal</td>
<td>Able to carry out normal activity without restriction</td>
</tr>
<tr>
<td>1</td>
<td>With effort</td>
<td>Restricted to physically strenuous activity but ambulatory and able to carry out light work</td>
</tr>
<tr>
<td>2</td>
<td>Restricted</td>
<td>Ambulatory and capable of all self care but unable to work; up and about more than 50% of waking hours</td>
</tr>
<tr>
<td>3</td>
<td>Dependent</td>
<td>Capable of only limited self care. Confined to bed/chair more than 50% of waking hours</td>
</tr>
<tr>
<td>4</td>
<td>Immobile</td>
<td>Completely disabled; cannot carry out self care; confined to bed or chair</td>
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with lung cancer to clarify the potential benefits and problems of radiotherapy.

Methods

We reviewed the case notes of all patients referred to the regional radiotherapy centre at Cookridge Hospital in Leeds during 1993 for consideration for radiotherapy for lung cancer. The centre covers a population of about 4000000. The review took place in early 1995 and involved examining routine hospital records from which the following information was extracted: age, referral source, performance status (European Clinical Oncology Group/World Health Organisation criteria [9]; Table 1), previous investigation and treatment, tissue diagnosis plus stage and known metastasis, treatment aims (radical/palliative), dose schedules, symptoms and response to treatment, nature and severity of side effects and outcome.

Results

A total of 149 patients referred for radiotherapy were aged over 75 years and over. Full information was available on 144 (97%) (age range 75-93 years; mean 79 years). All patients referred were accepted for treatment. The main sources of referral were chest physicians [64 (44%)], general physicians [40 (28%)] and geriatricians [20 (14%)]; in addition 10 (7%) were referred from thoracic surgeons, four (3%) from hospices, three (2%) from general practitioners and one each from general surgery, orthopaedic surgery and dermatology.

Twenty-seven patients (19%) were graded as performance grade 0, 56 (39%) as grade 1, 36 (25%) as grade 2, 18 (12%) as grade 3, none as grade 4 and seven (5%) as unclear from notes. Thus, 119 (83%) were ambulatory and independent in self care, but 18 (12%) were dependent.

At the time of referral, 101 (70%) had undergone bronchoscopy and 42 (29%) a thoracic computed tomography scan. Tissue diagnosis was obtained for 104 patients (72%): 73 (70%) of these had squamous cell carcinoma, 13 (13%) small cell carcinoma, 12 (12%) adrenocarcinoma and six (6%) large cell carcinoma. Thirty-one patients (24%) had known metastases, of which 24 (17%) were in bone, three (2%) in the brain, three (2%) in the lymph nodes, two (1%) in the liver and two (1%) in the adrenal glands. Most patients [131 (91%)] had had no previous treatment; eight (6%) had undergone previous surgery for their lung cancer and five (4%) had received chemotherapy, all for small cell tumours. (No patients received chemotherapy during the study.)

One patient died 1 week after assessment but before treatment started and one declined radiotherapy. Therefore, 142 received radiotherapy. Eight patients (6%) had radical radiotherapy with curative intent; all of these were unfit for or refused surgery. Of the 134 patients receiving palliative radiotherapy, 25 (19%) received a single fraction and 104 (78%) received 2-5 fractions over 1 week. The remaining five patients were treated for 9-14 days. One patient died before completing treatment. Overall, 117 (82%) were treated as outpatients. Twenty-seven (19%) had further radiotherapy to the same or different areas.

The commonest symptoms were cough and breathlessness (reported by about half the patients), while haemoptysis and chest pain were seen in one-third and weight loss in one-quarter. The effectiveness of palliation varied for different symptoms: a complete or moderate response was reported in 35 out of 44 (80%) patients with haemoptysis, 25 out of 45 (56%) with chest pain, 32 out of 73 (44%) with dyspnoea, 14 out of 57 (25%) with cough and two out of 11 (18%) with dysphagia. Twenty-five patients (18%) reported side effects, of whom 12 (9%) had dysphagia, seven (5%) lethargy and five (4%) pain; of the 28 reported side effects, 17 (61%) were graded as mild. Of the eight patients who received radical radiotherapy, four (50%) were still alive after 21-25 months; mean survival of those who had died was 12 months. Only four (3%) of the 133 patients who completed a course of palliative radiotherapy were alive 15-24 months later, the mean survival of those dying was 5 months.
Discussion

This is the first study to assess specifically the problems and benefits of radiotherapy for lung cancer in elderly patients. Our results suggest that radiotherapy is generally simple and well tolerated in this group and responses are similar to those seen in younger adults.

Most patients were referred by respiratory physicians: only 14% were referred by geriatricians. This may be because referrals are initially made to a respiratory physician, who refers on for radiotherapy, or because the overall clinical state and frailty of many of the patients in the care of geriatricians makes referral inappropriate. However, the data raise the possibility that patients who may benefit are not being referred. This may be due either to concerns about the potential difficulties and side effects of radiotherapy in aged people or a lack of awareness of or confidence in its potential benefits. The possibility of under-referral is supported by the 100% acceptance rate for radiotherapy. It may be that acceptance of some 'borderline' patients reflects the psychological difficulties of turning patients down for their only active treatment option. In addition, the treatment of other patients may have been discussed with a radiotherapist without a formal referral. However, it is likely that some patients who could benefit are not being referred.

The bronchoscopy rate of 70% demonstrates the feasibility of this procedure in elderly patients [10], while the 72% histological confirmation is in line with that reported in elderly patients by Brown et al. [8]. That 70% of patients had squamous cell carcinoma is keeping with the increase in this cell type in old age reported in the USA [1].

Most older subjects received 1-5 fractions over 1 week as outpatients, with fewer than 20% reporting side effects, most of which were mild. A prospective study with similar regimes showed mild transient dysphagia in up to 56% of patients of all ages [5]. Perhaps elderly patients are less prone to develop or complain of side effects. The incidence of side-effects may have been under-reported because of our retrospective reliance on standard case notes.

Palliation appears effective for haemoptysis and moderate for chest pain but less effective for the commoner symptoms of cough and dyspnoea. Once again, these responses must be interpreted with caution because of the retrospective nature of this study. However, they are in line with studies in younger patients. Muers and Round reported palliation of haemoptysis of 86%, chest pain of 73% and dyspnoea and cough of around 30% in patients with a mean age of 66 years [6]. Similar results were also reported for radiotherapy used to palliate inoperable lung cancer [7]. Other reasons for giving radiotherapy include prevention of imminent airway obstruction and reassurance that active treatment is being given.

Half of the patients who received radical radiotherapy were still alive after 2 years. This is in keeping with the findings of Noordijk et al. [11] and demonstrates that this may be an option for selected elderly patients with a 'resectable' tumour who are not medically fit for surgery. The mean survival of patients receiving palliative radiotherapy was 5 months. Radiotherapy does not confer a survival advantage in inoperable lung cancer [12, 13] but has a palliative role even when the prognosis is poor.

These results suggest that radiotherapy is a simple, well-tolerated treatment for elderly patients with lung cancer. Symptom relief varied, with good responses in haemoptysis and chest pain but poorer response rates in cough and breathlessness, as in younger patients. The low referral rate from geriatricians coupled with the 100% acceptance rate of those referred raises the possibility of under-referral. Whether this apparent under-referral is appropriate or not has yet to be determined. Reasons for any under-referral also need to be explored.

Prospective studies are now needed, in which the severity of presenting symptoms, response to treatment and side effects are documented and assessments are made of health-related quality of life.

Key points

- Radiotherapy can be useful in treating haemoptysis and chest pain in older patients with lung cancer; it is less effective for dyspnoea and cough.
- This retrospective study of older patients referred to a regional radiotherapy centre suggests that radiotherapy is well tolerated and that responses are similar to those of younger patients.
- There may be under-referral of lung cancer patients for radiotherapy by geriatricians.

References


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