Why Do Some Lung Cancer Patients Receive No Anticancer Treatment?

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Introduction: A significant proportion of lung cancer patients receive no anticancer treatment. This varies from 19% in USA, 33% in Australia, 37% in Scotland, and 50% in Ireland. The aim of this study was to identify the reasons behind this.

Methods: The Lung Cancer Multidisciplinary Meeting (MDM) in South-West Sydney prospectively collects data on all patients presented. All new lung cancer patients presented between December 1, 2005, and December 31, 2007, were reviewed. Patients were assigned optimal treatment based on evidence-based guidelines. Those patients in whom guidelines recommended no treatment (GNT) were compared with those whom the MDM recommended no treatment (MNT) and with those who actually received no treatment (ANT).

Results: There were 335 patients with a median age of 69 years. A total of 82% had non-small cell lung cancer, 14% had small cell lung cancer, and 4% had no pathologic diagnosis. Eighty-five percent had locally advanced or metastatic disease. GNT was recommended in 4% (n = 13), MNT in 10% (n = 32) but ANT comprised 20% (n = 66). The differences between GNT and MNT were mainly due to patient comorbidities and clinician decision, but the differences between MNT and ANT were due to patient preference and declining performance status. In multivariate analysis, older age, poorer Eastern Cooperative Oncology Group status, non-small cell lung cancer, and non-English language predicted for ANT.

Conclusions: The proportion of patients with lung cancer receiving no treatment is greater than that predicted by guidelines or recommended by the MDM but lower than that described in population-based studies suggesting that MDMs can improve treatment utilization in lung cancer.

Key Words: Lung neoplasms, Treatment utilization, Radiotherapy, Chemotherapy, Patterns of care.

(*J Thorac Oncol.* 2010;5: 1025–1032)

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Disclosure: The authors declare no conflicts of interest.

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ISSN: 1556-0864/10/0507-1025

Lung cancer is the leading cause of cancer related mortality in most Western nations.[1–4] The 5-year survival is poor in the order of 10 to 15%. This can only be improved through the use of anticancer therapies namely surgery, radiotherapy, and chemotherapy including biologic agents. Survival is consistently better in patients who receive anticancer treatment compared with those who do not.[5] At the population level, survival is improved in populations that have higher rates of active treatment.[6]

However, there is worldwide variation in treatment utilization for lung cancer.[5,7–10] Lung cancer patients in USA are the most likely to receive treatment, with a treatment utilization rate of 81%.[5] In contrast, only 50% of lung cancer patients in Ireland and New Zealand, 63% in Scotland, and 67% in Australia receive anticancer treatment.[7,9,11,12] In a disease with increasing incidence and poor survival, and where screening has not been shown to reduce mortality, outcomes can only be improved with the delivery of anticancer treatment.

Lung cancer studies have identified that not all patients who might warrant treatment actually receive treatment.[7,9,12,13] Why then are a significant number of patients not receiving any treatment? Lung cancer is primarily a cancer of the elderly with median age close to 70 years.[7,11,12] Older patients are at higher risk of suffering complications from surgery and are poorly represented in trials of chemotherapy and radiotherapy.[14] In addition, coexisting comorbidities can limit the ability to treat patients optimally. The incidence of comorbidity increases with age and is double for lung cancer patients than that of the general population.[15,16] Temporal trends in the American lung cancer population have shown that this population is getting older with a greater number of comorbidities.[17]

Although there are many valid reasons where anticancer treatment may not be appropriate, there are other factors that have been associated with lack of treatment. Most patients present with advanced disease that is often incurable. This lends itself to therapeutic nihilism that has been identified among clinicians.[18,19] Distance from oncology services and total care in the public health sector have also been associated with lack of treatment.[9,11,12]

Many studies have shown various factors to be predictive of no treatment in lung cancer; however, the actual reasons for no treatment have been poorly documented.

The aim of this study was to identify specific reasons for no treatment of lung cancer patients in a cohort where the treatment decision was discussed and documented at a multidisciplinary team meeting. We also wanted to estimate the proportion of reasons that might be classed as being legitimate and not influenced by clinician or patient preferences.

PATIENTS AND METHODS

South-West Sydney (SWS) is located in the south-western outskirts of Sydney, New South Wales (NSW), Australia. It covers an area of 6237 km^2 and services a population of 840,000. The Liverpool and Macarthur Cancer Therapy Centres provide radiotherapy and chemotherapy services across two campuses for this population. These centers are linked by common staff and treatment protocols. Liverpool Hospital is a tertiary care hospital that provides the only cardiothoracic surgery services for the region. There is an area cancer registry for SWS, which receives mandatory notifications of all cancers diagnosed in the region. All patients seen at the Cancer Therapy Centres also have staging, pathology, and treatment recorded.

A weekly videoconferenced Lung Cancer Multidisciplinary Meeting (MDM) is held between Liverpool and Macarthur Cancer Therapy Centres. Presentation of all newly diagnosed lung cancer patients at the MDM is encouraged but is at the discretion of individual clinicians. Prospective data collection on all presented patients has occurred since December 1, 2005. The data collected includes patient demographics, comorbidities, performance status, histology, diagnostic investigations, stage, and prior therapy. The MDM consensus is recorded at the end of the meeting. An assessment is completed 6 months after the MDM discussion to determine the treatment actually received.

All patients with newly diagnosed lung cancer who were presented at the MDM between December 1, 2005, and December 31, 2007, were reviewed. For patients in whom the MDM recommended no active anticancer treatment, a reason had been recorded in the database. For those additional patients who actually received no treatment despite an MDM recommendation for treatment, the medical records were reviewed to ascertain the reasons.

International evidence-based guidelines from the UK, USA, and Australia[20–25] were reviewed to assign an optimal treatment for each patient based on pathology, stage, and performance status (Table 1). The guidelines were not used to ascertain specific prescriptive treatments but rather the range of possible treatments supported by evidence for a particular pathology and stage of disease and performance status of the patient. Except for Eastern Cooperative Oncology Group (ECOG) 0 to 3 patients with limited-stage small cell lung cancer (SCLC), all other categories of patients had more than one treatment option available, which would have counted as guideline-based treatment.

Those patients in whom no anticancer therapy was recommended by guidelines were compared with those patients in whom the MDM recommended no treatment and with those patients who actually received no treatment. Analysis was performed using SPSS version 17.[26] This study was approved by the local human research ethics committee.

TABLE 1. Guideline Recommended Treatment Based on Stage and Performance Status[20–25]

NSCLC	ECOG PS 0–2	ECOG PS 3–4
Stage I	Surgery or curative radiotherapy	Palliative radiotherapy to symptomatic sites
Stage II	Surgery + adjuvant chemotherapy or curative radiotherapy + chemotherapy	
Stage IIIA	Surgery + adjuvant/neoadjuvant chemotherapy ± radiotherapy OR Curative radiotherapy + chemotherapy	
Stage IIIB	Radiotherapy + chemotherapy, curative or palliative	
Stage IV	Palliative chemotherapy ± palliative radiotherapy to symptomatic sites	
SCLC	**ECOG PS 0–3**	**ECOG PS 4**
Limited	Curative chemotherapy + radiotherapy	Palliative radiotherapy to symptomatic sites
Extensive	Palliative chemotherapy ± palliative radiotherapy to symptomatic sites	

ECOG PS, Eastern Cooperative Oncology Group performance status; NSCLC, non-small cell lung cancer; SCLC, small cell lung cancer.

RESULTS

Between December 1, 2005, and December 31, 2007, 571 SWS residents were diagnosed with primary lung cancer and 481 new lung cancer patients were seen at Liverpool and Macarthur Cancer Therapy Centres. During this period, 335 patients with newly diagnosed lung cancer were discussed at the lung MDM, 149 in 2006 and 186 in 2007. This represented 70% of all new lung cancer patients seen at the Cancer Therapy Centres and 59% of the lung cancer population in SWS. The patient and tumor characteristics are shown in Table 2.

The patients had a median age of 69 years and approximately two-thirds were men. Equal proportions were born in Australia and overseas although the majority spoke English. Sixty-four percent were of good performance status (ECOG 0–1). A total of 82% of patients had non-small cell lung cancer (NSCLC), 14% SCLC, and 4% did not have pathologic confirmation of diagnosis. The majority of patients presented (84%) had locally advanced or metastatic disease.

There were some differences between patients presented at the MDM and those seen at the Cancer Therapy Centres (CTC) and those diagnosed with lung cancer in SWS. The MDM population had a greater proportion of men and a smaller proportion of patients aged 80 years and older. ECOG performance status was difficult to compare because it was either not recorded (CTC) or missing (SWS) in a large proportion of patients. The pathology distribution between MDM and CTC patients was similar. SWS patients had a greater proportion of patients without

TABLE 2. Comparison of Patient and Tumour Characteristics Between MDM Population, Patients Seen at the Cancer Therapy Centres, and All Lung Cancer Patients Diagnosed in South-West Sydney

	MDM (n = 335)	Cancer Therapy Centres (n = 481)	South-West Sydney (n = 571)	p
Gender				
Male	218 (65)	300 (62)	350 (61)	<0.0001
Female	117 (35)	181 (38)	221 (39)	
Country of birth				
Australia	163 (49)	232 (48)	286 (50)	NS
Overseas	165 (49)	228 (48)	281 (49)	
Unknown	7 (2)	21 (4)	4 (1)	
Language				
English	275 (82)	396 (82)	293 (51)	<0.0001
Other	59 (18)	80 (17)	86 (15)	
Unknown	1 (0)	5 (1)	192 (34)	
Age (yr)				
<50	22 (7)	30 (6)	28 (5)	0.001
50–59	47 (14)	71 (15)	85 (14)	
60–69	110 (33)	130 (27)	159 (27)	
70–79	116 (35)	171 (36)	206 (36)	
80+	40 (12)	79 (16)	93 (16)	
ECOG PS				
0–1	213 (64)	—	199 (35)	<0.0001
2	76 (23)	—	57 (10)	
3–4	45 (13)	—	53 (9)	
Unknown	1 (0)	—	262 (46)	
Pathology				
NSCLC	274 (82)	391 (81)	440 (77)	<0.0001
Squamous cell	60 (18)	82 (17)	89 (16)	
Adenocarcinoma	90 (27)	121 (25)	179 (31)	
Large cell carcinoma	109 (32)	140 (29)	122 (21)	
NSCLC NOS	15 (5)	48 (11)	50 (9)	
SCLC	46 (14)	78 (16)	84 (15)	
No pathology	15 (4)	12 (3)	47 (8)	
Stage[a]				
NSCLC stage I	29 (9)	23 (5)	48 (8)	<0.0001
NSCLC stage II	25 (7)	30 (6)	30 (5)	
NSCLC stage III	122 (36)	156 (32)	116 (20)	
NSCLC stage IV	113 (34)	194 (40)	176 (31)	
NSCLC unknown stage	0 (0)	0	117 (21)	
SCLC limited stage	19 (6)	27 (6)	47 (8)	
SCLC extensive stage	27 (8)	51 (11)	20 (4)	
SCLC unknown stage	0 (0)	0 (0)	17 (3)	

Values are given as n (%).

MDM, multidisciplinary meeting; ECOG PS, Eastern Cooperative Oncology Group performance status; NSCLC, non-small cell lung cancer; SCLC, small cell lung cancer.

pathology, i.e., clinical diagnosis only. It was difficult to compare the stage of cancer when this was not documented in 24% of SWS patients. However, if we compare patients in whom the stage was documented, MDM patients had a greater proportion of patients with stage III NSCLC and extensive-stage SCLC and a smaller proportion of patients with stage IV NSCLC compared with both the CTC and SWS populations.

Based on evidence-based guidelines, no treatment was recommended in 13 of the 335 patients (4%) discussed at the MDM. The MDM recommended no treatment in 32 patients (10%). However, 66 patients (20%) actually received no treatment in the 6 months after presentation at the MDM. Table 3 outlines the reasons for no treatment.

The most common reason for guidelines not recommending any treatment was poor performance status (85%). The MDM recommended no treatment in a further 19 patients for whom guidelines would have recommended treatment. The main reasons for this were specific comorbidity (47%) or physician decision (32%). The coding of

TABLE 3. Reasons for No Treatment (*n*)

No Treatment	Guideline	MDM	Actual	Total
Objective reasons				
Poor or declining ECOG PS/progressive disease	11	0	14	25
Comorbidity	0	9	2	11
Technical factors	0	3	0	3
Palliative and asymptomatic	2	0	0	2
Subjective reasons				
Physician decision	0	6	1	7
Patient decision	0	1	17	18
Total	13	19	34	66

ECOG PS, Eastern Cooperative Oncology Group performance status; MDM, multidisciplinary meeting.

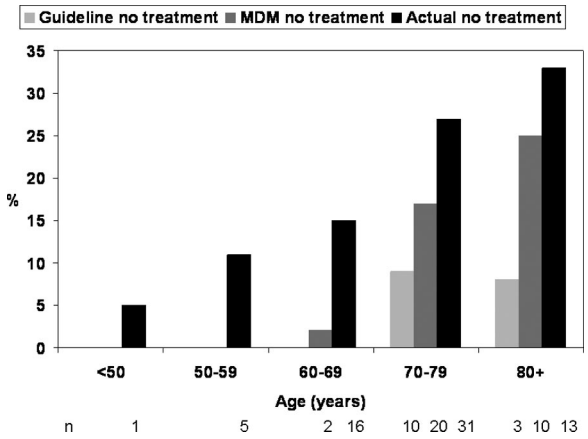

FIGURE 1. No treatment by age group. Numbers above bars refer to number of patients in each group.

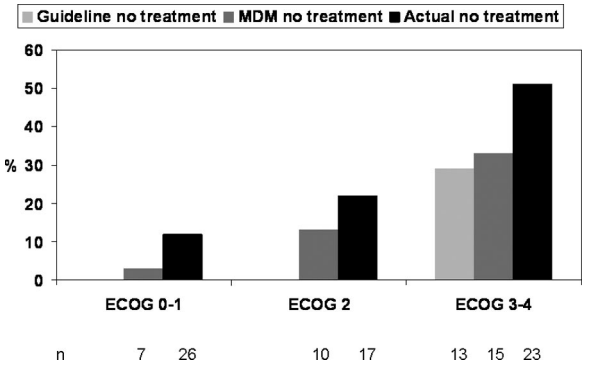

FIGURE 2. No treatment by Eastern Cooperative Oncology Group (ECOG) performance status. Numbers above bars refer to number of patients in each group.

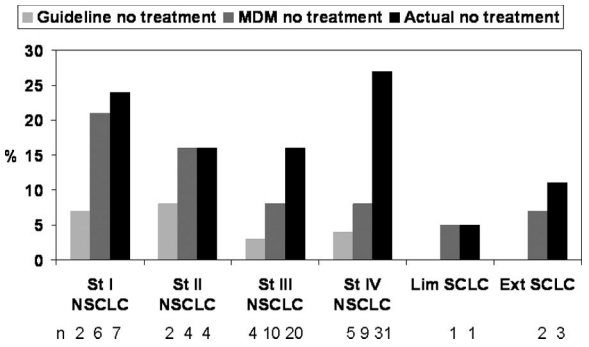

FIGURE 3. No treatment by stage of NSCLC and SCLC. Numbers above bars refer to number of patients in each group. NSCLC, non-small cell lung cancer; SCLC, small cell lung cancer; St, stage; Lim, limited stage; Ext, extensive stage.

physician decision was made in those cases where no other reason was stated for no treatment. This was a collective decision made by the members of the MDM after taking the patient's individual factors into consideration. In three patients (16%), technical factors were the reason behind lack of treatment. These were factors that precluded safe delivery of radiotherapy based on the size or location of the cancer or based on overlap with previous radiotherapy treatment fields.

A further 34 patients received no treatment despite an MDM recommendation for treatment. Patient preference played a major role in this being the reason in 50% of cases. Declining performance status, usually as a result of progressive tumor, accounted for 41%.

In univariate analysis, patient age, performance status, presence of comorbidity, language spoken, and tumor pathology were significantly associated with the lack of treatment. Older patients were significantly more likely to have no treatment ($p = 0.001$) (Figure 1). Guidelines recommended no treatment only in patients aged 70 years and older, and the MDM recommended no treatment only in patients aged 60 years and older. However, actual no treatment was seen across all age groups. More than a quarter of patients aged 70 years and above and one-third of those aged 80 years and above received no treatment.

Poorer performance status was significantly associated with no treatment ($p < 0.001$). Guidelines recommended no treatment only in patients who were ECOG 3 or 4. However, MDM recommendations and actual no treatment spanned all scores of performance status scores (Figure 2).

Patients who had at least one comorbidity were more likely to have no treatment (24%) than those who did not have any (12%) ($p = 0.005$). Patients who did not speak English were more likely to have no treatment (30%) compared with those who spoke English (18%) ($p = 0.02$). Other patient factors such as gender, marital status, and country of birth were not associated with no treatment. The patients' postcode of residence was used to code for socioeconomic status and accessibility to health services. Neither of these were significantly associated with no treatment.

Tumor pathology was predictive of no treatment. Twenty-two percent of patients with NSCLC had no treatment compared with 9% of patients with SCLC ($p = 0.03$). There was some variation in no treatment by stage although this was not statistically significant (Figure 3). Guideline recommended no treatment rates were similar

for all stages of NSCLC ranging from 3 to 7%. Guidelines did not stipulate recommendations for no treatment in any patients with SCLC. The MDM recommendation for no treatment fell with increasing stage of NSCLC. However, the proportion who actually received no treatment was highest for stage IV and I NSCLC.

In multivariate analysis, patient age, language, ECOG performance status, and pathology independently predicted for no treatment (Table 4). Patients who did not speak English were twice as likely to have no treatment, whereas patients with poor performance status (ECOG 3–4) were 6 times as likely not to have treatment. Compared with patients younger than 50 years, the likelihood of receiving no treatment was threefold greater in patients aged 50 to 69 years and five times greater for those aged 70 years and older. Patients with NSCLC were 2.7 times more likely to receive no treatment than those with SCLC.

To estimate the best treatment utilization rate that could potentially be achieved in our MDM cohort, we looked at the proportion of patients who had an objective reason for no treatment. Patients in whom the decision for no treatment was made on the basis of physician or patient preference were excluded due to potential biases (Table 3). Based on this, the no treatment rate would be 41 of 335 or 12%. Thus, the best treatment utilization rate that could potentially be achieved in our MDM cohort would be 88%.

DISCUSSION

The majority of lung cancer patients present with locally advanced or metastatic disease.[7,9,11,12] The complexity of management is underpinned by the multiple health care disciplines involved, the older age, and coexisting comorbidities of this patient population. This has resulted in up to half of this population not receiving any treatment for their lung cancer.[11,12]

Guidelines recommend discussion of lung cancer patients in a multidisciplinary setting.[21,22,25] This has been shown to improve treatment utilization in lung cancer.[12] However, the recommendations will differ depending on the profile of patients presented at this forum. When compared with the general lung cancer in SWS, at our MDM, there was an overrepresentation of patients with stage III NSCLC and extensive-stage SCLC and correspondingly fewer patients with stage IV NSCLC. In this group, 12% of patients had an objective reason for not receiving any treatment (Table 3).

Population-based studies give an indication of what proportion of patients actually received no anticancer treatment. In our cohort, the actual no treatment rate was lower than that described in other population-based studies in Australia (Figure 4).[7,8,10,27] This may be due to the selection bias associated with MDM presentation and it is the main limitation of this study. Patients who were not presented may not have been fit for treatment. This could explain why the no treatment rates in the general population are higher than those seen in our MDM population.

The patterns of care study performed in NSW had sufficiently detailed demographic and tumor information to permit comparisons between the MDM population and the NSW lung cancer population (Table 5).[7] SWS is just one region in the state of NSW that has a population of 6 million. Age and gender distribution were similar. However, there were significant differences in ECOG performance status, pathology, and stage. NSW patients were more likely to have poorer or unknown ECOG status compared with the MDM patients. More NSW patients had no pathologic confirmation of their cancer (13% NSW versus 4% MDM). NSW contained more patients with stage I and II NSCLC (25% versus 16%) and correspondingly fewer with stage III NSCLC (19% versus 36%).

Treatment utilization in the MDM cohort could potentially be increased (better performance status patients)

TABLE 4. Multivariate Analysis for Factors Predicting for No Treatment

	n	Odds Ratio	95% CI	*p*
Language				
English	275	1		0.02
Other	59	2.3	1.2–4.7	
Age (yr)				
<50	22	1		0.01
50–69	157	2.9	0.4–23.8	
≥70	155	5.2	0.7–41.8	
ECOG PS				
0–1	213	1		<0.001
2	76	2	1–4	
3–4	45	6.4	3–13.7	
Pathology				
SCLC	46	1		0.05
NSCLC	288	2.7	0.9–8	

ECOG PS, Eastern Cooperative Oncology Group performance status; NSCLC, non-small cell lung cancer; SCLC, small cell lung cancer; CI, confidence interval.

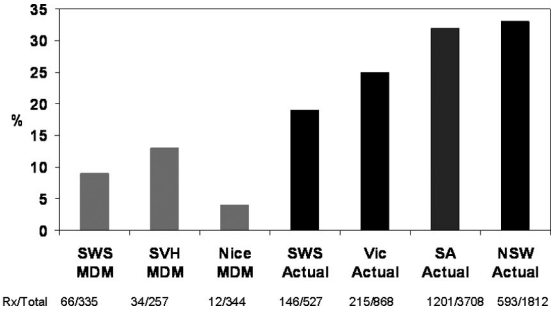

FIGURE 4. No treatment recommended by multidisciplinary team meeting (MDM) compared with actual no treatment in lung cancer populations. Numbers above bars: number of patients who received no treatment/total population. The "MDM" bars refer to no treatment rates in lung cancer patients discussed at multidisciplinary meetings in South-Western Sydney (SWS), St. Vincent's Hospital, Australia (SVH),[28] and Nice, France.[29] The "Actual" bars refer to no treatment rates in lung cancer patients identified from population data in South-Western Sydney (SWS),[27] Victoria (Vic),[8] South Australia (SA),[10] and New South Wales (NSW)[7] in Australia.

TABLE 5. Comparison of MDM Population to Lung Cancer Population in NSW[7]

	MDM 2005–2007 (n = 335)	NSW 2001–2002 (n = 1812)	p
Gender			
Male	218 (65)	1195 (66)	NS
Female	117 (35)	617 (34)	
Age (yr)			
<60	69 (21)	353 (19)	NS
60–69	110 (33)	478 (26)	
70–79	116 (35)	701 (39)	
80+	40 (12)	275 (15)	
Unknown	0 (0)	5 (0)	
ECOG PS			
0–1	213 (64)	1023 (57)	<0.001
2	76 (23)	313 (17)	
3–4	45 (13)	332 (18)	
Unknown	1 (0)	144 (7)	
Pathology			
NSCLC	274 (82)	1290 (71)	<0.001
SCLC	46 (14)	278 (15)	
No pathology	15 (4)	237 (13)	
Stage[a]			
NSCLC stage I	29 (9)	343 (19)	<0.0001
NSCLC stage II	25 (7)	102 (6)	
NSCLC stage III	122 (36)	339 (19)	
NSCLC stage IV	113 (34)	600 (33)	
NSCLC unknown stage	0 (0)	143 (8)	
SCLC limited stage	19 (6)	83 (5)	
SCLC extensive stage	27 (8)	189 (10)	
SCLC unknown stage	0 (0)	6 (6)	
No treatment	66 (20)	598 (33)	<0.0001

Values are given as n (%).

[a] Patients without pathological diagnosis staged with NSCLC group.

MDM, multidisciplinary meeting; ECOG PS, Eastern Cooperative Oncology Group performance status; NSCLC, non-small cell lung cancer; SCLC, small cell lung cancer.

or decreased (fewer patients with stage I and II NSCLC) by these factors. Twenty percent of MDM patients received no treatment compared with 33% of NSW patients ($p < 0.0001$). This large difference is unlikely to be fully explained by the differences in population characteristics alone.

There have been two other studies reporting on the outcomes of lung cancer MDMs.[28,29] Conron et al. reported on outcomes of an MDM in Victoria, Australia. Two hundred fifty-seven lung cancer patients presented and 50% of those with NSCLC had stage I and II cancers.[28] No treatment was recommended in 13% of their patients similar to the 10% in this study, despite the differences in stage profiles (Figure 4). The reasons for recommendation of best supportive care were not stated nor the proportion of patients actually not receiving treatment.

In France, multidisciplinary care for cancer patients is mandated by law. The profile of the MDM described by Leo et al.[29] is similar to this study, with 74% of the 344 patients presented having stage III or IV cancers. Best supportive care was recommended in only 4% of patients, half that of this study (Figure 4). They assessed whether patients received the recommended treatment. In 15 patients (4.4%), there was discordance. This was primarily due to patient preferences (7 of 15) or medical contraindications (5 of 15). The proportion of patients recommended for no treatment by MDMs is affected by the selection biases of the particular MDM population in addition to individual patient factors such as performance status and comorbidities.

The best treatment utilization rate that could potentially be achieved based on indications for treatment and medical fitness of the patients for treatment was 88%. There are models of optimal utilization in radiotherapy and chemotherapy for lung cancer.[30,31] However, these models are based on broad grouping strategies of stage and performance status, and individual patient factors such as comorbidities cannot be taken into account. For this reason, it is difficult to find a benchmark for what the ideal treatment utilization should be in lung cancer.

In those population-based studies showing low utilization of treatment for lung cancer (50%), the patients performance status was not recorded.[11,12] In Scotland where the treatment utilization rate is 62%, a significant proportion of patients were ECOG 3 or 4 (24%) or had unknown ECOG status.[9] It may be that the general poor health of the lung cancer population in some countries may preclude active treatment. However, these are all Western Countries with well-developed health systems. The populations would not be dissimilar to that of North America, which has greater utilization of treatment for lung cancer.

Differences in health care systems may also impact on treatment utilization. In centralized health care systems such as in Scotland, UK, and Australia, financial constraints in health care expenditure could potentially impact on treatment utilization in a cancer with poor prognosis. Conversely, health provider remuneration for treatment in USA could explain higher utilization of treatment there. Differing clinician perceptions about the value of treatment in lung cancer may also be a factor.[19,32,33] Whatever the reason, treatment utilization rates of 50 to 60% are low and are denying treatment for lung cancer patients, which could be curative or improve their quality of life.

In this cohort, age, performance status, language, and pathology were found to be associated with no treatment. Other studies have also shown increasing age and declining performance status to be predictive of no treatment.[9,11,12,27] Patients with poorer ECOG status are physiologically not able to tolerate treatment and more likely to have treatment-related complications.

However, age, is a more contentious issue. Many clinical trials that form the basis for current guidelines had an upper age limit for trial entry, and the elderly are poorly represented. A review of SWOG trials found that although 66% of the general lung cancer population were aged 65 years and older, this age group comprised only 39% of lung cancer patients enrolled in SWOG trials.[34] None of the guidelines, however, have an age cutoff for treatment

recommendations.[20–25] The British Thoracic Society actually states that "all patients regardless of age, should be referred and investigated in the same way unless there are compelling reasons to the contrary, which should be specified in the clinical record."[35]

Increasing age is associated with greater organ dysfunction and so treatment has to be chosen appropriately. Elderly patients undergoing lung cancer resection may suffer more perioperative morbidity, but surgical mortality is comparable with younger patients.[36,37] If patients are medically unfit for surgery then curative radiotherapy is an alternative treatment.[38] Increasing age of patients with SCLC has been associated with a lower likelihood of receiving combined modality treatment, although treatment tolerance and efficacy is not related to age.[39,40] Radiotherapy and chemotherapy can be delivered to elderly patients with NSCLC with acceptable rates of efficacy and toxicity.[41,42] Age alone in the presence of good performance status and lack of significant comorbidities should not preclude treatment.

In our cohort, which is derived from a heterogeneous multiracial resident population, it is interesting to note that patients who did not speak English had significantly higher rates of no treatment. This may be due to lack of understanding about potential benefits, a lack of information resources in other languages, and preexisting cultural beliefs about Western medicine. This area needs further study and perhaps specific interventions to ensure quality of care is equivalent to the English-speaking population.

In this study, the prospective nature of data collection together with the coding of reasons behind lack of treatment provides some insight into some of the decision-making processes in the management of lung cancer, compared with other similar studies. The MDM is the ideal forum for decision making in lung cancer because the presence of different specialists should minimize treatment biases that might occur with any one specialty or one individual. With lung cancer survival being so poor, the selection of appropriate patients for treatment must be increased if we are to improve outcomes.

CONCLUSION

The actual proportion of patients receiving no treatment for their lung cancer was greater than that based on guidelines and MDM recommendations. MDM no treatment recommendations were mainly due to the presence of comorbidity, whereas reasons for actual no treatment were largely due to patient preference and declining performance status. Guidelines cannot account for individual patient factors that determine suitability for treatment. MDM discussion may reduce the proportion of patients receiving no treatment and could potentially improve survival and quality of life for lung cancer patients.

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