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Do patients with schizophrenia receive state-of-the-art lung cancer therapy? A brief report

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Abstract

Objective—Patients with schizophrenia sometimes receive substandard medical care. This study explored such disparities among lung cancer patients with underlying schizophrenia.

Methods—This retrospective study focused on patients with pre-existing schizophrenia (or in some instances schizoaffective disorder) and a lung cancer diagnosis made between 1980 and 2004. 'Disparity' was defined as a patient's having been prescribed less aggressive therapy for a potentially curable cancer based on state-of-the-art treatment standards for the time and for the cancer stage. Qualitative methods were used to assess healthcare providers' decision-making.

Results—29 patients were included. The median age was 59 years; 38% were men. Twenty-three had non-small cell lung cancer and 6 small cell lung cancer; 17 had potentially curable cancers. Five of 17 had a 'disparity' in cancer care: (1) no cancer therapy was prescribed because of chronic obstructive pulmonary disease; (2) no cancer therapy was prescribed because of infection; (3) no chemotherapy was prescribed because the patient declined it; radiation was provided; (4) no chemotherapy was prescribed because of the patient's schizophrenia symptoms; radiation was administered; and (5) no surgery was performed because of disorientation from a lobotomy; radiation was prescribed. Comments from healthcare providers suggest reflection and ethical adjudication in decision-making.

Conclusion—Schizophrenia was never the sole reason for no cancer treatment in patients with potentially curable lung cancer. This study provides the impetus for others to begin to assess the effect of schizophrenia on lung cancer management in other healthcare settings.

Keywords

lung cancer; schizophrenia; disparities

Introduction

Patients with schizophrenia are more than twice as likely to die in the hospital [1]. Even an appendectomy is associated with higher than expected death rates [2]. Patients with serious

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psychiatric illness are less likely to undergo coronary angiography after a myocardial infarction and must therefore contend with higher mortality rates [3,4]. It is not surprising that patients with serious psychiatric illness report poor access to care [5].

Do lung cancer patients with underlying schizophrenia contend with similar disparities in healthcare? To our knowledge, this question has never been explored. Yet, lung cancer is the most common cause of cancer-related death in the United States, and patients with schizophrenia are often avid smokers, whose tobacco habits put them at great risk for this malignancy [6,7]. This single-institution study was therefore conducted to explore the question posed above and to provide a detailed and critical assessment of potential healthcare disparities surrounding the care of schizophrenia patients diagnosed with lung cancer.

Materials and methods

Identification of patients

The Mayo Clinic Institutional Review Board approved this study. The Mayo Clinic Tumor Registry in Rochester, Minnesota, identified patients who had been seen at the Mayo Clinic in Rochester, Minnesota, with a diagnosis of schizophrenia and histologic or cytologic proof of lung cancer. If the diagnoses of schizophrenia versus schizoaffective disorder appeared ambiguous in the medical record, patients with the latter were included, as the overlapping characteristics of these entities suggest such distinctions are moot for the purposes of this study [8].

All patients had to have been diagnosed with lung cancer between 1980 and 2004 with a preexisting diagnosis of schizophrenia or schizoaffective disorder. The year 1980 was chosen because by then, cisplatin had become established as efficacious in lung cancer treatment [9].

Review of medical records

Medical records were reviewed by one investigator (F. M.) with information confirmed by another (A. J.). Collected information included the following: (1) date of birth, (2) date of lung cancer and schizophrenia diagnoses, (3) smoking history, (4) suicide attempts, (5) use of antipsychotic medications at lung cancer diagnosis, (6) whether the patient was institutionalized at lung cancer diagnosis and whether the patient had a guardian responsible for decisions, (7) cancer histology and stage information, (8) cancer treatment, (9) date of death or last follow up, and (10) relevant excerpts from clinical notes that were telling of healthcare provider decision-making. With regard to the latter, a deliberate attempt was made to review and record comments from cancer specialists.

The TNM or the limited/extensive staging systems were employed [10,11]. After reviewing the medical record, radiographic reports, operative notes, pathology reports, and, when necessary and accessible, the radiographs themselves, the investigators (F. M., A. J.) assigned a tumor stage. If inadequate information was available, an ‘unknown’ stage designation was given.

‘Disparity’ was defined as a patient’s having been prescribed less aggressive cancer treatment than that dictated by state-of-the-art standards for the time and for a given cancer stage. If a patient did not receive such state-of-the-art cancer therapy, the patient’s treatment was deemed ‘disparate’ with current standards, regardless of comorbidities. Because treatment options for non-small cell lung cancer stage IV or IIIB with a malignant pleural effusion are of modest benefit, patients with these more advanced tumor stages were not assessed for disparities.

Statistical analyses

Survival data were censored from the date of last follow up when vital status was unknown. Qualitative research methods were undertaken to better understand treatment decision-making [12,13]. A consensus was reached between F. M. and A. J. on how best to interpret qualitative findings. Direct quotes from the medical record were included to substantiate findings.

Results

General demographics

A total of 29 patients were identified. The median age was 59 years (range: 39, 76). Thirty-eight percent were men and the rest women. Twenty-seven patients had smoked with a median, recorded pack-year smoking history of 50 (range 15, 120) (Table 1).

Paranoid schizophrenia was the most common schizophrenia subcategory; 3 patients might have had schizoaffective disorder. Twenty-four patients (83%) were taking antipsychotic medications, and 18 (62%) appeared to have well-controlled psychiatric symptoms. Four (14%) had had a prior suicide attempt; such information was unavailable in 14 (48%). Eleven (38%) were institutionalized or utilizing assisted living arrangements at cancer diagnosis; 7 (24%) had a guardian responsible for decisions.

Cancer diagnosis and treatment

Twenty-three patients (79%) had a diagnosis of non-small cell lung cancer, and the remaining of small cell lung cancer (21%). Tumor stage, treatment after diagnosis, and survival are shown for all patients in Table 2. Thirteen patients had an early stage or locally advanced non-small cell lung cancer and thus had potentially curable cancers. Seven others had stage IV non-small cell lung cancer, and one had a locally advanced non-small cell lung cancer with a pleural effusion suggestive of stage IIIB disease. With regard to small cell lung cancer, 4 patients had limited stage disease and thus had potentially curable cancers, and 2 had extensive stage disease. Five of the 29 patients lived for one month or less after their cancer diagnosis.

In assessing cancer care disparities among the 17 patients with potentially curable cancer based on stage (13 with local or locally advanced non-small cell lung cancer and 4 with limited stage small cell lung cancer), only 5 patients did not receive state-of-the-art cancer therapy, as per this study's definition of the latter. Because of issues unrelated to their psychiatric illness, 3 faced the prospect of cure and yet received no cancer therapy or less aggressive cancer therapy. One of these 3 was not prescribed cancer therapy because of severe chronic obstructive pulmonary disease (patient 4). The second was not prescribed cancer therapy because of a severe infection (patient 6). A third made her own decision to decline chemotherapy (patient 21) and received only radiation. None of these 3 patients received less aggressive cancer therapy because of his/her mental illness.

In contrast, among the 2 remaining patients who did not receive state-of-the-art cancer therapy, psychiatric symptoms did influence healthcare providers' decision-making. Patient 8 had poor insight into his cancer diagnosis and received treatment with radiation alone. Patient 15 had had a frontal lobotomy as a young adult, appeared disoriented at the time of his cancer diagnosis, and received radiation instead of surgery for an early-stage non-small cell lung cancer. It is important to underscore that although schizophrenia did lead to less aggressive cancer therapy, both these patients did nonetheless receive some type of cancer therapy.

Did poorly controlled psychiatric symptoms influence physicians' cancer treatment recommendations? As pointed out in the 2 patients described immediately above (patients 8 and 15), it appears that they sometimes did. However, 3 patients received aggressive cancer

therapy, despite poorly controlled psychiatric symptoms. First, patient 11 had poorly controlled symptoms and yet received curative surgery. Second, patient 23 was offered radiation despite poorly controlled symptoms but declined it. Third, patient 26 received chemotherapy and radiation for limited stage small cell lung cancer, despite poorly controlled symptoms. Thus, even patients with poorly controlled psychiatric symptoms were sometimes still offered cancer therapy.

Furthermore, a previous suicide attempt or having a guardian did not influence treatment recommendations. Among the patients who received no cancer treatment, only one had a documented previous suicide attempt. This patient had been offered chemotherapy and was 'agreeable' to receiving it but died prior to her appointment (patient 19). It is also noteworthy that 3 patients with previous suicide attempts (patients 5, 22, and 24) went on to receive potentially curative cancer therapy. Incidentally, no patient appeared to have committed suicide after a diagnosis of lung cancer. Moreover, having a guardian also did not influence cancer treatment. Patients 2, 6, 8, 14, 15, 18, and 23 had guardians, and yet, again, cancer therapy was dictated by other factors.

Finally, although it was not within the purview of this study to assess disparities among the 10 patients with incurable lung cancer because of the very modest benefits of cancer therapy in this setting, a few noteworthy observations emerge [14]. Only 2 (patients 20 and 29) received cancer therapy, and 3 declined it (patients 3, 23, and 25). Four patients who did not receive cancer therapy lived for one month or less, a time span that suggests the benefits of any such treatment might have appeared too inadequate at diagnosis to justify prescribing it.

Medical record excerpts relevant to decision-making

The investigators gleaned medical record comments that suggest reflection and ethical adjudication occurred on the part of healthcare providers. The medical record of the patient who had had a frontal lobotomy as an adult and who was subsequently diagnosed with an early stage lung cancer (patient 15), included the following comment from a radiation oncologist, 'A difficult problem… he [the patient] does not know where he is, does not know what he is here for… . There may be a moral dilemma here.' As another example, a surgeon remarked on the challenges of recommending surgery to an older patient with a pleural effusion (patient 14): 'She has a large effusion that is negative on cytology… . She has schizophrenia and has been in a nursing home for > 30 years. I really think that a thoracotomy may not be indicated ethically.' These two quotes help to capture the nature of these treatment decisions. It was also apparent that healthcare providers were not hasty in making treatment recommendations, as suggested by the following comment from a medical oncologist, 'The patient has refused chemotherapy in the past and one more time told me that she is not interested in obtaining chemotherapy.' Again, it appears that healthcare providers spent time in deciding how best to provide cancer treatment to these patients.

Discussion

To our knowledge, this report is the first to examine disparities in therapy for lung cancer in patients with schizophrenia. Among all the 17 schizophrenic patients who had potentially curable lung cancer, psychiatric illness was never the primary determinant of whether cancer treatment was offered or not. Admittedly, psychiatric illness sometimes tempered the aggressiveness of cancer therapy. However, upon critical probing, other factors, such as medical comorbidities and patients' wishes, played the decisive role in determining whether or not a potentially curable patient was prescribed cancer therapy.

The single-institution design of this study is in some respects a major strength. The small sample size within one institution allowed for an in-depth assessment of medical records and

an opportunity to utilize qualitative methodology. Such an assessment would not have been as feasible had the study team relied on a large database derived from a multi-institutional effort.

In contrast, the retrospective nature of the current study carries potential for bias. First, this study was restricted to patients who had histologic or cytologic proof of lung cancer. Psychiatric patients' abilities to cooperate for a biopsy perhaps place them in a more functional category that, in turn, suggests they may be more likely to be candidates for cancer treatment. The study team made a deliberate decision to focus on patients with a proven lung cancer diagnosis to make this study more rigorous, relevant, and specific to lung cancer. It should be noted, however, that the findings from this study may reflect a selection bias in favor of better cancer treatment candidates. Second, as healthcare providers, the investigators may not have been totally objective in reviewing medical records. To circumvent this potential bias, the investigators pulled verbatim comments from the medical record and inserted them into the paper. This approach was intended to allow readers to draw their own conclusions.

In summary, this study is perhaps the first to observe and report that lung cancer patients with underlying schizophrenia are typically prescribed state-of-the-art cancer therapy. This study should provide the precedent for other investigators to examine cancer care patterns in other settings among schizophrenic patients to better assess whether a lack of healthcare disparities is the exception or the rule.

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Table 1

Demographics[a]

Age at lung cancer diagnosis (*years*)	
Median	59
Range	39, 76
Gender	
Male	11 (38)
Female	18 (62)
Smoking history, pack-years (when available)	
Median	50
Range	15, 120
Type of schizophrenia	
Paranoid	14 (48)
Disorganized	2 (7)
Undifferentiated	2 (7)
Residual	1 (3)
Unknown	5 (17)
Possible schizoaffective disorder	3 (10)
On antipsychotic medication at time of lung cancer diagnosis?	
Yes	24 (83)
No	5 (17)
Psychiatric symptoms seemingly controlled at time of lung cancer diagnosis?	
Yes	18 (62)
No	9 (31)
Cannot tell	2 (7)
Suicide attempts prior to lung cancer diagnosis?	
Yes	4 (14)
No	11 (38)
Unknown	14 (48)
Institutionalized or in assisted living at time of cancer diagnosis?	
Yes	11 (38)
No	16 (56)
Unknown	2 (6)
Patient responsible for his/her own decision-making at time of cancer diagnosis?	
Yes	15 (52)
No	7 (24)
Unknown	4 (14)

[a]Numbers in parentheses denote percentages unless otherwise specified.

Table 2

Initial treatment for lung cancer shortly after diagnosis[a]

Patient number	Tumor stage	Treatment modality S, surgery; R, radiation[b]; C, chemotherapy; N, none	Survival (months)[c]	Select excerpts on decision-making from healthcare providers' notes
1	I	S	51+	—
2	IV	N	51	'Atrial flutter and hypotension… arrives to the floor intubated and sedated.'
3	IV	N	5	'Quite immediately, the patient informed me that he was not interested in active treatment for his cancer, not interested in chemotherapy or radiation therapy.'
4	I	N	4	'Her FEV1 is 1.0, her saturation on room air goes down to 85 on exercise.'
5	I	S	30	—
6	III	N	6	'Chemotherapy or a combined approach will be difficult given his ongoing infection.'
7	I	S	207+	—
8	III	R	3+	'Due to the patient's complicating medical problems with schizophrenia… and the fact that he lives alone in a halfway house, I do not think that he is a candidate for systemic chemotherapy.' 'The main problem appears to be his inability to cope with or understand his disease and this is, in no small part, due to his background of psychotic disorder.'
9	Unknown	S	108	—
10	III	C, R	20	—
11	I (2 Concurrent primaries)	S	77	—
12	Unknown	N	< 1	'Admitted for change in mental status, fever, and increased lethargy for 2 days' 'Talked with conservator about patient's current state and grim prognosis with lung cancer and pneumonia. Agrees to comfort care only.'
13	III	C, R	13	—
14	III	N	< 1+	'She has a large effusion that is negative on cytology… . She has schizophrenia and has been in a nursing home for >30 years. I really think that a thoracotomy may not be indicated ethically.' 'Chemotherapy… may not offer anything other than toxicity.'
15	I	R	6	'Status post frontal lobotomy…' 'A difficult problem… he does not know where he is, does not know what he is here for… . There may be a moral dilemma here.' 'A complete schedule [for radiation] will be given to the State Hospital Staff who accompany him.'
16	I	S	187	—

Patient number	Tumor stage	Treatment modality S, surgery; R, radiation[b]; C, chemotherapy; N, none	Survival (months)[c]	Select excerpts on decision-making from healthcare providers' notes
17	IV	N	1	'When asked if I believed the malignant problem is curable, I said relatively unlikely… . Not sure he wants to pursue any… treatment.'
18	IV	N	1	'Spoke to guardian … explained incurability of metastatic non-small cell lung cancer, complicated by aspiration pneumonia and schizophrenia….[he] agrees [the patient] should be made comfortable and palliative care is proper.'
19	IV	N	< 1	'[The oncologist] discussed patient's diagnosis with her and her family and she is agreeable to chemotherapy.' (Patient died prior to appointment.)
20	IV	C, R	13+	—
21	III	R	14	'The patient has refused chemotherapy in the past and one more time told me that she is not interested in obtaining chemotherapy.'
22	II	S	22	—
23	IV	N	3+	'Spoke with patient again as well as the patient's son about radiation to the left femur. She repeatedly refuses consideration of treatment.' 'She refuses all treatment and does not believe she has cancer in her body.'
24	Limited	C, R	13	—
25	Extensive	N	< 1+	'Patient seems alert, appropriate, and [he] fully understands the implications of 'no treatment'. He declines chemotherapy and accepts the inevitability of progressive disease.'
26	Limited	C, R	11+	—
27	Limited	C, R	17	—
28	Limited	C, R	60+	—
29	Extensive	C, R	2+	—

[a] Patients 1–23 had non-small cell lung cancer, and patients 24–29 had small cell lung cancer.

[b] Radiation was given to patients with potentially curable tumors with curative intent; otherwise, it was palliative.

[c] Plus sign denotes censoring.