Symptoms and Care of Elderly Patients Dying at Home of Lung, Gastric, Colon, and Liver Cancer

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Abstract

Backgrounds There is growing concern among health care providers and the public about the quality of home end-of-life care for elderly patients with advanced cancer. Therefore, it is essential to learn more about the distressing symptoms experienced by elderly patients with advanced cancer dying at home. The purpose of the present study was to examine the differences in symptom experience and care receipt among elderly patients dying at home of lung, liver, gastric, and colon cancer.

Methods The present data were obtained from the Dying Elderly at Home (DEATH) project, a multicenter observational study conducted in Japan. The following information was collected: decedent characteristics, observed symptoms, and end-of-life care provided during the last 48 hours of life. A total of 42 gastric, 33 lung, 26 liver, and 25 colorectal cancer decedents were included in the analysis.

Results Anorexia was a common symptom among all four groups. Dyspnea, fever, cough, and sputum were most prevalent among the lung cancer group. Although nausea and vomiting were more prevalent among the gastric cancer group, followed by the colorectal cancer group, the differences were not significant among the four groups. Controlled or uncontrolled pain and anorexia were prevalent among all four groups, but no significant differences were found. Significantly more lung cancer decedents were given oxygen inhalation than other cancer decedents.

Conclusions More elderly lung cancer patients experienced symptom distress such as dyspnea and cough than the other cancer groups. Oxygen inhalation is essential for the end-of-life care of elderly home lung cancer patients.

Key words End-of-life care, Elderly, Cancer, Symptoms, Oxygen

Introduction

Cancer is a common cause of death among elderly people. A trend expected to occur in the near future is a gradual shift in the place where elderly people spend their last years, from hospital to home.1–3 As a result, there is growing concern among health care providers and the public about the quality of home end-of-life care for elderly patients with advanced cancer.

Successful end-of-life care requires good control of symptoms such as pain. As some researchers have suggested,4–6 there appears to be substantial heterogeneity in the primary sites of cancer. Therefore, it is vital that we learn more about the distressing symptoms experienced by elderly patients with advanced cancer dying at home.

While a number of studies have examined symptom experience or end-of-life care receipt of elderly patients with advanced cancer at...
to our knowledge, there is still insufficient information regarding the experience of elderly cancer patients dying at home.

The purpose of the present study was to examine the differences in symptom experience and care receipt among elderly patients dying at home of lung, liver, gastric, and colon cancer, which are the most common primary sites of cancer.

Methods

Study design and population

The present data were obtained from the Dying Elderly at Home (DEATH) project, a multicenter observational study. The DEATH project was conducted in collaboration with the Japanese Society of Hospice and Home-care. The society is a non-profit organization consisting of general physicians and other medical and social professionals interested in hospice and home-care. Consecutive decedents aged 65 or older who were using sixteen study clinics belonging to the society with diagnoses of all illnesses including advanced cancer and who died at home from October 2002 to September 2004 were included in the study. Decedents were excluded if they were transferred to a hospital at death. The following information was collected: socio-demographics, ADLs (Japan’s Ministry of Health, Labour and Welfare identifies four ranks of ADL of disabled elderly patients as follows: J (independent in ADLs), A (house-bound), B (chair-bound), and C (bed-ridden), cognitive impairment, observed symptoms and provided end-of-life care during the last 48 hours of life. With the approval of the Japanese Society of Hospice and Home-care, we used a questionnaire that included a list of common symptoms and treatments at the end-of-life as shown in Table 1.

Data collection

Immediately after the death of the study patients, general practitioners (GPs) were asked to fill out a questionnaire based on the patients’ medical charts and their recollection of the clinical course that followed. Family members or visiting nurses who witnessed the last 48 hours of the patients’ lives were asked to provide additional information. The GPs and other information providers were blinded to the study hypothesis or anticipated study results. For ethical reasons, data on all eligible participants obtained from the Japanese Society of Hospice and Home-care remained anonymous. The research protocol was reviewed and approved by the Nagoya University Research Ethics Board.

Statistical analysis

We used data from the DEATH sample of decedents with primary lung, gastric, colon, and liver cancer, with and without metastasis. Thus, a total of 42 gastric, 33 lung, 26 liver, and 25 colorectal cancer decedents were included in the analysis. To assess the differences in characteristics and clinical course among decedents, the survey data were divided into four groups according to cancer type. The data were analyzed using Statview-J5.0. Group differences were compared using the Kruskal-Wallis test and the chi square test. P values of <0.05 were considered to be significant.

Results

The distribution of decedent characteristics is
shown in Table 2. Except for the gastric cancer group (men: women = 71.4%: 28.6%), the gender ratio was nearly 1:1. Most decedents in each group were chair- or bed-bound. The average age ranged from 75.0–76.1. More than half of the decedents in each group had normal cognitive function. No significant differences were found among the four groups in gender, age, ADLs, and cognitive impairment.

The differences in symptom experience among cancer groups are shown in Table 3. Anorexia was a common symptom among all four groups.
Dyspnea, fever, cough, and sputum were most prevalent among the lung cancer group, showing significant differences ($P = <0.01, 0.02, <0.01, <0.01$, respectively).

Although nausea and vomiting were more prevalent among the gastric cancer group, followed by the colorectal cancer group, the differences were not significant among the four groups. Controlled or uncontrolled pain and anorexia were prevalent among all four groups, but no significant differences were found.

The differences in end-of-life care receipt among the cancer groups are shown in Table 4. Significantly more lung cancer decedents were given oxygen inhalation than the other cancer decedents. Few life-sustaining treatments such as heart massage, intubation, mechanical ventilation, and vasopressor were administered to any of the groups. Similarly, little mental health support or religious healing (such as visits by religious leaders) were given to any of the groups. Although more lung cancer decedents were given opioids, no significant differences were found between the four groups.

### Discussion

One way to palliate dyspnea in the last days of life is to give oxygen therapy. Eighty percent of the lung cancer group presented with dyspnea, and 70% of elderly patients in this group were given home oxygen therapy. These results suggest that oxygen inhalation is essential to end-of-life care for home elderly lung cancer patients. Moreover, according to Kuebler,\(^ {12} \) dyspnea is described as one of the most devastating symptoms for patients and families, and opioids are the most widely used form of relief. Better knowledge and better recognition of opioids may also contribute to good palliative treatment for dyspnea.

Cough was also prevalent among the lung cancer group in our study. This may be a natural occurrence, since cough is a common effect of cardiopulmonary diseases. Although opioids have antitussive activity and constitute one of

<table>
<thead>
<tr>
<th>Care</th>
<th>Gastric (n = 42)</th>
<th>Lung (n = 33)</th>
<th>Liver (n = 26)</th>
<th>Colorectal (n = 25)</th>
<th>$P$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart massage</td>
<td>2 (4.8)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>0.25</td>
</tr>
<tr>
<td>Intubation</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>—</td>
</tr>
<tr>
<td>Mechanical ventilation</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>—</td>
</tr>
<tr>
<td>Oxygen inhalation</td>
<td>5 (11.9)</td>
<td>24 (72.7)</td>
<td>6 (23.1)</td>
<td>6 (24.0)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Airway placement</td>
<td>0 (0.0)</td>
<td>2 (6.1)</td>
<td>1 (3.8)</td>
<td>0 (0.0)</td>
<td>0.28</td>
</tr>
<tr>
<td>Sputum suction</td>
<td>7 (16.7)</td>
<td>11 (33.3)</td>
<td>3 (11.5)</td>
<td>7 (28.0)</td>
<td>0.15</td>
</tr>
<tr>
<td>Hyperalimentation</td>
<td>4 (9.5)</td>
<td>5 (15.2)</td>
<td>2 (7.7)</td>
<td>3 (12.0)</td>
<td>0.81</td>
</tr>
<tr>
<td>Antibiotics</td>
<td>2 (4.8)</td>
<td>5 (15.2)</td>
<td>3 (11.5)</td>
<td>3 (12.0)</td>
<td>0.50</td>
</tr>
<tr>
<td>Vasopressor</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>1 (3.8)</td>
<td>0 (0.0)</td>
<td>0.28</td>
</tr>
<tr>
<td>Blood transfusion</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>—</td>
</tr>
<tr>
<td>Intravenous drip injection</td>
<td>17 (40.5)</td>
<td>9 (27.3)</td>
<td>11 (42.3)</td>
<td>9 (36.0)</td>
<td>0.60</td>
</tr>
<tr>
<td><strong>Volume (average ± SD)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24–48 hours before death</td>
<td>518.75</td>
<td>568.75</td>
<td>295</td>
<td>555.56</td>
<td>0.16</td>
</tr>
<tr>
<td>0–24 hours before death</td>
<td>304.17</td>
<td>514.29</td>
<td>371.82</td>
<td>350</td>
<td>0.89</td>
</tr>
<tr>
<td>Opioids</td>
<td>17 (40.5)</td>
<td>22 (66.7)</td>
<td>13 (50.0)</td>
<td>10 (40.0)</td>
<td>0.10</td>
</tr>
<tr>
<td>Urinary catheter placement</td>
<td>6 (14.3)</td>
<td>7 (21.2)</td>
<td>5 (19.2)</td>
<td>6 (24.0)</td>
<td>0.77</td>
</tr>
<tr>
<td>Mental support</td>
<td>1 (2.4)</td>
<td>0 (0.0)</td>
<td>2 (7.7)</td>
<td>1 (4.0)</td>
<td>0.40</td>
</tr>
<tr>
<td>Religious healing</td>
<td>1 (2.4)</td>
<td>0 (0.0)</td>
<td>1 (3.8)</td>
<td>0 (0.0)</td>
<td>0.58</td>
</tr>
<tr>
<td>Others</td>
<td>3 (7.1)</td>
<td>1 (3.0)</td>
<td>2 (7.7)</td>
<td>1 (4.0)</td>
<td>0.81</td>
</tr>
</tbody>
</table>
the most effective treatments for refractory cough,13 as mentioned above, it appears that they were not often used for the lung cancer patients in this study. It may also be helpful for GPs and families to be educated in the proper use of opioids for treatment.

Sputum is also a distressing symptom that causes dyspnea or cough.4,13 However, the frequency of sputum suction was not significantly higher in the lung cancer group, in which sputum was the most prevalent. Although it is possible that the sputum was not severe enough to require sucking, the reasons behind the low frequency of sputum suction in this group should be analyzed further.

More elderly lung cancer decedents had fever in the last two days of their lives compared to the other cancer groups. Because there were no significant differences in the use of antibiotics among the four groups, it appears that lung cancer may be a more common cause of fever than other cancers. We need to pay attention to this particular symptom among elderly lung cancer patients in order to offer adequate management.

Consistent with Baines’ and Griffie’s suggestions,14,15 our results showed that nausea and vomiting were more prevalent among the gastrointestinal cancer groups such as the gastric and colorectal cancer groups.

Anorexia was the most prevalent symptom among all four cancer groups, regardless of gastrointestinal illness. Some researchers have suggested that anorexia is one of the most common symptoms in advanced cancer patients.4,5,16,17 Because it is so closely associated with declining physical, emotional, and social function,16 anorexia can be a source of discomfort for patients and their families. It is important to educate patients and families on how to cope with their distress.

Study limitations
This study partly relied on family reports of patient symptoms, because the settings were the communities. Because there was a lack of information about the degree of symptom experience and metastatic sites, our results of symptom experiences must be interpreted with caution.

There was also a lack of information about end-of-life interventions such as steroids and non-opioids. Therefore, we were unable to perform a thorough symptom management evaluation.

We enlisted each clinic to perform evaluations because of the large number of settings. This may have biased the assessors’ evaluation and limited the validity of the results, because it is possible that the data-collecting procedures and quality varied depending on the GPs in charge of data collection.

The reduced number of patients and limited study settings also impeded generalization. Selection bias is also possible, because the Japanese Society of Hospice and Home-care is interested in hospice and home-care. Larger studies in other groups of patients are needed for a better understanding of the actual situation of elderly cancer patients dying at home in Japan.

Conclusions
In conclusion, more elderly lung cancer patients experienced symptom distress such as dyspnea and cough than other cancer groups. Oxygen inhalation is essential to end-of-life care for elderly home lung cancer patients.

Acknowledgements
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References