Psychiatric Disorders in Cancer Patients at a University Hospital in Japan: Descriptive Analysis of 765 Psychiatric Referrals

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Objective: In cancer patients, adjustment disorders, delirium and depression have been identified as common psychiatric disorders. Although a comparable result was reported in the National Cancer Center in Japan, the nature of patients in that hospital may differ from that in local hospitals. There is a possibility to expand the findings of psycho-oncology by evaluation of the data from a local university hospital and comparison with the National Cancer Center data.

Methods: We retrospectively reviewed the medical records of cancer patients who were referred to the Department of Psycho-Oncology at Saitama Medical University International Medical Center. We identified their characteristics and psychiatric diagnoses and compared these with the National Cancer Center data.

Results: During the study period, 765 cancer patients were referred. The numbers of inpatients and outpatients were almost the same. The most common psychiatric diagnosis was adjustment disorders (24%), followed by delirium (16%) and then major depressive disorder (12%). The rank of these three was the same as that at the National Cancer Center. Outpatients constituted more than 80% of the patients with major depressive disorder. The proportion of cancer patients with schizophrenia in this study (4.3%) was higher than that in the National Cancer Center (1.6%).

Conclusions: This study revealed basic information about the consultation data of cancer patients at a local university hospital in Japan. The importance of communication with outpatients was suggested. It seems that cancer treatment for patients with schizophrenia in a local hospital is also important.

Key words: cancer – psychiatric consultation – university hospital – outpatient – schizophrenia

INTRODUCTION

In Japan, when the Cancer Control Act came into effect in April 2007, 20% improvement of the 5-year survival rate and quality of life improvement of cancer patients and their family members became two major targets. In addition, psycho-oncology has begun to attract attention as well as palliative care. Psycho-oncology aims to clarify the anthropological side of cancer by making use of scientific techniques and is associated with numerous disciplines, not...
only psychology and psychiatry, but also oncology, immunology, endocrinology, sociology, ethics and philosophy, among others.

According to the psychiatric consultation data of 1721 cancer patients referred to the psychiatry division of two Japanese cancer hospitals, the most common psychiatric diagnosis was adjustment disorders, followed by delirium and depression (1). Comparable results were reported previously (2–5), and these three are considered common psychiatric disorders in cancer patients in epidemiological surveillance. However, no report of a large-scale study except for that at the National Cancer Center has been published in Japan, so further research was anticipated.

Saitama Medical University International Medical Center is affiliated to a private university and is located in a small city with a population of ~57 000. There is a comprehensive cancer center in this hospital, and treatment policy is decided through cooperation of physicians, surgeons, radiologists and pathologists, among others, for all cancer patients. Not only hospitalization but also regular outpatient treatment at a unit that specializes in outpatient chemotherapy is provided in the comprehensive cancer center, and various patients are treated for different kinds and stages of cancer.

The Department of Psycho-Oncology was established in April 2007 (simultaneously with the opening of this hospital) as the first of its kind at a university hospital in Japan; consultation at this department involves the cooperation of psychiatrists with psychologists. In addition, efforts are made not only in the psychiatric consultation of cancer patients but also in the care of their family members, both generally and after bereavement. To date, we have not reported on the consultation activity of cancer patients, although we reported on the characteristics and psychiatric diagnoses of bereaved family members (6). Although this hospital is a university hospital, it is an institution that is closely related to its locality. In contrast, cancer patients at the National Cancer Center come from all over Japan and the nature of patients in that hospital may differ from that in local hospitals. Therefore, there is a possibility to expand the findings of psycho-oncology by developing a greater understanding of the activity in this hospital and comparing the data with that from the National Cancer Center.

Given the above-mentioned goal, we investigated the characteristics and psychiatric diagnoses of cancer patients referred to the Department of Psycho-Oncology at Saitama Medical University International Medical Center.

PATIENTS AND METHODS

We retrospectively reviewed the medical records of cancer patients who were referred to the Department of Psycho-Oncology at Saitama Medical University International Medical Center between April 2008 (when a database system was established) and March 2011. This hospital consists of a comprehensive cancer center, a heart disease center and an emergency medical service center with a capacity of 600 beds. A computerized database was used to identify the characteristics and psychiatric diagnoses of the referred cancer patients. The database included demographic variables such as age and gender, medical factors such as cancer site and performance status (PS) as defined by Eastern Cooperative Oncology Group (ECOG) criteria (7), and in- or outpatient status. The database also included the psychiatric diagnoses according to the Diagnostic and Statistical Manual of Mental Disorders, 4th edition, text revision (DSM-IV-TR) (8). When two or more diagnoses were made, the diagnosis that was most problematic was adopted.

The staff of the Department of Psycho-Oncology at Saitama Medical University International Medical Center comprises two full-time psychiatrists, one part-time psychiatrist (available 1 day per week), one full-time psychologist and one part-time psychologist. In the inpatient section, we specialize in consultation liaison activity with cancer patients, and work as members of a palliative care team. In the outpatient section, we examine not only cancer patients and their family members but also bereaved family members. We conferred on all referred patients, their family members and bereaved family members and improved the validity of their diagnoses. The characteristics and psychiatric diagnosis were compared with the data from the National Cancer Center (1). In addition, the $\chi^2$ test was used to analyze differences in the psychiatric diagnosis. Statistical analyses were conducted using the SPSS 17.0 package.

This study was approved by the Institutional Review Board of Saitama Medical University International Medical Center (11-026).

RESULTS

CHARACTERISTICS OF REFERRED CANCER PATIENTS

During the study period, 765 cancer patients were referred to the Department of Psycho-Oncology (Table 1). The numbers of inpatients and outpatients were almost the same. There were about 1.3 times as many female patients as male patients (437 vs. 328). When limited to outpatients, there were about twice as many females as males. Patients without physical impairment (PS of 0) accounted for 15.0%. The number of outpatients with a low level of physical impairment (PS of 0–2) was higher than that of inpatients (349 vs. 240); outpatients tended to exhibit good physical function. The most common cancer site was the breast (20%), followed by the head and neck (15%) and then the lung (13%). In inpatients, the most common was the head and neck, followed by the lung and then the breast. In outpatients, the most common was the breast, followed by the lung and then the colon.

PSYCHIATRIC DIAGNOSES OF REFERRED CANCER PATIENTS

The most common psychiatric diagnosis was adjustment disorders, accounting for ~24% of the referred patients...
The second most common diagnosis was delirium, accounting for ≏ 16%. When limited to inpatients, delirium was the most common. The third most common diagnosis was major depressive disorder, accounting for ≏ 12%. Unexpectedly, outpatients constituted more than 80% of the patients with major depressive disorder. Other diagnoses were schizophrenia (4.3%), anxiety disorders (3.9%), dementia (3.4%) and sleep disorders (3.1%). Patients with no diagnosis accounted for ≏ 20%.

Compared with the data from the National Cancer Center, the rank of the three most common psychiatric diagnoses was the same. The proportions of cases of delirium and major depressive disorder did not differ significantly, that of adjustment disorders was low and those of schizophrenia and dementia were high. The proportion of cases with no diagnosis was also high compared with that at the National Cancer Center.

**Table 1. Characteristics of referred cancer patients**

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Inpatient, 384 (50.2)</th>
<th>Outpatient, 381 (49.8)</th>
<th>Total, 765</th>
<th>Reference 1, 1721</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean ± SD</td>
<td>58 ± 16</td>
<td>59 ± 13</td>
<td>59 ± 15</td>
<td>56 ± 14</td>
</tr>
<tr>
<td>Range</td>
<td>11–93</td>
<td>13–87</td>
<td>11–93</td>
<td>15–88</td>
</tr>
</tbody>
</table>

**Gender**

- Male: 204/114 (42.9) vs. 124/190 (64.2) vs. 127/222 (56.9)
- Female: 180/257 (57.1) vs. 328/422 (78.2) vs. 346/386 (89.5)

**Performance status**

- 0: 34/81 (42.7) vs. 32/110 (29.1) vs. 66/191 (34.5)
- 1: 114/190 (60.0) vs. 190/320 (60.0) vs. 384/610 (63.0)
- 2: 92/78 (118.4) vs. 170/222 (76.7) vs. 362/504 (72.0)
- 3: 90/27 (33.3) vs. 117/51 (23.5) vs. 207/83 (25.0)
- 4: 49/2 (24.5) vs. 51/6 (8.3) vs. 55/12 (4.5)

**Cancer site**

- Breast: 37/115 (32.6) vs. 152/215 (70.0) vs. 215/215 (100.0)
- Head and neck: 80/32 (25.0) vs. 112/179 (62.3) vs. 179/179 (100.0)
- Lung: 51/51 (100.0) vs. 102/322 (31.7) vs. 322/322 (100.0)
- Colon: 20/43 (46.5) vs. 63/153 (41.3) vs. 153/153 (100.0)
- Stomach: 32/20 (160.0) vs. 52/114 (45.7) vs. 114/114 (100.0)
- Uterus: 22/17/9 (13) vs. 39/5 (78.6) vs. 5 (5)
- Esophagus: 25/9 (27.3) vs. 34/101 (33.7) vs. 101/101 (100.0)
- Pancreas: 10/21 (48.0) vs. 31/57 (54.3) vs. 57/57 (100.0)
- Unknown: 3/7 (42.9) vs. 10/14 (71.4) vs. 14/14 (100.0)
- Others: 109/68 (160.0) vs. 177/231 (76.6) vs. 231/231 (100.0)

**Table 2. Psychiatric diagnoses of referred cancer patients**

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Inpatient, 384 (50.2)</th>
<th>Outpatient, 381 (49.8)</th>
<th>Total, 765</th>
<th>Reference 1, 1721</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjustment disorders</td>
<td>86/112</td>
<td>121 (15.8)</td>
<td>187/247</td>
<td>585 (34.0)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Delirium</td>
<td>112/9</td>
<td>299 (17.4)</td>
<td>121/9</td>
<td>299 (17.4)</td>
<td>0.34</td>
</tr>
<tr>
<td>Major depressive disorder</td>
<td>15/79</td>
<td>94 (12.3)</td>
<td>15/79</td>
<td>94 (12.3)</td>
<td>0.17</td>
</tr>
<tr>
<td>Schizophrenia</td>
<td>16/17</td>
<td>33 (4.3)</td>
<td>17/28</td>
<td>28 (1.6)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Anxiety disorders</td>
<td>7/22</td>
<td>30 (3.9)</td>
<td>7/22</td>
<td>30 (3.9)</td>
<td>Cannot compare</td>
</tr>
<tr>
<td>Dementia</td>
<td>19/7</td>
<td>26 (3.4)</td>
<td>7/14</td>
<td>14 (1.8)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Sleep disorders</td>
<td>18/6</td>
<td>24 (3.1)</td>
<td>6/12</td>
<td>12 (2.0)</td>
<td>No data</td>
</tr>
<tr>
<td>Somatoform disorders</td>
<td>5/9</td>
<td>14 (1.8)</td>
<td>5/9</td>
<td>14 (1.8)</td>
<td>No data</td>
</tr>
<tr>
<td>Others</td>
<td>25/21</td>
<td>46 (6.0)</td>
<td>21/46</td>
<td>46 (6.0)</td>
<td>No data</td>
</tr>
<tr>
<td>No diagnosis</td>
<td>82/65</td>
<td>147 (19.2)</td>
<td>65/147</td>
<td>147 (19.2)</td>
<td>&lt;0.01</td>
</tr>
</tbody>
</table>

**PATIENT CHARACTERISTICS AND PSYCHIATRIC DIAGNOSES**

Regarding age, less than 10% of younger patients (<60 years) were diagnosed as having delirium, as opposed to more than 20% of older patients (≥60 years) (Table 3). Regarding gender, about a quarter of referred male patients were diagnosed as having delirium, while this occurred in less than 10% of female patients. Regarding PS, less than 10% of the patients with a low level of physical impairment (PS of 0–2) were diagnosed as having delirium, as opposed to more than 40% of the patients with marked physical impairment (PS of 3–4). Regarding the cancer site, the proportion of adjustment disorders was high in the cases of breast and pancreatic cancer, that of delirium was high in the cases of esophageal and stomach cancer and that of major depressive disorder was high in the cases of pancreatic cancer.

**DISCUSSION**

This study provides information about psychiatric disorders in cancer patients referred to a cancer center at a university hospital in Japan. According to the national estimates of local cancer registration in Japan (9), the number of males affected by cancer in 2006 was about 388 000, and the number of females was about 276 000. The total number of males was about 1.4 times that of females. In over 40% of the cases, the cancer site was the stomach, colon or lung. Although the above-mentioned order only for male patients was the same, the most common cancer site for female patients was the breast, followed by the colon and then the
Table 3. Patient characteristics and psychiatric diagnoses

<table>
<thead>
<tr>
<th>No. (%)</th>
<th>Adjustment disorders, 187 (24.4)</th>
<th>Delirium, 121 (15.8)</th>
<th>Major depressive disorder, 94 (12.3)</th>
<th>All patients, 765</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;60</td>
<td>91 (26.1)</td>
<td>26 (7.4)</td>
<td>40 (11.5)</td>
<td>349</td>
</tr>
<tr>
<td>≥60</td>
<td>96 (23.1)</td>
<td>95 (22.8)</td>
<td>54 (13.0)</td>
<td>416</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>62 (18.9)</td>
<td>80 (23.4)</td>
<td>31 (9.5)</td>
<td>328</td>
</tr>
<tr>
<td>Female</td>
<td>125 (28.6)</td>
<td>41 (9.4)</td>
<td>63 (14.4)</td>
<td>437</td>
</tr>
<tr>
<td>Performance status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0–2</td>
<td>164 (27.8)</td>
<td>45 (7.6)</td>
<td>84 (14.3)</td>
<td>589</td>
</tr>
<tr>
<td>3–4</td>
<td>20 (11.9)</td>
<td>74 (44.0)</td>
<td>9 (5.4)</td>
<td>168</td>
</tr>
<tr>
<td>Cancer site</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breast</td>
<td>63 (41.4)</td>
<td>6 (3.9)</td>
<td>24 (15.8)</td>
<td>152</td>
</tr>
<tr>
<td>Head and neck</td>
<td>16 (14.3)</td>
<td>19 (17.0)</td>
<td>13 (11.6)</td>
<td>112</td>
</tr>
<tr>
<td>Lung</td>
<td>27 (26.5)</td>
<td>18 (17.6)</td>
<td>13 (12.7)</td>
<td>102</td>
</tr>
<tr>
<td>Colon</td>
<td>18 (28.6)</td>
<td>6 (9.5)</td>
<td>10 (15.9)</td>
<td>63</td>
</tr>
<tr>
<td>Stomach</td>
<td>12 (23.1)</td>
<td>14 (26.9)</td>
<td>4 (7.7)</td>
<td>52</td>
</tr>
<tr>
<td>Uterus</td>
<td>4 (10.3)</td>
<td>7 (17.9)</td>
<td>2 (5.1)</td>
<td>39</td>
</tr>
<tr>
<td>Esophagus</td>
<td>4 (11.8)</td>
<td>16 (47.1)</td>
<td>5 (14.7)</td>
<td>34</td>
</tr>
<tr>
<td>Pancreas</td>
<td>11 (35.5)</td>
<td>4 (12.9)</td>
<td>6 (19.4)</td>
<td>31</td>
</tr>
</tbody>
</table>

stomach. Since the latter half of the 1970s, the prevalence of cancer for males and females has continued to increase. Although the proportions of lung cancer, colon cancer and prostate cancer have increased, the proportion of stomach cancer has decreased in males. On the other hand, although the proportions of colon cancer, breast cancer and lung cancer have increased, the proportion of stomach cancer has decreased in females. According to population statistics (10), the number of deaths of males and females from cancer is consistently increasing. Cancer has been the leading cause of death since 1981 and, for several years, it has accounted for more than 30% of the overall death toll in Japan. In 2009, the number of cancer deaths was about 206,000 for males and about 138,000 for females. The total number of males was about 1.5 times that of females. In over 40% of the cases, the cancer site was the lung, stomach or colon. Lung cancer surpassed stomach cancer to become the leading cause of cancer death in males in the 1990s. In addition, colon cancer and lung cancer became the leading causes of cancer death in females in the late 2000s.

In a previous study by the National Cancer Center in Japan (1), the ratio of males to females in terms of psychiatry consultation was almost 1:1. However, in this study, the number of female patients was more than that of male patients. In addition, the number of female outpatients was nearly double that of male outpatients. Although this was thought to have contributed to the number of breast cancer patients, there might be other factors involved. Regarding the cancer site, in the former study, the most common was the lung, followed by the breast and then the head and neck. Although the order was different, the result in this study was similar. This study indicated that the most common cancer site was the breast, particularly in outpatients. Many recently reported studies about psychiatric disorders of cancer patients have focused on breast cancer patients (11–14). Breast cancer shows a tendency to increase worldwide. In Japan, the breast became the most common cancer site among females in the 2000s (9). Many previous studies indicated the serious psychosocial impacts of breast cancer (15,16). It seems that the high prevalence of breast cancer and the severe psychological effects provide important insight for psychiatric consultation. The second most common cancer site was the head and neck in this study and this was the most common among inpatients. Although in Japan, at present, the proportion of cases of head and neck cancer is not high, it has been increasing (9). Previous studies reported that patients with head and neck cancer face functional impairment and disfigurement, and they also suffer from psychological distress (17,18). It seems that the results provide important insight for psychiatric consultation.

Although this study indicated that adjustment disorders were the most common psychiatric disorder among referral patients, the proportion of cases of adjustment disorders was significantly low compared with that in a former report (1). Although about 20% of the patients had no diagnosis, most of them were potential adjustment disorder patients and there was a possibility that such patients were referred before their condition deteriorated. Although the proportion of patients with major depressive disorder in this study was not significantly different from that in the above-mentioned report, outpatients constituted more than 80% of the patients with major depressive disorder in this study. It should be noted that the number of inpatients accounted for 80% among referred patients in a previous study, while the numbers of inpatients and outpatients were almost the same in this study. As a result, it is expected that there were many patients who were treated as outpatients. Although it was reported that adjustment disorders can develop into major depressive disorder if not adequately treated (19,20), it can be difficult to deal with patients in hospital because of their tendency for a short stay. Thus, it may be increasingly important to promote communication with outpatients. It may also become important to perform screening of outpatients (21,22). In addition, to the best of our knowledge, there have been no large-scale studies reported about psycho-oncology outpatients, and there is a possibility that this could become an important research focus in the future. Delirium occurred in 30% of the cases and was the most common psychiatric disorder among inpatients. This observation is similar to that in a report from a palliative care team at the National Cancer Center Hospital East in Japan.
(23). In previous studies, there was an increased prevalence of delirium in the advanced phase or terminal phase (2,24). Many advanced cancer and recurrent cancer patients were previously reported on (23). While the present study did not include information on disease stage, it is expected that the disease stage of the patients described herein was similar because the PS distribution was similar to that in the previous report.

Of particular note in this report is that patients with schizophrenia accounted for more than 4% of the total. Although it seems that there is a high probability of schizophrenic patients being referred, the reports from the National Cancer Center in Japan (1,23) showed the proportion to be at the level of 1%. However, according to reports from abroad, this proportion varies. Some values were similar to that in this study (3,5), while some were less than 1% (2,4). It is expected that patients with schizophrenia have difficulty going to a distant hospital, and the proportion will be low in a hospital in which patients are admitted from a wide area. In Japan, the admission rate of patients with schizophrenia is high, and older age has been reported in inpatients (25). It is expected that inpatients have more difficulty going to a distant hospital. Therefore, it seems that cancer treatment for patients with schizophrenia in a local hospital is important. Although the reports about the cancer death rate for schizophrenic patients were inconsistent (26–30), the cancer death rate for schizophrenic patients was found to be four times as great as that for the general population in a large prospective study in France (31). In Japan, to the best of our knowledge, there have been no prospective studies and few cases of retrospective study. There is also the possibility that this will become an important research focus in the future.

The finding of a relationship between characteristics and psychiatric diagnoses of referred cancer patients was similar to that in a previous report (1): pancreatic cancer patients and breast cancer patients made up a large proportion of the cases of adjustment disorders and major depressive disorder. Pancreatic cancer is one of the most dismal prognoses among cancers and it was previously reported that patients with pancreatic cancer develop depressive symptoms at high rates (32,33). In addition, whereas patients with esophageal cancer had a high proportion of delirium, this was not mentioned in previous reports and might just have been due to the small number of cases in this study. Information on liver cancer and its association with delirium as reported previously was not provided here because our hospital does not provide medical treatment for this.

There are some limitations to this study. First of all, as in the case with the National Cancer Center report, the patient sample could have been affected to a large degree by physician bias. Secondly, the psychiatric diagnosis was that made at the first medical examination, and the course was not considered. Moreover, diagnosis bias by a psychiatrist was to some degree inevitable.

In conclusion, this study revealed basic information about the consultation data of cancer patients at a local university hospital in Japan. The importance of communication with outpatients was suggested. It seems that cancer treatment for patients with schizophrenia in a local hospital is also important.

Conflict of interest statement
None declared.

References


