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Differences in psychological perception of lung cancer between patients, medical staff and medical students†

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Received 20 June 2011; accepted 17 August 2011

Abstract

OBJECTIVES: In clinical practice, medical staff is often unaware that what they think about patient’s disease differs much from the perceptions and feelings of the patient. The aim of the study was to analyse the differences in psychological perception of lung cancer between patients treated with combined regimen for lung cancer (n = 30), medical staff (n = 94) and medical students (n = 303).

METHODS: A total of 427 persons were enrolled in this questionnaire study using Imagination and Perception of Illness Scale (IPIS) by Sak. The IPIS scale items described: loss of motivation to carry out specific activities (eight items), mental sphere destruction (six items), physical sphere destruction (eight items), pessimism (four items), being a burden to others (three items) and loss of control over the illness (three items). A seven-point scale from ‘0’, meaning the choice of maximum positive feature, to ‘6’, meaning the choice of maximum negative feature, was used. The higher result obtained within a given factor signified the more negative perception of the illness.

RESULTS: In all IPIS items, the results among patients were significantly lower than among medical staff or students (P = 0.018 and P = 0.001, respectively). Medical staff and students perceive lung cancer as causing more profound destruction in patient’s mental and physical spheres than patients do.

CONCLUSIONS: Patients treated for lung cancer with combined regimen perceive their disease more optimistically than what is imagined by medical staff and students, and may underestimate the threat. It may be explained by psychological adaptation of patients to their disease during prolonged treatment. We believe that informing lung cancer patients in detail about their illness should be recommended to enhance self-awareness and doctor–patient cooperation.

Keywords: Disease • Lung cancer • Perception • Psychology

INTRODUCTION

Contemporary psychology of medicine emphasizes the need of dealing with negative emotional effects of medicine’s becoming mechanistic and of its dehumanization. One of the methods to counteract these unfavourable phenomena is to conduct research on the patients’ apprehensions of the illness they suffer from. Physicians often fail to recognize that such apprehensions are common among patients. While dealing with patients’ disorders and their emotions, physicians refer to a set of meanings acquired during professional training. They often take no account of patients’ anxiety or fear, and they focus only on clinical data in order to specify the type of appropriate treatment. From the physician’s perspective, the clinical data seem to be of the greatest importance, while from the patient’s perspective it is not that important, except the case when a patient is also a physician. For a physician, the clinical data are a component of his knowledge, whereas for a patient it is simply a kind of news [1]. Thus, a distinct difference appears between professional and common meanings, between purposes of science and those of everyday life. The meanings of illness that people ascribe to their state depend on a ‘collectivization of meanings’, namely on the relations and conditions that are essential functions of their personal biographical situation, especially their social or cultural background. A patient is a person who at the same time experiences an illness and, on the basis of his/her own social and psychological experience, provides the meanings to it [2]. In clinical practice, medical staff is often unaware that what they think about patient’s disease differs much from the perceptions and feelings of the patient.

1Presented at the 19th European Conference on General Thoracic Surgery, Marseille, France, 5–8 June, 2011.
Semantic Differential for Health was one of the first scientific tools used in research on perception of illness [3]. However, several decades were greatly influenced by the self-regulation model developed by Leventhal [4–7]. It assumes that the imagination of illness created in patient’s mind affects common-sense health behaviours. The final psychological result is achieved by cognitive and emotional processes, which occur as parallel phenomena [8].

Several scales have been developed in order to assess subjective representation of illness, namely Illness Perception Questionnaire (IPQ), the Revised Illness Perception Questionnaire (IPQ-R), the Illness Cognition Questionnaire (ICQ) and the Meaning of Illness Questionnaire (MIQ) [9]. However, the above-mentioned scales are not useful if comparing representations of illness in two different groups, e.g., patients and physicians. In Poland, a scale that is useful in both comparative studies and in assessing patients’ representations of illness has been developed. The scale in question is the Imagination and Perception of Illness Scale (IPIS) by Sak [10]. Despite several empirical studies on perception of illness among patients with various diseases conducted during the recent decade, the preliminary results of research in this field among patients with lung cancer have been published very recently [11, 12]. Perception of patient’s own disease is an integral part of quality of life in patients with lung cancer [13–17]. Patient’s quality of life is affected by relationship with family and friends, as well as by adequate communication with medical staff. Current literature lacks scientific studies on differences in perception of lung cancer between persons afflicted with this disease and medical staff or persons under training to become medical personnel.

The primary aim of the study was to analyse the differences in subjective perception of lung cancer between patients treated with combined regimen for lung cancer, medical staff and medical students. We assumed that this research may help identify psychological obstacles in effective patient–doctor communication, and facilitate proper understanding of lung cancer patient’s psychosocial needs.

**MATERIALS AND METHODS**

A total of 427 persons were enrolled in this study. The study group consisted of 30 patients with lung cancer (Table 1) treated with a combined regimen, including therapeutic or diagnostic surgery and chemotherapy, 94 persons from medical personnel (doctors and nurses) and 303 medical students (Table 2). Enrolment criteria for patient subgroup included histopathologic confirmation of lung cancer, at least 1-month period of time from informing the patient about the diagnosis of lung cancer, and cognitive condition of the patient enabling completion of the questionnaire. Sample selection criteria for medical personnel subgroup included employment at a surgical or oncological ward routinely dealing with lung cancer treatment and continuous employment for at least 3 years. The subgroup of medical students included persons at first, second and third year of studies at the medical faculty of Medical University.

The study was performed using questionnaire with Imagination and Perception of Illness Scale (IPIS) by Sak [10] based on technique of semantic differential [18]. The IPIS scale factors (32 items) described: loss of motivation to carry out specific activities (eight items), mental sphere destruction (six items), physical sphere destruction (eight items), pessimism (four items), being a burden to others (three items) and loss of control over the illness (three items). A seven-point scale from ‘0’, meaning the choice of maximum positive feature, to ‘6’, meaning the choice of maximum negative feature, was used. The higher the result obtained within a given factor signified the more negative perception of the illness.

Statistical analyses were performed using the Kruskal-Wallis test, one-way non-parametric analysis of variance by ranks and multiple comparisons. These methods allow testing equality of

### Table 1: Sociodemographic and clinical characteristics of patients treated for lung cancer

<table>
<thead>
<tr>
<th>Patients treated for lung cancer, n = 30</th>
<th>Medical staff, n = 94</th>
<th>Medical students, n = 303</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male, n (%)</td>
<td>21 (70)</td>
<td>33 (35.1)</td>
</tr>
<tr>
<td>Female, n (%)</td>
<td>9 (30)</td>
<td>61 (64.9)</td>
</tr>
<tr>
<td>Age (Mean (SD))</td>
<td>60.97 (9.54)</td>
<td>31.89 (5.08)</td>
</tr>
<tr>
<td>Time after diagnosis (in months)</td>
<td>7.00 (11.53)</td>
<td>20.40 (1.38)</td>
</tr>
</tbody>
</table>

### Table 2: Sociodemographic characteristics of medical staff and students

<table>
<thead>
<tr>
<th>Medical staff, n = 94</th>
<th>Medical students, n = 303</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male, n (%)</td>
<td>33 (35.1)</td>
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</tr>
<tr>
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<td>31.89 (5.08)</td>
</tr>
</tbody>
</table>

### Table 3: Perception of lung cancer among patients, medical staff and medical students

<table>
<thead>
<tr>
<th>The IPIS factors</th>
<th>Patients treated for lung cancer, n = 30</th>
<th>Medical staff, n = 94</th>
<th>Medical students, n = 303</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss of motivation to carrying out specific activities</td>
<td>3.34 1.227</td>
<td>4.16 0.891</td>
<td>4.00 0.926</td>
</tr>
<tr>
<td>Mental sphere destruction</td>
<td>3.36 1.664</td>
<td>4.63 0.852</td>
<td>4.30 1.005</td>
</tr>
<tr>
<td>Physical sphere destruction</td>
<td>4.25 1.214</td>
<td>5.28 0.703</td>
<td>5.11 0.890</td>
</tr>
<tr>
<td>Pessimism</td>
<td>3.33 1.418</td>
<td>4.75 0.943</td>
<td>4.47 1.025</td>
</tr>
<tr>
<td>Being a burden to others</td>
<td>0.89 1.504</td>
<td>1.87 1.390</td>
<td>2.09 1.184</td>
</tr>
<tr>
<td>Loss of control over the illness</td>
<td>2.25 1.720</td>
<td>3.86 1.220</td>
<td>3.37 1.351</td>
</tr>
</tbody>
</table>

M, mean; SD, standard deviation.
population medians among more than two groups. Results are presented as mean (M), standard deviation (SD), median (Me) and mean rank (MR). Data were analysed using PASW Statistics 18.0 software.

The study was approved by local institutional ethics committee on human research (KE-0254/224/2008).

RESULTS

In all IPIS items, the results among patients were significantly lower than among medical staff or students (Tables 3 and 4, Figs 1 and 2). Medical staff and students perceive lung cancer as causing more profound destruction in patient’s mental and physical spheres than patients do ($P = 0.001$). Patients experienced less threat in the mental sphere destruction (Me = 3.67; MR = 136.73) than it was perceived by the medical personnel (Me = 4.67; MR = 233.47) or students (Me = 4.17; MR = 197.29) (Table 4). Significant difference of the same character was disclosed also in the physical sphere destruction. Patients perceived lung cancer as a disease influencing predominantly the physical sphere destruction, and their scores within this item were significantly lower than in medical personnel and students (Me = 4.82; MR = 114.13 vs. Me = 5.38; MR = 203.37, respectively) (Table 4).

More positive perception of lung cancer among patients compared with medical staff and medical students was also revealed in the dimensions describing being a burden to others ($P = 0.001$), loss of control over the illness ($P = 0.001$) and loss of motivation to carrying out specific activities ($P = 0.018$). It is worth to emphasize that medical staff and medical students perceive the disease of lung cancer very similarly. The only difference between these two groups was found in the dimension describing loss of control over the illness ($P = 0.001$). Medical personnel perceived lung cancer as a more difficult to control (Me = 3.67, MR = 239.04) than students perceived it (Me = 3.33, MR = 198.05) (Table 4).

![Figure 1: Perception of lung cancer among patients, medical staff and medical students (mean values).](image)

Table 4: Differences in perception of lung cancer between patients, medical staff and medical students (the Kruskal-Wallis test)

<table>
<thead>
<tr>
<th>The IPIS factors</th>
<th>Patients treated for lung cancer, n = 30</th>
<th>Medical staff, n = 94</th>
<th>Medical students, n = 303</th>
<th>Kruskal-Wallis test ($\chi^2$)</th>
<th>P-value</th>
<th>Multiple comparisons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss of motivation to carrying out specific activities</td>
<td>Me = 3.57, MR = 149.70</td>
<td>Me = 4.13, MR = 220.63</td>
<td>Me = 3.88, MR = 198.95</td>
<td>8.01</td>
<td>0.018</td>
<td>1 &lt; 2</td>
</tr>
<tr>
<td>Mental sphere destruction</td>
<td>Me = 3.67, MR = 136.73</td>
<td>Me = 4.67, MR = 233.47</td>
<td>Me = 4.17, MR = 197.29</td>
<td>15.17</td>
<td>0.001</td>
<td>1 &lt; 2; 1 &lt; 3</td>
</tr>
<tr>
<td>Physical sphere destruction</td>
<td>Me = 4.82, MR = 114.13</td>
<td>Me = 5.38, MR = 217.03</td>
<td>Me = 5.38, MR = 203.37</td>
<td>18.75</td>
<td>0.001</td>
<td>1 &lt; 2; 1 &lt; 3</td>
</tr>
<tr>
<td>Pessimism</td>
<td>Me = 3.38, MR = 107.57</td>
<td>Me = 4.75, MR = 232.54</td>
<td>Me = 4.50, MR = 200.44</td>
<td>25.19</td>
<td>0.001</td>
<td>1 &lt; 2; 1 &lt; 3</td>
</tr>
<tr>
<td>Being a burden to others</td>
<td>Me = 0.00, MR = 101.38</td>
<td>Me = 1.67, MR = 189.01</td>
<td>Me = 2.00, MR = 211.14</td>
<td>25.89</td>
<td>0.001</td>
<td>1 &lt; 2; 1 &lt; 3</td>
</tr>
<tr>
<td>Loss of control over the illness</td>
<td>Me = 2.00, MR = 116.38</td>
<td>Me = 3.67, MR = 239.04</td>
<td>Me = 3.33, MR = 198.05</td>
<td>24.12</td>
<td>0.001</td>
<td>1 &lt; 2; 1 &lt; 3; 2 &gt; 3</td>
</tr>
</tbody>
</table>

Me, median; MR, mean rank.
DISCUSSION

Our results showed that patients with lung cancer perceive their disease more optimistically than medical personnel, like doctors or nurses. It may be due to the fact that medical personnel are professionals who possess thorough and evidence-based knowledge on threats associated with this devastating disease, whereas patients are usually laymen. More positive perception of own disease may be also associated with the process of adaptation to new circumstances of illness. Undoubtedly, diagnosis of cancer is a burdening situation for the patient; however, not as dramatic as it is imagined by a healthy observer. In relation to a patient with lung cancer who had previously acknowledged information about his or her illness, medical staff should primarily overcome their restraints and negative imagination of the disease. Besides, we think that regarding existential situation of a lung cancer victim, it is the patient, and not medical staff, who could be considered the best tutor for medical students. This is consistent with ideas of biopsychosocial paradigm of medical teaching introduced at University of Rochester Medical School [19]. This attitude emphasizes the role of proper patient–doctor communication [20].

The results of our study proved that the relationship of the response to the disease situation is the strongest modifier of lung cancer perception, whereas professional experience plays a much weaker role. Moreover, medical students and medical staff, who deal with malignancies in everyday practice, perceive lung cancer similarly. The only remarkable difference between these two subgroups revealed in our study was in the capability of controlling the disease. Previous reports showed that also cultural differences are only a weak modifier of disease perception when compared with the situation of being ill itself [12].

Interpretation of presented results should, however, be adjusted by certain limitations of our study. Previous publications showed that patients with chronic diseases begin to perceive their illness pessimistically after 6 months from the time of diagnosis [11]. Our patients were enrolled in the study relatively early in the course of the disease, and it may be presumed that their perception of capability to control the disease will evolve with time towards more pessimistic attitude.

In conclusion, our study disclosed that patients treated for lung cancer with combined regimen perceive their disease more optimistically than what is imagined by medical staff and students. These findings suggest that patients with lung cancer may underestimate the threat associated with the disease. It may be due to differences in evidence-based knowledge on the course and prognosis in this devastating disease between medical staff as professionals and patients as laymen. It may also be influenced by psychological adaptation of patients to their disease during treatment. We believe that informing lung cancer patients in detail about their illness should be recommended to enhance self-awareness and facilitate optimal doctor–patient cooperation.

Figure 2: Differences in perception of lung cancer between patients, medical staff and medical students (median values).
Funding

This study was supported by grant from the Medical University of Lublin, Poland (Grant No. 658/06-08).

Conflict of interest: none declared.

REFERENCES