

The relationship between illness perception and quality of life in thyroid patients who received radioactive iodine-131 ablation treatment

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Abstract

Objective: Most of the differentiated thyroid carcinoma (DTC) patients recover totally after the primary treatment. Unlike most of the other cancer types, the patients do not go through a long, challenging and weary treatment process in thyroid cancers. Illness perception has been suggested to have a significant effect on quality of life on cancer patients. We aimed to evaluate the effect of illness perception on quality of life in thyroid cancer patients who had radioactive iodine-131 treatment after total thyroidectomy.

Methods: Totally one hundred patients were included in this cross-sectional study. Patients' age, educational level, marital status and disease characteristics including stage, treatment and follow-up period since diagnosis were reviewed. Short Form 36 Health Survey Questionnaire (SF-36), the illness Perception Questionnaire were used to assess the quality of life and illness perception, respectively.

Results: When we correlated the illness perception sub-scales and quality of life dimensions in our study, the most apparent negative correlation was seen between the immunity dimension of the disease sub-scale and quality of life subdimensions. There was also a negative and significant ($p<0.05$) correlation between the dimensions of ability to understand the disease and overall health.

Conclusion: The low ability of patients to understand the disease significantly affects the negative impact on the quality of life of the disease perception. The needs of patients monitored during the remission period should be determined and a multidisciplinary approach should be preferred when necessary.

Keywords: Thyroid, Ablation, Quality of Life, Perception of Disease, Radioactive Iodine-131

Introduction

Thyroid cancer is the most common tumor on the endocrine gland. Well-differentiated thyroid carcinoma for which radioactive iodine-131 (RAI-131) treatment is administered accounts for about 85-90% of all thyroid cancers. The rate of psychiatric disorders in cancer patients is high. The meanings ascribed by patients to the cancer, and their way of perceiving the disease affect the response to cancer and the quality of life (1). Besides, medical, psychological and social factors play an important role in this response process. The determinants of the psychological response in patients diagnosed with cancer include variables such as type of cancer, treatment methods, adverse effects of the treatment, psychological maturity (2, 3, 4).

The World Health Organization defines the "Quality of Life" as "an individual's perception of their position in life in the context of the culture and value systems in which they live in relation to their goals, expectations, standards and concerns" (5). Quality of life decreases in chronic diseases and mental disorders (6). Investigations made on how the disease is perceived shows that illness perception affects individual's emotional reactions, strength of coping with problems, and accordingly, the quality of life. Illness perception is a dynamic process that involves people's beliefs about their diseases, and their cognitive views of the disease.

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An individual interprets the internal and external stimuli that might be associated with the disease in his/her mind, and creates an image of threat by attributing a meaning to them. Cognitive processes resulting from such stimuli mediate the development of disease representations (7).

In this cross-sectional study, we aimed to determine the potential impact of "illness perception" on quality of life scores in well differentiated thyroid cancer patients who had received radioactive iodine 131 treatment after total thyroidectomy.

Materials and Methods

Ethic

This study was conducted at a single center in Gaziantep University. The protocol and informed consent documentation were reviewed and approved by the Independent Ethics Committee of the University and agreed with the ethical principles of the Declaration of Helsinki.

Patient selection

A total of 100 thyroid cancer patients who were treated in Gaziantep University Nuclear Medicine Department between December 2015 and December 2016 were recruited for this cross-sectional study. We assessed well differentiated type thyroid cancer patients who had received radioactive iodine 131 treatment after total thyroidectomy.

The 'inclusion criterias' were as follows:

1. 18 years old or older when diagnosed with well differentiated type thyroid cancer diagnosed histopathologically
2. Having total thyroidectomy surgery
3. Received radioactive iodine 131 treatment
4. Established euthyroid state with hormone replacement therapy

The 'exclusion criterias' were as follows:

1. Combination with another tumor
2. Major morbidity, such as chronic obstructive pulmonary disease, coronary heart disease, cerebrovascular disease
3. Subclinical hyperthyroidism/hypothyroidism, Overt hyperthyroidism/ hypothyroidism

Data Collection

Participants completed a standardized questionnaire assessing the demographic factors and medical data, illness perception and quality of life. Thus, the following measures were used:

Short form 36 (SF36) Health Survey Questionnaire:

SF-36 Quality of Life Scale was developed by Sullivan et al (1995), and its Turkish validation-reliability study was conducted by Koçyiğit et al (1999) (8,9). This scale evaluates 8 different subsets of health.

The items in SF-36 not only question the positive situations but also the negative ones about health. Scores of the items

are coded for each dimension, and turned into a scale that is scored from 0 (the worst health state) to 100 (the best health state).

Illness perception Scale:

The Illness Perception Scale (IPS) was developed by Weinmann et al (1996), and reviewed by Moss-Morris et al (2003) (10,11). The Turkish interpretation of the scale and the validation-reliability study were performed by Armay et al (2007) on cancer patients (12). A reviewed IPS form was used in the study. IPS includes the dimensions of disease type, views on the disease, and causes of the disease.

Statistical Analysis

All data obtained from the study has been analyzed by using the SPSS 15.0 statistics program. After completion of the definitive statistical analyses, compliance of the variables to the normal distribution was evaluated by means of the Shapiro-Wilk Test. Fischer's Exact test, Yates' Chi-square test and Pearson's Chi-square test were used to determine whether the groups differ in terms of discrete variables; Student t test, and Mann-Whitney U test were used in binary comparisons of continuous variables, when parametric assumptions were met, and were not met, respectively. Furthermore, illness perception sub-dimensions and quality of life sub-dimensions were compared in our study using the RHO correlation test of Spearman.

Results

Patients social demographic characteristics were shown on the table 1. A total of 100 well differentiated thyroid cancer patients who had received radioactive iodine 131 treatment after total thyroidectomy with stage I-IV disease were involved in this study (Each stage has 25 patients e.g. 25 patients for stage I). The mean age of patients enrolled in the study was 40.62±10.28. There were 84 (84.0%) female and 16 (16.0%) male cases. Mean laboratory and clinical features values of the patients were shown in Table 2.

When we compared the illness perception sub-scale dimensions and quality of life sub-dimensions, we observed a negative and significant ($p < 0.05$) correlation between the dimension of ability to understand the disease under views on disease in illness perception scale and overall health dimension under quality of life scale; between emotional representations dimension and vitality and overall health dimensions under quality of life scale; between the sub-dimension of immunity under the causes of the disease dimension and all sub-dimensions under quality of life scale, between psychological references and mental health dimension, and between accident and chance dimension and the mental health dimension under the quality of life scale (Table 3).

There was a significant difference between the Outcomes dimension of views on the disease sub-scale under illness perception of married and single cases ($p = 0.035$). The Outcomes dimension scores of the married cases were significantly higher than those of single cases ($p < 0.05$).

There was not a significant difference between age and illness perception scores of cases ($p > 0.05$).

Table 1: Socialdemographiccharecteristics of theindividuals

Factors	Variables	Number	%
Gender	Female	84	84,0
	Male	16	16,0
EducationalStatus	None	18	18,0
	Elementary	48	48,0
	High School	24	24,0
	University	10	10,0
MaritalStatus	Married	86	86,0
	Single	14	14,0
Total		100	100,0

Table 2: Mean laboratory and clinical features values of the patients

Parameter	Patients	Standart Deviation
Age (year)	40,62	10,28
BMI (kg/m ²)	31,75	0,5
TSH (mU/l)	2,67	0,20
free-T3 (pmol/l)	3,56	0,1
free-T4 (pmol/l)	1,05	0,4
Thyrogloblin	1,09	0,2
Anti-Thyrogloblin	4,67	0,24
Duration of the disaese (Month)	5,63	0,5

Table 3: Results of the correlation analysis of the relationship between the illness perception and quality of life.

	1	2	3	4	5	6	7	8
Disease Type	-0.22	-0.23	-0.31*	-0.27	-0.30	0.03	-0.21	-0.39*
Time	-0.21	-0.22	-0.18	-0.12	0.08	-0.16	-0.05	-0.14
Conclusions	-0.29	-0.18	-0.15	-0.40*	-0.31	-0.18	-0.25	-0.32*
Personal Control	0.10	-0.03	-0.03	-0.11	0.02	-0.06	0.04	-0.08
Treatment Control	-0.24	-0.10	-0.01	-0.06	0.01	-0.05	0.04	0.37*
Views on the Disease								
Ability to Understand the Disease	0.00	-0.34*	-0.27	-0.26	-0.24	-0.11	-0.08	-0.42**
Time (Cyclic)	-0.38*	-0.32*	-0.21	-0.23	-0.24	-0.32*	-0.29	-0.07
Emotional Representations	-0.28	-0.24	-0.15	-0.42**	-0.38*	-0.28	-0.37*	-0.31*
Causes of the Disease								
Psychological References	-0.34*	-0.20	-0.21	-0.31	-0.48**	-0.16	-0.34	-0.27
Risk Factors	-0.29	-0.22	-0.19	-0.35*	-0.36*	-0.46**	-0.10	-0.24
Immunity	-0.45**	-0.40**	-0.35**	-0.42**	-0.37**	-0.46**	-0.24	-0.32*
Accident or luck	-0.29	-0.31	-0.23	-0.33*	-0.47**	-0.36*	-0.26	-0.35*

1- Physical Function 2- Physical Role Limitations 3- Emotional Role Limitations 4- Vitality 5-Mental Health 6-Social Function 7- Pain 8- Overall Health Perception *p<0.05, **p<0.01

Discussion

Most of the DTC patients recover totally after the primary treatment. Unlike most of the other cancer types, the patients do not go through a long, challenging and weary treatment process in thyroid cancers. However, unexpected developments that are beyond our perception might be seen in patients during the disease process, and the quality of life might fall. Even though there are a few studies that evaluate the quality of life of DTC patients, none cover its relationship with the illness perception [13, 14].

The main approach in our study has been the illness perception, and the extent to which such perception affects the quality of life. In a study, the only demographic factor that was found to be effective on the illness perception was education [15]. Besides, the number of iodine treatments was found to have a significantly negative effect on the illness perception. In our study, the patient group that had repetitive treatment was excluded.

None of the demographic factors was concluded to be significantly effective on the illness perception.

In the first phase of our study, a general assessment was made on the disease type, views about the disease, and causes of the disease sub-scale dimensions of the illness perception scale. In the disease type sub-scale dimension of our study, patients were asked if they experienced the 14 symptoms since the onset of disease, and whether these symptoms were associated with the disease. The high rate of the 'yes' responses given to the second question shows the severity of disease symptoms. The most common symptom was found to be fatigue also in a study conducted by Zordan et al [16]. This result was consistent with almost all studies found in literature on the chronic diseases. Fatigue and loss of strength symptoms were reported as the most frequent ones in almost all stages without any correlation with the treatment period of DTC patients.

The scores of time (acute/chronic) dimension were slightly high in our study. A high score in this dimension is a negative parameter showing the patient believes that his/her disease is chronic. It was seen that some of the patients thought that the disease would last long, it was permanent rather than temporary, and they would live with this disease for the rest of their lives. In a study conducted by 110 thyroid cancer patients, the score of time subscale was found to be close to that of our study [15].

The scores of Outcomes sub-scale are not as high as the scores observed in other cancer cases in our study. This might be attributed to the fact that the long and weary treatment process observed in other cancer cases is not seen in DTC patients, or the psychological trauma caused by other cancer types is harder.

The mean score of 'personal control perception' and 'treatment control' dimension was high in our study. This results show that patients trust in their treatment and their own control of the treatment. High scores are positive parameters on the continuity of treatment and patient compliance. However, the overall findings show that personal control perception is low in cancer patients [1,17-20]. Treatment compliance is significantly higher in DTC patients as compared to other cancer patients.

The highest scores were observed in the 'emotional representations' dimension as a negative parameter in our study. This result shows that patients struggle with a worrisome and alarming situation. According to a study, the level of education is the only demographic factor that affects the emotional representation of disease [20]. In our study, no significant correlation was found between the level of education and emotional representations. The score of emotional representations was high in all groups. The ability to understand the disease dimension scores, on the other hand, were low in our study. The low scores in this sub-scale show that patients cannot understand the disease sufficiently, or have difficulty in understanding the disease. On the contrary, the ability to understand the disease dimension received the highest score along with the personal control in another study [15]. The only varying socio-demographic factor in that study was the level of education. The higher this factor gets, the more the ability

to understand the disease score increases and the further the Outcomes dimension including the belief that disease might have serious Outcomes decreases. In our study, no correlation was observed with the level of education. In the study conducted by Karabulutlu et al with other cancer patients in our country, the scores in the ability to understand the disease dimension were significantly lower [22].

The third sub-scale of illness perception was 'causes of the disease' in our study. Psychological references ranked first in this scale, followed by risk factors with a little difference. In a study conducted on other cancer types, risk factors were the first sub-dimension. This is caused by the belief of our people that smoking ranks the first among the risk factors of cancer [23].

The reason behind the fact that psychological references rank first might be the intense feelings of stress, distress, and family problems especially in the group with low socio-economic level, as a reflection of overall life challenges. It was found that such negative factors affected the patients positively in terms of staying away from stress during the treatment process.

The correlation between the quality of life sub-dimension and illness perception sub-dimension was examined in the next part of the study. The mean physical functions sub-scale score was 53.90 in our study. The high scores in this dimension show that the person can perform his/her daily activities without any restrictions. When correlated with the illness perception, the most significant correlation was between the disease factors and immunity sub-dimension. In cases that gave the response "low body resistance" as the cause of disease, physical function score was significantly low.

A negative and significant correlation was found between the sub-dimension of ability to understand the disease and 'overall health' dimension of the quality of life scale; between the risk factors under causes of disease and 'social function' dimension of the quality of life scale; and between 'emotional representations' sub-dimension under illness perception scale and vitality sub-dimension under quality of life scale.

Conclusion

The dimension of ability to understand the disease under the views on the illness perception subscale was notably low in our study. Based on this result, it may be concluded that healthcare professionals fall short in explaining the disease. Observation of high scores in this dimension in the studies performed in developed communities has shown that we only focus on the treatment of disease, and do not put much interest in the subjective dimension of disease, which is the one perceived by the patient.

According to the illness perception scale, the scores in the emotional representations dimension, and 'personal control' and 'treatment control' dimensions were observed as positive, and negative parameters, respectively. The scores in quality of life scale were generally low. When we correlated the illness perception sub-scales and quality of life dimensions in our study, the most apparent negative

correlation was seen between the immunity dimension of the disease sub-scale and quality of life sub-dimensions. In brief, quality of life of patients believing that their body resistance was low was significantly lower than others.

In patients followed-up during the remission period with these results, a multidisciplinary approach must be preferred when required, considering the effect of illness perception on the quality of life. It would be beneficial to try different approaches on this patient population which is increasing in prevalence over time.

Conflict of Interest: The authors declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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