THYROID CANCER

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Financial Toxicity Is Associated with Poorer Quality of Life in Thyroid Cancer Survivors

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SUMMARY

Background

More than 50,000 Americans are diagnosed with thyroid cancer each year (1). Owing to excellent survival rates, with a 5-year survival rate reaching 98%, it is estimated that more than 750,000 thyroid cancer survivors are living in the United States (1,2). In view of the fact that thyroid cancer mostly affects younger individuals, the majority of thyroid cancer patients are working-age adults who do not yet qualify for government health insurance benefits. Prior studies have indicated that thyroid cancer patients are at risk for financial burden and have high rates of bankruptcy (3,4). Additionally, it has been shown that severe financial distress, a state that may require bankruptcy protection after a cancer diagnosis, appears to be a risk factor for mortality (4). Despite evidence that financial burden and distress are common in thyroid cancer survivors, their impact on quality of life in this population is understudied. The main objective of this study (5) was to evaluate the magnitude of financial burden among thyroid cancer survivors and the impact of that burden on health-related quality of life (HRQOL).

Methods

A survey instrument was developed to collect demographic, clinical, financial, and HRQOL data. One question addressed the degree of financial difficulty caused by the patients' physical condition or treatment related to their thyroid cancer.

Another question evaluated financial distress by asking patients how worried they were about their financial situation. HRQOL was assessed using the Patient-Reported Outcomes Measurement Information System (PROMIS). PROMIS-29 is a 29-item validated questionnaire assessing seven health domains (anxiety, depression, fatigue, pain interference, physical functioning, sleep disturbance, and social functioning) in individuals with chronic conditions, with scoring standardized using normative data from the U.S. general population (6,7).

After a pilot study, the survey was electronically administered via a link that was posted between January and June 2017 on the website of the Thyroid Cancer Survivors' Association, Inc. (ThyCa; <http://www.thyca.org>) and associated media platforms. Subjects' participation was anonymous. Inclusion criteria were a diagnosis of thyroid cancer and age between 18 and 89 years. Patients residing outside the United States were excluded.

Respondents' answers for each of the seven health domains addressed by the PROMIS questionnaire were scored. Raw scores were converted to T-score values and T-score distributions were standardized such that 50 represents the mean for the U.S. general population and the standard deviation around that mean is 10 points. Multivariable linear regression analysis was performed to determine financial

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factors associated with worse HRQOL scores in thyroid cancer survivors. Additional analyses were conducted to determine the relationship between time since diagnosis and financial difficulty and, separately, financial distress.

Results

Of the 1922 patients who completed all portions of the survey, 1743 were living in the United States and were included in the study. The majority were women (88%), were white (95%), and had a diagnosis of papillary thyroid cancer (85%). The mean age at thyroid cancer diagnosis was 44 years and the mean number of years since diagnosis was 6.8. Overall, the overwhelming majority of patients underwent at least one surgery (98%); 33% had more than one surgery. A total of 78% of patients received radioactive iodine; 24% received it more than once. Interestingly, 20.2% of participants reported paying more than \$100 (U.S.) out-of-pocket per month for thyroid cancer-related care, 23.7% reported that they used up all or most of their savings, 15.1% that they borrowed money from friends and relatives, and 15.9% that they had been contacted by a collection agency.

In multivariable analyses, higher reported financial difficulty and financial distress were both associated with worse HRQOL in all seven PROMIS domains ($P < 0.001$). At < 5 years since thyroid cancer diagnosis, patients had higher financial difficulty and distress as compared with those at ≥ 5 years since diagnosis ($P = 0.004$ and $P < 0.001$, respectively). Additionally, employment status was independently associated with HRQOL in thyroid cancer survivors. For example, individuals who reported being unable to change jobs or get a new job because of their thyroid cancer diagnosis reported worse fatigue, pain interference, and social functioning ($P < 0.001$).

Conclusions

This study (5) provides much-needed data on the financial impact on thyroid cancer survivors' quality of life. Specifically, it highlights the fact that the financial burden and distress associated with a thyroid cancer diagnosis and care may be drivers of worse HRQOL in these patients. Additionally, the study emphasizes that events associated with employment disturbance and instability may also adversely affect HRQOL in thyroid cancer survivors.

COMMENTARY

Findings from this study (5) show that financial burden and associated negative financial events, such as employment disruption, are prevalent among thyroid cancer survivors in the United States, and this can significantly decrease HRQOL.

Prior studies have shown that financial burden and distress are prevalent in thyroid cancer survivors (3,4,8). In a recent study by Barrows et al, (8) using the 2011 Medical Expenditure Panel Survey Experiences with Cancer database, it was demonstrated that thyroid cancer survivors ($n = 470,772$) reported psychological financial burden more frequently than non-thyroid cancer survivors in the United States (n

$= 7,064,295$; $P = 0.04$). Additionally, thyroid cancer survivors were twice as likely to report debt than patients with the other cancer types evaluated in Barrows et al's study.

Because thyroid cancer disproportionately affects younger individuals who are still part of the workforce and who do not yet qualify for government-subsidized health insurance benefits, this group is the most vulnerable to financial burden related to thyroid cancer care. This means that for some patients, the financial burden incurred is compounded by decreased income and loss of work productivity and may subsequently lead to psychological

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distress and decreased quality of life. These effects can also lead to strain in personal relationships and difficulties in coping with family responsibilities. Therefore, physicians should engage early in conversations with their patients regarding treatment costs in order to set realistic expectations.

This study (5) has significant strengths, including the high participation rate, the recruitment of participants from a geographic distribution that approximated that of the U.S. population, and the novel research questions. However, several limitations merit consideration. There is a possibility of selection bias related to the recruitment method, which used a thyroid cancer patient support group. Because this survey was online, thyroid cancer survivors with no Internet access were not included. For these two reasons, results from this study may not be gener-

alizable to the overall thyroid cancer survivor population. Additionally, even though the PROMIS questionnaire provides an efficient, reliable, and valid assessment of adult overall health and allows for comparison to the general population and other disease states, it may not capture all effects of thyroid cancer and its treatments on quality of life, as many of these can be very specific (e.g., voice impairment). Finally, there is a possibility of recall bias with regard to details surrounding thyroid cancer diagnosis.

Future efforts should focus on gaining a better understanding of financial toxicity and its effect on thyroid cancer survivorship, on identifying potential modifiable factors to reduce the financial impact of thyroid cancer care, and on developing interventions and policies to mitigate financial harm for patients at risk.

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