

Quality of Life and Suicidal Ideation among Patients with Differentiated Thyroid Carcinoma Undergoing Radioactive I-131 Therapy at Perpetual Succour Hospital, Cebu City for the year 2018

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Abstract:

Healthcare system is defined as activities whose primary purpose is to promote, restore or maintain life WHO (2000). It is delivered by medical and allied professionals to promote the quality of life among patients especially once diagnosed with terminal ailment. At the Perpetual Succour Hospital, Cebu City, Philippines a support group was created for Thyroid cancer survivor. However, one of the active members committed suicide later on his life. A peculiar case that was unlikely to all. According to studies, well differentiated thyroid cancer is responsive to Radioactive Iodine therapy and has good prognosis. However, people who survived the so called differentiated thyroid cancer who undergone RAI therapy still harbouring the thought of being inflicted with the big "C". This cross-sectional study aimed to determine the quality of life of patients with well differentiated thyroid carcinoma undergoing Radioactive Iodine I-131 Therapy and their Suicidal Ideation at Perpetual Succour Hospital for the year 2018. This study proved that once the patient is diagnosed with cancer, changes in the age are associated with changes in the probability of the severity of the cancer by 1.12 times. The quality of life differs among statuses. The respondents who are married have better quality of life compared with the others, while separated ones have poorer life quality. Lastly, the study proved that the better the quality of life, the less likely for the patients to commit suicide hence, the patient who committed suicide was a separate case. This study could serve as a good mirror to people on different culture who are afflicted on the same ailment. But to those who are specifically identified to have poorer quality of life, special attention should be given by the clinicians.

Keywords: quality of life; radioactive I-131 therapy; suicidal ideation; differentiated thyroid carcinoma

Introduction

As defined by WHO, Quality of life is how the individuals perceived their position in life in the milieu of the culture and value systems in which they live and in relation to their goals. In oncology, even though Differentiated Thyroid Neoplasm has good prognosis, the communication of being inflicted with cancer invokes the thinking of incurability. Barbus, E. et.al (2017) thus, maintaining the quality of their lives despite their diagnosis is very important. Quality of life (QoL) is a broad spectrum. There is no specific standard of measurement Nováková, B. (2015). In this study, a research made questionnaire patterned from WHO was utilized to measure the QoL of the patients diagnosed with differentiated thyroid carcinoma who underwent radioactive iodine therapy. This is to ensure quality service was provided among the patients while undergoing the therapy and monitoring at the same time. Thyroid Cancer is one of the least discussed among them all. According to studies, well differentiated thyroid cancer is responsive to Radioactive Iodine Therapy and has good prognosis. Nevertheless, people who survived the so called differentiated thyroid cancer who undergone RAI therapy was inflicted with the big "C" the same with other cancer survivor.

In the institution, Perpetual Succour Hospital where the study was conducted, a support group was created for the thyroid cancer survivors. However, one of the active members committed suicide later on his life that seemed unlikely to all. Thus, this study aimed to determine the quality of life of patients with well differentiated thyroid carcinoma

undergoing Radioactive Iodine I-131 Therapy and their Suicidal Ideation at Perpetual Succour Hospital for the year 2018. The results provide informative insights especially in dealing and coping this kind of ailment.

Methods

Research design and Data collection

This study utilized the cross sectional design of research, using quantitative approach that determine the quality of life of the patients undergoing Radioactive I-131 Therapy and their suicidal ideation. The respondents were the 27 nuclear medicine patients with well differentiated thyroid carcinoma undergoing Radioactive Iodine Therapy admitted at the hospital. Prior to administration of the radioactive iodine, the patients were asked to answer the research made questionnaire inspired from WHO while they stay at the hospital during their therapy. Questionnaires were collected before they will be discharged.

In determining the profile of the respondents in terms of age, gender, civil status, highest educational attainment, working status, diagnosis, and co-morbid condition the frequency and percentage distribution tables was used. To determine the quality of life and suicidal ideation of patients the weighted mean was computed.

Pearson r Product moment correlation was used to determine the



relationship between age and quality of life and between quality of life and suicidal ideation. One-way ANOVA was also utilized to determine the significant mean differences of the quality of life among factors of the Socio-Demographic profile of the patients. Binomial logistic regression analysis was used to determine predictors of higher level cancer case. In this case, cancer stages 1 and 2 are coded as A, while stages 3 and 4 are coded as B.

Results

| Clinical Profile | | |
|---------------------------------------|-----------|------------|
| Stage of Cancer | Frequency | Percentage |
| I | 9 | 33.33% |
| II | 11 | 40.74% |
| III | 5 | 18.52% |
| IV | 2 | 7.41% |
| Co-Morbid Condition | Frequency | Percentage |
| None | 3 | 11.11% |
| Family History | 11 | 40.74% |
| Hypertension | 3 | 11.11% |
| Vices | 1 | 3.70% |
| Hypertension and Vices | 1 | 3.70% |
| Family History and FDA | 2 | 7.41% |
| Family History and Hypertension | 1 | 3.70% |
| Family History and Vices | 1 | 3.70% |
| Hypertension, FDA, and Family History | 1 | 3.70% |
| Hypertension, Family History, and DM | 1 | 3.70% |
| Hypertension, FDA, and DM | 1 | 3.70% |
| Family History, FDA, and Vices | 1 | 3.70% |

Table 1: As presented in Table I, socio-demographic profile of the respondents shows that the age of male patients.

Most of the respondents were paid employees with a number of 16 or 59.26%, followed by self-employed and retired respectively, and the least were unemployed with a number of 2 or 7.41%.

| Socio-Demographic Profile | | |
|--------------------------------|-----------|--------------------|
| Age | Mean | Standard Deviation |
| Male | 44.83 | 14.80 |
| Female | 40.95 | 13.84 |
| Sex | Frequency | Percentage |
| Male | 6 | 22.22% |
| Female | 21 | 77.78% |
| Civil Status | Frequency | Percentage |
| Single | 10 | 37.04% |
| Married | 16 | 59.26% |
| Separated | 1 | 3.70% |
| Highest Educational Attainment | Frequency | Percentage |
| Post Graduate | 3 | 11.11% |
| College Graduate | 15 | 55.56% |
| College Level | 4 | 14.81% |
| High School Level | 4 | 14.81% |
| Elementary Level | 1 | 3.70% |
| Nature of Employment | Frequency | Percentage |
| Retired | 3 | 11.11% |
| Self Employed | 6 | 22.22% |
| Employed | 16 | 59.26% |
| Unemployed | 2 | 7.41% |

Table 2 shows that 40.74% of the respondents were in stage II of thyroid cancer, followed by 33.33% were in stage I, and the least comprising the 7.41% were in stage IV. Meanwhile, majority of the respondents had a family history of cancer.

| Goodness-of-Fit Tests | | | |
|-----------------------|------------|----|-------|
| Method | Chi-Square | DF | P |
| Pearson | 32.117 | 36 | 0.654 |
| Deviance | 35.872 | 36 | 0.475 |
| Hosmer-Lemeshow | 6.859 | 8 | 0.552 |

Table 3: In these results, it is indicated that at least one of the predictors in the model has a statistically significant association with a higher stage of cancer. In particular, only age is statistically significant at the significance level of 0.05.

| Logistic Regression Table | | | | | | |
|---|---------|---------|-------|--------|----------|--------------|
| Predictor | Coef | SE Coef | Z | Odds P | Ratio | 95% CI Lower |
| Upper | | | | | | |
| Constant | -7.133 | 2.728 | -2.61 | 0.009 | | |
| Age | 0.11131 | 0.04746 | 2.35 | 0.019 | 1.12 | 1.02 1.23 |
| Civil Status | | | | | | |
| Separated | 20 | 26134 | 0.00 | 0.999 | 5.19E+08 | 0.00 * |
| Single | -0.2213 | 0.9556 | -0.23 | 0.817 | 0.80 | 0.12 5.22 |
| Highest Educational Attainment | | | | | | |
| College Graduate | 2.617 | 1.443 | 1.81 | 0.070 | 13.70 | 0.81 231.85 |
| Elementary | -20 | 17517 | -0.00 | 0.999 | 0.00 | 0.00 * |
| High School | 0.850 | 1.584 | 0.54 | 0.592 | 2.34 | 0.10 52.11 |
| Post Graduate | -20 | 13971 | -0.00 | 0.999 | 0.00 | 0.00 |
| Nature of Employment | | | | | | |
| Retirement | -3.081 | 2.070 | -1.49 | 0.137 | 0.05 | 0.00 2.66 |
| Self Employed | -1.277 | 1.727 | -0.74 | 0.460 | 0.28 | 0.01 8.23 |
| Unemployed | -0.011 | 1.499 | -0.01 | 0.994 | 0.99 | 0.05 18.66 |
| Sex | | | | | | |
| Male | 1.613 | 1.451 | 1.11 | 0.266 | 5.02 | 0.29 86.23 |
| Log-Likelihood = -20.708 | | | | | | |
| Test that all slopes are zero: G = 29.772, DF = 14, P-Value = 0.008 | | | | | | |

Table 4: The Goodness-of-Fit Tests of the Logistic Regression Model of the Stage of Cancer and the Socio-Demographic Profile of the Patients

In these results, the goodness of fit tests are all greater than the significance level of 0.05, which means that there is no enough evidence to conclude that the model does not fit the data.

| Aspects of Quality Life | Mean Score | Level of Quality Life |
|-------------------------|-------------|-----------------------|
| Psychological | 2.97 | Good |
| Physical | 2.98 | Good |
| Emotional | 3.33 | Very Good |
| Social | 3.07 | Good |
| Financial | 3.15 | Good |
| OVERALL | 3.10 | GOOD |

Table 5: The Quality of Life of the Patients undergoing Radioactive I-131 Therapy at Perpetual Succour Hospital, Cebu City in the year 2018 Table 5 shows that, the overall QOL of patients undergoing Radioactive Iodine Therapy in terms of psychological, physical, social aspect were all good, with very good score in emotional aspect.



| Aspects of Suicidal Ideation | Mean Score | Level of Suicidal Ideation |
|------------------------------|-------------|----------------------------|
| Psychological | 1.25 | Low |
| Emotional | 1.35 | Low |
| OVERALL | 1.30 | LOW |

Table 6: The Level of Suicidal Ideation of the Patients

Table 6 shows that suicidal ideation of the respondents in both psychological and emotional aspects were low.

| Age | Quality of Life | |
|--------------------------------|--|---------------|
| | Pearson Product Moment Correlation Coefficient | P-Value |
| | 0.263 | 0.184 |
| Sex | Mean (Standard Deviation) | P-Value |
| Male | 2.9983 (0.3480) | |
| Female | 3.1305 (0.3369) | |
| F-Value | 0.71 | 0.408 |
| Civil Status | Mean (Standard Deviation) | P-Value |
| Single | 3.0150 (0.2463) | |
| Married | 3.2000 (0.3327) | |
| Separated | 2.3800 (0.0000) | |
| F-Value | 4.08 | 0.030* |
| Highest Educational Attainment | Mean (Standard Deviation) | P-Value |
| Post Graduate | 3.4467 (0.1620) | |
| College Graduate | 3.0660 (0.3857) | |
| College Level | 3.0175 (0.3385) | |
| High School Level | 3.0400 (0.1329) | |
| Elementary Level | 3.1700 (0.0000) | |
| F-Value | 0.92 | 0.469 |
| Nature of Employment | Mean (Standard Deviation) | P-Value |
| Retired | 3.2300 (0.4084) | |
| Self Employed | 3.0033 (0.3672) | |
| Employed | 3.1175 (0.3479) | |
| Unemployed | 3.0700 (0.1414) | |
| F-Value | 0.31 | 0.821 |

Note: * statistically significant @ 0.05

Table 7: The Significant Relationship and Significant Differences of the Quality of Life with regards to Socio-Demographic Profile of the Patients

The table shows that there is no significant relationship between quality of life and age. Moreover, there are no significance among sexes, highest educational attainments, and nature of employments. Marital status is observed to be statistically significant.

| Pearson Product Moment Correlation Coefficient | P-Value | Interpretation |
|--|---------|---------------------------|
| -0.535 | 0.004 | Statistically Significant |

Table 8: Correlational Analysis of Quality of Life and the Suicidal Ideation of the Patients

The table shows that correlation coefficient is statistically significant at the significance level of 0.05.

Discussion

Some studies suggested that when a person is inflicted with cancer it can affect their quality of life. As mentioned earlier, thyroid cancer is the 7th leading form of cancer in the country with its support group that is not fully recognized compared with other types of cancer. Our institution had established a support group for thyroid cancer patients, unfortunately, one of the members committed suicide. Hence, the researcher aimed to identify the respondents' quality of life, their suicidal ideation and if there is a significant relationship between characteristics of the respondents to the quality of life and suicidal ideation. And identify if there is a significant relationship between quality of life and suicidal ideation.

It is evident in this study that majority of the respondents were in middle age 44.83 for male +- 14.80 and 44.83 for female +-13.84.

According to Perry and Potter, 2002 it is the most vigorous time of human being. Balancing between family, lifestyle, and career that lead to stress which is one contributor of diseases. Prolonged stress increases wear and tear on the body's adaptive capacities. Meanwhile, majority of the respondents in this study were female.

In the logistic regression analysis of Stage of Cancer and the Socio-Demographic Profiles of the Patients it was found out that age is statistically significant at the significance level of 0.05. This means that once the patient is diagnosed with cancer, changes in the age are associated with changes in the probability of the severity of the cancer.

Since the coefficient is positive, it indicates that a higher stage cancer becomes more likely as the age increases. The odd ratio also indicates that for every one year the patient grows the likelihood of a higher level cancer is increased by 1.12 times. This can be associated to the longitudinal study and was published in 2011 by Massimo Giusti et al. that claimed, a special attention should be dedicated to the older patients with DTC and to those with advanced staging at the diagnosis.

In the study of Hedman, C. et al 2015 "Determinants of long-term quality of life in patients with differentiated thyroid carcinoma – a population-based cohort study in Sweden" it claimed that, even if DTC carries an excellent prognosis, many of the HRQoL domains were negatively affected and half of the patients, fully 15 years after diagnosis, still worried about a recurrence, which negatively impacted their HRQoL. In a similar study by Badihian, S. et al 2016 'Quality of life anxiety and depression in Patients with Differentiated Thyroid Cancer under short term hypothyroidism Induced by Levothyroxine Withdrawal' they found decreased QOL after short – term hypothyroidism, especially in physical health and psychological dimensions. They also found that patients became significantly depressed and anxious after levothyroxine withdrawal.

However, this study shows that, the overall quality of life of the patients undergoing Radioactive Iodine Therapy in different aspects psychological, physical, social were all good, with very good score in emotional aspect. This means that despite these patients are off thyroid medications with TSH level of at least 30uIU as part of their preparation for radioactive iodine therapy they remain to have an overall good quality of life.

This can perhaps associated to the study of Ngelangel, CA. 2008 which she found out that the overall Filipino cancer patients are able to maintain a moderate to high QoL. A significant factor that contributes to rather good QoL among Filipino cancer patients is apparently their strong affinity to find meaning in their suffering. According to her, Filipinos are known to be "survivors" as a nation or individually as well. The said contributing factors are the following: The Filipino's spiritual richness. Meaning, they have great faith in God's plan for their lives which give them substance to the physical pain and the feelings of emptiness brought by their ailment. Furthermore, unlike in many cultures, Filipino families are supportive of one another in times of both greatness and doom. Family members or relatives and physicians fill a sense of hope which made the patients feel better. It is helpful for them to overcome the initial stages of anger, denial and grief until they finally learned to accept the status of their health.

The significant relationship and significant differences of the quality of life with regards to socio- demographic profile of the patients implies that the quality of life is not associated with age. Moreover, there are no significance among sexes, highest educational attainments, and nature of employments. It means that quality of life does not differ among sexes, educational attainments and natures of employment. But marital status is observed to be statistically significant. This implies that the quality of life differs among statuses. Married ones are perceived to have better quality



of life compared with the others, while separated ones have poorer life quality.

According to Robards, J. et al 2012 marital status and living arrangements, along with changes in these in mid-life and older ages, have implications for an individual's health and mortality. Literature on health and mortality is consistent in identifying that unmarried individuals have generally poorer health and have higher mortality risk compared to married persons, with men being particularly affected in this respect.

It was found out that there is a significant relationship between quality of life and the suicidal ideation in the correlational analysis. In Table 8, the coefficient suggests a moderate negative relationship. It implies that the better the quality of life, the less likely for the patients to commit suicide.

As mentioned above, we have a patient who committed suicide later on his life, can be considered as a separate case since overall, the quality of life among patients undergoing radioactive iodine therapy at Perpetual Succour institution and national standard research committee.

Informed consent

Informed consent was obtained from the participants involved in this study.

Conclusion

Despite the fact that the respondents have well differentiated thyroid cancer, their quality of life remains good and low suicidal ideation. Hope this can be sustained throughout their life span and can be mirrored with other people on different culture that are inflicted on this type of ailment. But to those patients who are specifically identified to have a poor life quality, special attention should be given by the clinician.

Ethical approval

All procedures performed in this study involving patients as the respondents were in accordance with the ethical standard of the

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