ORIGINAL ARTICLE

The Evaluation of the recurrence and survival in patients with papillary thyroid cancer: A retrospective Study

SHOKOUH TAGHIPOUR ZAHIR[1], MINA HESAMI[2], ALI GHARAEIKHEZRI[3], KOOROSH RAHMANI[3], SHAHIN ZARE[3], MOHAMMAD SHAFIEE[3]

[1]Full Professor of Clinical and Surgical Pathology, Shahid Sadoughi University of medical sciences, Yazd, Iran
[2]Prehospital and Hospital Emergency Research Center, Tehran University of Medical Sciences, Tehran, Iran
[3]General Practitioner, Shahid Sadoughi University of medical sciences, Yazd, Iran
Corresponding Author: Mohammad Shafiee, Email: m.shafii.70@gmail.com, Phone Number: +98 9370075901
Address: Yazd, Ayatolah Khamenei Blvd, 12 Alley

ABSTRACT

Objective: Papillary thyroid carcinoma accounts for about 85% of all thyroid gland carcinomas Regarding this, we decided to find out the recurrence and survival rate in patients with papillary thyroid carcinoma.

Methods: At this retrospective analytical study, 126 patients who had papillary thyroid carcinoma and referred to the pathology department of Shahid Sadoughi Hospital in Yazd were selected by census method. Data were collected from patient's pathology records by preform check lists based on variables such as age, sex, stage of the tumor, lymph node involvement. Data were analyzed by SPSS-21 using descriptive statistical methods, Kaplan-Meier curves and log rank test.

Results: The results showed that of 126 patients,26 were men and 100 women. The survival rate of patients was 99.2% and the mean recurrence time was 15±13.3 months. Also, there was a significant relationship between survival rate with the number of involved lymph nodes, metastasis and stage of the tumor. There was a significant relationship between recurrence and lymph node invasion, metastasis, tumor grade and tumor stage.

Conclusions: Can be concluded that by early diagnosis of disease, timely treatment and monitoring of patients in specified time periods and prevention Metastasis can be a major step in increasing the survival time of patients with papillary thyroid carcinoma.

Key words: papillary thyroid carcinoma, recurrence, survival

INTRODUCTION

The incidence of thyroid carcinomas in the world is rising, perhaps due to increased discovery of the disease, while the mortality of this carcinoma is declining and the survival rate is either steady or mildly reduced. (1) Papillary carcinoma is the most common malignancy of thyroid gland that is typically found in people between the ages of 30 and 40 and accounts for approximately 85% of the thyroid gland carcinomas, and is more common in women. (2) This tumor usually occurs in the early years of puberty and as a single nodule. It then manifests itself through the lymphatic vessels inside the gland and then spread through the lymphatic vessels under the capsule and around the capsule. 80% of Children and 20% of adults were presented with palpable lymph nodes. (3) However, the diagnosis of papillary thyroid carcinoma in many cases following thyroidectomy for the treatment of benign and thyroid nodules and after the histopathological examination of the incident (4). Papillary carcinoma has a strong lymphotropic nature and causes a multicentric disease within the thyroid gland and tends to metastasize to regional lymph nodes. The prognosis of papillary thyroid carcinoma is excellent and 10 years survival was seen in more than 90% of cases (5).There is a controversy among surgeons in choosing appropriate therapeutic methods for diagnosis of thyroid carcinoma after lobectomy and lack of clinical symptoms. Although there is almost a general agreement for complete thyroidectomy (complementary thyroidectomy) in patients with high complications (6) patients over 45 years old, patients with positive lymph nodes, patients with a large tumor, and tumor extracellular invasion. There is a big difference in the choice of surgical procedure for patients with lower complications. (7) In thyroid revascularization, due to the formation of scar tissue and fibroids and inflammation of the substrate, the separation and identification of vital elements (such as the recurrent laryngeal nerve and parathyroid glands, etc.), (8) Therefore, some surgeons do not agree to complete thyroidectomy and believe that the treatment of complications of thyroid revascularization remains more difficult than treatment of the tumor. (9) These tumors are removed from the tumor. The function of thyroid remnant is suppressed by radioactive iodine, but most of the surgeons and endocrinologists agree with complete thyroidectomy as the standard treatment for papillary thyroid. This tumor has the potential for metastasis to distant areas, including lung and bone (10). For these reasons, we decided to study the rate of recurrence and five year survival in patients with papillary thyroid Carcinoma.

MATERIALS AND METHODS

The present study is a retrospective analytical study in which the frequency distribution of Papillary Thyroid Carcinoma and its survival rate in patients from 2014 to 2020 were evaluated. The study population included all patients with papillary thyroid carcinoma and enrolled by census sampling. Criteria for entering this study were all patients with papillary carcinomas, and exclusion criteria were patients whose data were inadequate in the pathology ward. Referring to the Department of Pathology of Shahid Sadoughi Hospital, Yazd, all cases of papillary thyroid carcinoma according to a pre-determined checklist based on variables such as age, sex, stage of tumor, lymph node involvement were evaluated. The survival time was determined via phone contact with the patient and, if necessary patients family, and then recorded. Data were

analyzed by SPSS version 21 using descriptive statistical methods such as mean, median, and data expression as percentages. Finally, survival rates were analyzed by Kaplan-Meier curves and log rank test. P value less than 0.05 was considered statistically significant.

Ethical Considerations: In this study, except for maintaining the secrets of the patient in accordance with the Helsinki Treaty, it is assured to patients that their information will be confidential and will be used only for the purposes of the research. In addition, no additional costs were imposed on patients. The proposal is approved by ethics committee of Yazd Shahid Sadoughi University of Medical Sciences.

RESULTS

This study was performed on 126 patients with Papillary Thyroid Carcinoma, referred to the pathology department of Shahid Sadoughi Hospital in Yazd. Of these, 26 were male and 100 were female. The mean age of patients was 35±14.25 with a minimum age of 17 and a maximum age of 90 years. The results also showed that out of a total of 126 people, 125 survived and one died. Also, in terms of metastasis, the results showed that only 1 had metastases. Frequency distribution of patients in terms of other variables were shown in Table 1.

The results of the study on survival of patients by the Kaplan-Meier curves showed that with a 95% confidence limit (95% CI), survival rate in patients was 99.2% and the mean survival time was 44.5±21.25 months and the mean recurrence time was 15±13.3 months. The results of our study by log rank test showed that there was a significant relationship between survival rate and involvement of lymph nodes(P-value = 0.012),which is inversely related, so that the more the lymph nodes were involved, the survival rate was reduced slowly. There was also a significant relationship between survival and metastasis (P-value=0.012),which is also inversely proportional so that the more metastasis the survival rate decreases. The results of the study indicate that there was a significant statistical relationship between survival rate and tumor stage. (P-value = 0.05), the higher the stage of the tumor, the lower the survival rate. There was no statistically significant correlation between survival and other variables. (Table 2).

Also,the result by log rank test showed that there was a significant relationship between recurrence and lymph node invasion, metastasis, tumor grade and tumor stage(Table 3).

Table 1: frequency distribution of variables in papillary thyroid carcinoma patients

variabales		frequency	
		number	percent
Lymph nodes involvement	0	113	89.7
	2	3	2.4
	3	3	2.4
	4	1	0.8
	5	2	1.6
	6	2	1.6
	7	2	1.6
recurrence	yes	108	85.7
	no	18	14.3
Type of treatment	thyroidectomy	87	69
	lobectomy	33	26.2
	Thyroidectomy+lymphadenectomy	1	0.8
Familial history	no	119	94.4
	yes	7	5.6
Initial signs	Neck mass	94	74.6
	nodule	32	25.4
grade	1	92	73
	2	24	19
	3	10	7.9
stage	1	95	75.4
	2	21	16.7
	3	2	1.6
	4	8	6.3

Table 2: survival status based on variables

variabales		Survival status		P-value
		death	Alive	
Lymph nodes involvement	no	0	113	0.012
	yes	1	13	
sex	female	1	100	0.057
	male	0	26	
recurrence	yes	1	108	0.637
	no	0	18	
Type of treatment	thyroidectomy	1	88	

	lobectomy	0	33	0.792
	Thyroidectomy+ lymphadenectomy	0	5	
Familial history	no	1	119	0.742
	yes	0	7	
Initial signs	Neck mass	1	94	0.556
	nodule	0	32	
metastasis	no	1	125	0.001
	yes	0	1	
grade	1	0	92	0.210
	2	1	24	
	3	0	10	
stage	1	0	95	0.011
	2	0	21	
	3	0	2	
	4	1	8	

Table 3: recurrence time indexes based on variables

variabales		recurrence time(month)		P-value
		minimum	maximum	
Lymph nodes involvement	no	79.27	89.89	0.004
	yes	40.46	83.93	
sex	female	77.38	89.22	0.445
	male	77	87.79	
Type of treatment	thyroidectomy	78	89.7	0.407
	lobectomy	59.7	8086	
Familial history	no	76.63	87.84	0.898
	yes	54.65	89.91	
Initial signs	Neck mass	74.6	87.5	0.341
	nodule	75.7	93.6	
metastasis	no	77.79	88.3	0.000
	yes	3	3	
grade	1	90.5	95.7	0.000
	2	43.8	74.99	
	3	20	63.9	
stage	1	92.5	95.6	0.000
	2	53.9	74.9	
	3	70.2	93.9	
	4	20	58	

DISCUSSION

Our results show that the majority of patients were female (79.4%). The average age of patients was 35, suggesting that papillary carcinoma occurs more often at younger ages. In a study by Oyer, it was also found that from 36,725 people were 77% female and 23% male. Also, people who had papillary carcinomas were often young and female (11), which met the results of our study. The results of our study indicate that 85.7% of the patients did not recur, while they had a recurrence of 14.3%. These results were not consistent with the results of Lang's study, in which the rate of recurrence was reported in 20.5% of patients. (12) The reason for this difference in recurrence rate can be attributed to the duration of the study, so that in our study, patients were examined for a period of 5 years, but in the mentioned study patients follow up for 15-year interval. As the duration of the review increases, the rate of recurrence increases. The results on the survival rate of patients indicate that, survival rate in patients was 92.9%. The results also show that there is a significant relationship between survival rate and the number of involved lymph nodes, metastasis and stage of the tumor (P-value <0.05). Also, there was no significant relationship between survival rate and type of treatment in our study. Similar studies have been done on the survival rate and its relationship with various variables. Among the studies by Husson et al. From 1989 to 2009, the survival rate of papillary carcinoma was approximately 88% in people over the age of 15 years and remains constant. The general government has also dropped by about 9.1%. In Holland, due to rapid diagnosis and increased diagnostic quality in medicine, mortality is reduced and 5-year survival is shown to increase (1). Another study by Moritani found that 10-year survival rates for those with extranodal metastasis of thyroid carcinoma were significantly lower than in those without metastasis, but in papillary thyroid carcinoma extranodal metastasis had not rule in decreasing the survival rate 13, so the findings of that study are not consistent with the findings of our study in which there was a significant relationship between metastasis and survival of patients with papillary carcinoma. This difference can be attributed to the duration of the study, so that in our study the duration of the study were 5 years, but in their study they were 10 years follow up have been done.In the Lang study, it was found that the age above 60, the size of the tumor was more than 4 cm,

the central and lateral node metastasis, and the metastasis distance independently predicted survival, (12) which was in line with our study the relationship between survival time and metastasis, But it was not consistent with the relationship between age and survival time. Findings from the Peng study indicate that there is a statistically significant relationship between the extent of tracheal metastasis and survival time, which was consistent with the findings of our study regarding the relationship between metastasis and survival time (14).Our findings about recurrence time indicate that the mean recurrence time in this study was 15±13.3 months. Also,in the relationship between variables and recurrence time, the results showed that there was a significant relationship between recurrence time and lymph nodes involvement, metastasis and tumor grade and tumor stage. In a study in Ahvaz with the aim of investigating the prevalence of papillary carcinomas in the other lobe of patients with thyroid carcinoma they found that in patients with multicenteric primary tumors and positive cervical lymph nodes, the prevalence of papillary carcinomas in the other lobe was higher (15) that is consistent with our study.In our study, there was a significant relationship between recurrence of disease and lymph.

CONCLUSION

Considering the significant relationship of survival with the number of involved lymph nodes, metastases and stage of the tumor, it can be concluded that by early diagnosis of disease, timely treatment and monitoring of patients in specified time periods and preventing metastasis and progression of the stage, it can be a significant step in increasing the survival time of patients with papillary thyroid carcinoma. Also,due to the relationship between recurrence time with lymph nodes, metastases, tumor grade and tumor stage, with high care, the rate of recurrence can be reduced too.

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Conflict of Interest: The authors declare that there is no conflict of interest in the publication of this paper

Authors' contribution: MSH wrote primary draft, submission, statistical. SHT supervised study, MH helped for statistical and data collection, AGH helped for data collection. KR helped for writing proposal and SHZ did design study.

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