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CARCINOMA OF THE THYROID GLAND - TENDENCIES IN MORBIDITY, DIAGNOSIS AND SURGICAL TREATMENT

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During the period 1987-1997 in the Department of Thoracic Surgery, Mwedical University of Varna, a total of 917 patients were operated for nodal pathology of the thyroid gland. In 57 cases (6,21 %) carcinoma was found. The epidemiological differences in the beginning and in the end of the studied period, diagnostic problems as well as the tactics concerning the volume of the operative intervention are discussed.

Key-words: Thyroid gland carcinoma, diagnosis, surgery, epidemiology

The incidence rate of the carcinoma of the thyroid gland increases according to different epidemiological reports available (2,3,7). The aim of our study is to find out the influence of post-Chernobyl's accident radiation on the morbidity rate and the changes in epidemiological patterns and to analyze our tactics for surgical treatment as well.

MATERIALS AND METHODS

For a 11-year period of observation (1987-1997) a total of 917 patients with nodal pathology were operated in the Clinic of Thoracic Surgery, Department of Surgery, Medical University of Varna. In 57 of them (6,21%) a carcinoma of the thyroid gland was found. Mean age of the patients was 45,89 years. Under 45 years of age were 32 patients (56,14 %) and over that age were 25 (43,86 %) with tendency of increasing the number of patients in younger age. The diagnostic procedures were shown in Fig.1. The diagnostic algorithm did not undergo any significant changes during that period.

The histology showed microcarcinoma in 13 (22,8 % of the patients). In 11 cases it was papillary and in 2 follicular. In 32 patients (56,1%) papillary carcinoma was observed which made 75,4 % of the cases with the patients with microcarcinoma. Follicular carcinoma was found in 7 (12,2%) patients or in 15,7 % of the patients with microcarcinoma. One case was with mixed folliculopapillary carcinoma (1,7 %), 2 cases were with un-

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differentiated and 2 ones with medullary carcinoma – or in 3,5 % of the cases each.

RESULTS AND DISCUSSION

Studying the patients by years (Fig. 2) outlines the increased rate of morbidity with forming two peaks - in 1991 and 1996 which is 5 and 10 years after the increased radiation after the disaster in Chernobyl. Similar studies were published in different regions of the world (6,7). The term "post-Chernobyl rise" identifies the morbidity rate of thyroid cancer (7). Mangano (7) finds analogous peaks in the incidence rate of thyroid cancer in the states Connecticut, Iowa and Utah for the years 1990-1993. Similar changes in morbidity of thyroid carcinoma were found about 5 years after massive liberating of I^{131} in atmospheric nuclear experiment in Nevada. Although started later the systemic studies of the survivors from Nagasaki and Hiroshima showed second peak in the rate of the carcinoma of the thyroid gland with a 13-year latent period.

The ratio between the patients operated with nodal pathology and carcinoma of the thyroid gland showed a similar tendency. In the first years of the studied period the rate of the thyroid carcinoma was of 3-5,5 % and in the next years it made the same two peaks - on the fifth and tenth year after Chernobyl disaster thus riching up to 10,6 % in 1991. In the study the results from 1998 are not included. In 1998, the rate registered by us and the ratio between carcinoma and benign diseases was significantly higher than that in the previous two years.

The analysis of the diagnostic methods (Fig. 1) shows that the clinical examination, ultrasound investigation, NAB and intraoperative frozen section are most frequently used. The established lower sensitivity in the methods in comparison with the data in the literature is due to different causes.

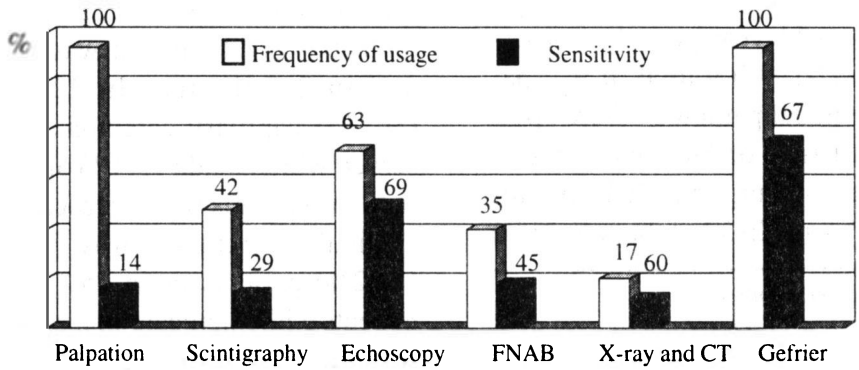

Fig. 1. *Clinical value of diagnostic methods used*

The patients with differentiated forms of thyroid carcinoma are symptom-free for years. It is possible that the first symptom is adenopathy of the neck with non-palpable (ocult) carcinoma occurring in our series in about 7 % of the operated patients as during the last years this percentage is rising. Although the long term of this considerably good period in differentiated forms in which the patients are resectable and with good prognosis the diagnose sometimes is made after the appearance of symptoms of extracapsular extension - disphony, disphagy, dispnea, pathological fractures and other symptoms of advanced neoplastic process.

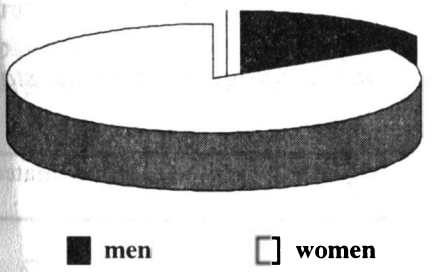

Fig. 3. Male-female ratio of thyroid cancer

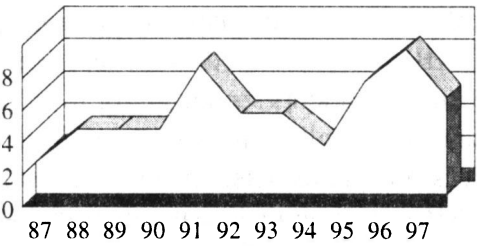

Fig. 2. Number of the patients operated in 1987-1997

Preoperative sonography of the thyroid gland was performed in 36 patients (63 %) and for the last years this percentage reached nearly 100 % - every patient with nodal pathology of the thyroid gland obligatorily underwent sonography. Thyroid cancer is diagnosed in 25 patients (in 50,8 % of the cases). In 11 (37,5 %) falsely negative results are found out most commonly due to cystic degeneration diagnosed as cystadenoma, or microcarcinoma "hiding" behind a larger nodal pathologic process. These findings and the different experience of the radiologists using ultrasonography explain the difference of sensitivity of this method in our study and the data in the literature avail-

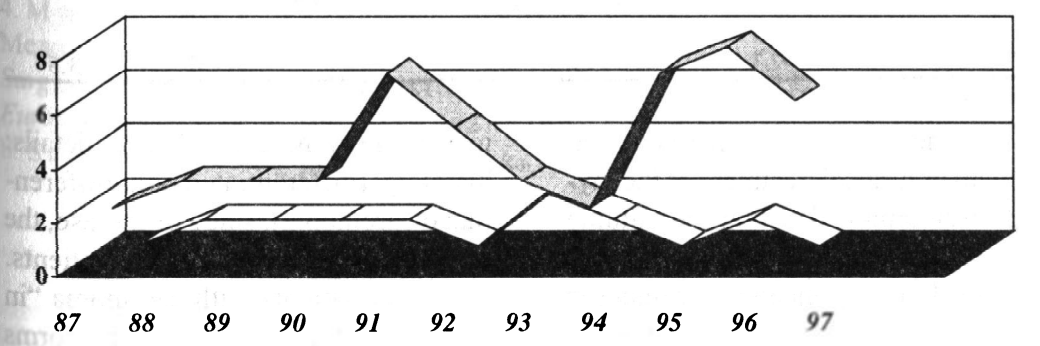

Fig. 4. Dynamics of male:female ratio in 1987-1997

able. Fine needle aspiration biopsy (FNB) was performed in the last years in all the patients suspected for thyroid cancer as well as in patients with accessible metastasis. In our material, FNB was done in 20 patients (35 %). In 9 cases (45 %) histology confirmed the diagnose and in 11 (55 %) it was falsely negative.

The high percentage of the falsely negative results could be explained with the early stage of the disease and with the fact that in the first years the method was performed without sonographic control. Intraoperative frozen section was used in all the patients. In 38 cases (56,1 %) the diagnosis was made with frozen section. In the other cases it was necessary to wait for the histology results and to perform a reoperation for adequate volume resection.

The male/female ratio (Fig. 3) was 1/5,3 – 9 males (15,79 %) and 48 females (84,21 %). In the initial years of the study this ratio was 1/ 2 to 1/3 which corresponded with the data in the literature (1). In 1991 and 1996, however, this ratio became 1/7. The number of male patients remained almost the same. Patients' distribution according to stage, histology, and age is shown in Table 1. The operated patients at I and II stage were 47 (82,4 %). They were with differentiated forms of carcinoma.

Table 1

Thyroid cancer patients' distribution according to the histological variance, stage of the disease, and age

Parameters	Differentiaded forms of thyroid cancer				Medullary cancer		Non-differentiated cancer	
Patient's age	< 45 years		> 45 years					
Number / %	n	%	n	%	n	%	n	%
Stage of the disease								
I	25	43,8	13	22,8				
II	5	8,7	4	7	2	3,5		
III	3		5,2					
IV	3		5,2				2	3,5

The main and still discussed problem in surgical treatment of the thyroid carcinoma is defining the volume of resection. Standard treatment sometimes leads to complications or relapses with necessity of reoperation. That is why with every patient it is necessary to have in mind a number of details: histology (differentiated or undifferentiated carcinoma), stage of disease, the age and physical status of the patients.

In patients with carcinoma "in situ" or at I stage, in differentiated forms and with negative result in frozen sec-

on for multifocality we perform an gan-preserving operation - isthmec- my with lobectomy and subtotal re- ction of the contralateral lobe (8).

This procedure was applied in patients (in 54,38 % of the operated ases). Patients with differentiated car- noma at stage II and at the next stages well as all cases with undifferenti- ed carcinoma underwent thyroidec- my (4,8). Such an operation was per- rmed in 14 cases (24,56 %). In cases ith preoperative presence of neck ad- opathy or intraoperatively observed lymph node metastasis a thyroidectomy th atypical neck dissection of all lymph nodes was carried out. Six pa- tients (10,58 %) underwent this kind of operation. In 6 patients (10,58 %) only biopsy was performed due to advanced non-resectable carcinoma. In 2 of them a tracheostomy was made due to vital indications.

CONCLUSIONS

1. There is tendency of increasing incidence rate of thyroid carcinoma, especially 5 and 10 years after the Chernobyl disaster.

2. There are significant changes of the male/female ratio which reaches 1/7.

3. More than 80 % of the operated patients are with differentiated forms diagnosed at I and II stage of the disease which allows organ-preserving operations in a greater part of the patients - 31 (54,4 %).

4. Thyroidectomy remains the main method of choice. Organ-saving operations possess an own place in the treatment of thyroid cancer in case of well-defined indications.

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Карцином на щитовидната жлеза - тенденции в заболеваемостта, диагностиката и хирургическото лечение

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Резюме: За периода от 1987 до 1997 г. в Клиниката по гръдна хирургия са оперирани 917 болни с възловидна патология на щитовидната жлеза. При 57 случая е установен карцином, представляващ 6,21 %. Обсъждат се настъпилите различия в епидемиологично отношение между началото и края на проучвания период, някои диагностични проблеми, както и приетата от авторите тактика по отношение на обема на оперативната интервенция.