

High Incidence of Thyroid Cancer among Patients with Acromegaly

D. Kaldrimidis¹, G.Papadakis², G Tsakonas², P. Kaldrimidis³, T. Flaskas³, A. Seretis³, E. Pantazi⁴, I. Kostoglou-Athanasidou⁵, M. Peppas⁶, P. Roussou¹, E. Diamanti-Kandarakis¹

(1) 3rd Department of Internal Medicine, Sotiria Hospital, Athens, Greece

(2) Department of Endocrinology, Metaxa Anticancer Hospital, Pireaus, Greece

(3) Mediterraneo Hospital, Athens, Greece

(4) Department of Endocrinology, Alexandra Hospital, Athens, Greece

(5) Department of Endocrinology, Red Cross Hospital, Athens, Greece

(6) 2nd Dept of Internal Medicine Propaedeutic, Research Institute and Diabetes Center, Attikon University Hospital, Medical School, National and Kapodistrian University of Athens, Athens, Greece

INTRODUCTION: Several studies have suggested that patients with acromegaly have an increased risk of thyroid, colorectal, breast and prostate tumors. We determined the prevalence of malignant neoplasms in patients with acromegaly in a single Greek Centre during the years 1995-2015.

METHODS: We evaluated cancer risk in a cohort of 110 patients (M/F 48/62, age 58.63 ± 13.8 years, range 30–86) with acromegaly. Mean age at diagnosis of acromegaly was 46.37 ± 13.11 years old. A total of 42 patients had a microadenoma and 68 patients had a macroadenoma. Mean period of time since diagnosis of acromegaly was 12.26 ± 9.6 years. 108 patients were treated with somatostatin analogues. Only 2 patients were successfully treated with pituitary transsphenoidal surgery and received no medical treatment afterwards.

RESULTS: From 110 patients, cancer was diagnosed in 26 patients. Thyroid cancer was the most common cancer and was diagnosed in 13 patients (11.8%) and among all other cancers there were 2 patients with gastric cancer, 2 patients with endometrial cancer, 1 patient with breast cancer, 1 patient with colon cancer, 2 patient with prostate cancer, 1 patient with myelodysplastic syndrome, 1 patient with renal cell carcinoma, 1 patient with lung cancer and 1 patient with pancreas carcinoma. The mean age of patients with cancer was not statistical significant when compared with the mean age of those without cancer. There was also no significant difference in disease duration, pituitary tumor size, or age at onset between them.

CONCLUSIONS: This study suggests that patients with acromegaly have an increased risk of thyroid cancer. In conclusion, each acromegalic patient requires hormonal, ultrasound evaluation of the thyroid and FNAB if required, when the diagnosis of acromegaly is made. It is particularly essential to diagnose the patients early and to rule out thyroid cancer.

Table 1. The general characteristics of the patient groups with cancer and without cancer

	All patients (N=110)	Patients with cancer (N=26)	Patients without cancer (N=84)	p-value
Total number	110	26 (23.6%)	84 (76.3%)	
Females	62/48	18 (29.0%)	44(70.9%)	0.106
/ Males		/ 8 (16.6%)	/ 40 (83.3%)	
Age (years ± SD)	58.63±13.8	63.69±13.5	57.06±13.6	0.718
Age at onset (years ± SD)	46.37±13.11	51.77±10.86	44.70±13.36	0.301
Disease Duration (years ± SD)	12.26±9.61	11.92±10.7	12.37±9.3	0.400
Tumor size (mm)	16.32±8.82	15.96±9.73	16.43±8.5	0.598
Macroadenoma	68	14	54	0.338
Received operation	88	21	67	0.911
On acromegaly medication	108	25	83	0.376
Received radiotherapy	13	3	10	0.960
Hypertension	58	16	42	0.303
Diabetes Mellitus	56	18	38	0.032
Cardiovascular disease	22	6	16	0.654

Table 2. The number of neoplasms observed in 110 acromegalic patients

	Male (n=48)	Female (n=62)	Total (n=110) (%)
Thyroid cancer	2	10	12 (10.9 %)
Coexistence of thyroid, prostate and lung cancer	1	0	1 (0.9%)
Endometrial cancer	0	2	2 (1.8%)
Stomach cancer	1	1	2 (1.8%)
Gastrinoma	0	1	1 (0.9%)
Colon cancer	0	1	1 (0.9%)
Breast cancer	0	1	1 (0.9%)
Renal cell cancer	1	0	1 (0.9%)
Pancreas cancer	1	0	1 (0.9%)
Prostate cancer	1	0	1 (0.9%)
Meningioma	0	1	1 (0.9%)
Paraganglioma	1	0	1 (0.9%)
Myelodysplastic syndrome	0	1	1 (0.9%)

References

- Jenkins PJ. Cancers associated with acromegaly. *Neuroendocrinology*. 2006;83(3-4):218-223.
- Gullu BE, et al. Thyroid cancer is the most common cancer associated with acromegaly. *Pituitary*. 2010;13(3):242-248.
- Dagdelen S, et al. Increased thyroid cancer risk in acromegaly. *Pituitary*. 2014;17(4):299-306.
- Tita P, et al. High prevalence of differentiated thyroid carcinoma in acromegaly. *Clinical endocrinology*. 2005;63(2):161-167.
- Balkany C, et al. An association between acromegaly and thyroid carcinoma. *Thyroid : official journal of the American Thyroid Association*. 1995;5(1):47-50.

