

# Early endocrine complications in survivors of childhood malignant tumors

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## OBJECTIVES

To investigate the prevalence of endocrine disorders in survivors of a childhood tumor within the first years after diagnosis

## PATIENTS AND METHODS

Retrospective medical record review of survivors of malignant tumors treated with chemo and radiotherapy followed at the endocrine clinic of a tertiary pediatric center.

Outcome measures were frequency and types of endocrine dysfunction.

Study period 2000-2014

Quantitative variables are expressed as mean standard deviation and qualitative variables as proportions

Statistical tests: Fisher and chi<sup>2</sup>.

## RESULTS

56 patients (27 women)

Age at tumor diagnosis 6.0 ± 4.3 years

Follow up time 7.6 ± 3.5 years.

Primary treatment for the neoplasm: chemotherapy in 54 cases and radiotherapy in 43 (table 1).

**Children with permanent endocrine disorders** diagnosed during the follow up period:

- 2 obesity
- 11 primary hypogonadism
- 4 primary hypothyroidism
- 13 pituitary dysfunction
  - 1 precocious puberty
  - 4 GH deficiency
  - 4 LH/FSH deficiency
  - 6 TSH deficiency

**TABLE 1. Types of tumors and oncological treatments. Frequency of endocrine disorders at the end of follow up period.**

	All tumors	Central nervous system	Hematologic	Other solid
N	56	17	17	22
Chemotherapy	54	15	17	22
Radiotherapy	43	17	10	16
-total body	10	0	9	1
-cranial	24	17	0	7
-spinal	4	2	0	2
-abdominal / pelvic	13	1	2	10
Endocrine disorders	27	7	10	10

**TABLE 2. Frequency of endocrine disorders at the end of follow up period and its relation to treatment of the tumor.**

	Endocrine disorders 27 / 56	Primary hypogonadism 11 / 43	Pituitary disorders 13 / 56
Abdominal / pelvic Radiotherapy (RT):	P=0.27	P<0.001	P=0.13
-no	18/43	3/33	12/43
-yes	8/13	8/10	1/13
Cranial RT:	P=0.39	P=0.10	P=0.04
-no	17/32	10/27	3/32
-yes	10/24	1/16	10/24
Total body RT:	P=0.41	P=0.55	P=0.79
-no	21/46	8/34	11/46
-yes	6/10	3/9	2/10
Chemotherapy alone:	P=0.42	P=0.19	P=0.99
-no	22/43	10/33	10/43
-yes	5/13	1/10	3/13

## CONCLUSIONS

Endocrine disorders are frequently seen within the first years after diagnosis of a childhood cancer.

Inconsistent endocrine follow up leads to unnecessary delay in diagnosis and treatment.

