GRELL
Mont Saint-Michel, NORMANDY
31st MAY - 2nd JUNE 2023
Registres des Cancers général de la Manche, général du Calvados, digestif du Calvados et des hémopathies malignes de Basse-Normandie

Analysis of second neoplasms on patients with childhood cancer in the North of Portugal from 1995 to 2004

Renata Silva [1], Pedro Leite-Silva [1,2], Maria José Bento [1,2,3]

[1] Grupo de Epidemiologia do Cancro, Centro de Investigação do Instituto Português de Oncologia do Porto; [2] Serviço de Epidemiologia, Instituto Português de Oncologia do Porto; [3] Departamento de Estudos de Populações, Instituto de Ciências Biomédicas Abel Salazar da Universidade do Porto

Background and Objectives

Over the last decades, the refinement of anticancer therapies has incremented the overall survival of patients with childhood cancer to approximately 80%. [1] Nowadays, these survivors face other significant challenges, including treatment-resulting complications and the diagnostic of second neoplasms (SNs). The aim of this analysis was to describe the incidence and characteristics of SNs among childhood cancer survivors in the North of Portugal. This study can help healthcare professionals to provide a more effective treatment, surveillance and counseling.

Methodology

This is a cohort study of the Portuguese Northern Region Cancer Registry (RORENO). Patients, with less than 20 years, diagnosed with a first malignancy from 1995 to 2004 who survived at least 6 months were included and followed-up for the diagnostic of SNs until the end of 2018 and for vital status up to 11 Jan 2023. Cases were classified according to ICCC-3. [2] For statistics, categorical variables were summarized as frequencies and percentages and the continuous as median, minimum and maximum.

Results

	Primary neoplasm				
Category by ICCC-3	**Leukemia's and Lymphomas**	**Sarcomas and soft tissues tumors**	**Nervous System**	**Solids and others**	**Total**
N	475 (43.2%)	138 (12.5%)	225 (20.5%)	262 (23.8%)	1100
Sex					
Male	262 (55.2%)	71 (51.4%)	142 (63.1%)	126 (48.1%)	601 (54.6%)
Female	213 (44.8%)	67 (48.6%)	83 (36.9%)	136 (51.9%)	499 (45.4%)
Age (years)					
Median [Min, Max]	11.0 [0, 19.0]	14.0 [0, 19.0]	4.00 [0, 19.0]	15.0 [0, 19.0]	11.0 [0, 19.0]
Second neoplasm	8	4	2	12	26
Leukemia's and Lymphomas	1 (12.5%)	0 (0%)	0 (0%)	4 (33.3%)	5 (19.2%)
Solids and others	7 (87.5%)	4 (100%)	2 (100%)	5 (41.7%)	18 (69.2%)
Sarcomas and soft tissues tumors	0 (0%)	0 (0%)	0 (0%)	2 (16.7%)	2 (7.7%)
Nervous System	0 (0%)	0 (0%)	0 (0%)	1 (8.3%)	1 (3.8%)
Age at second neoplasm (years)					
Median [Min, Max]	25.5 [13.0, 40.0]	28.0 [22.0, 33.0]	14.5 [0, 29.0]	22.5 [0, 32.0]	24.0 [0, 40.0]
Time from the first to second neoplasm (years)					
Median [Min, Max]	12.0 [0.654, 22.3]	14.6 [4.38, 17.4]	7.97 [0.586, 15.4]	5.15 [0.167, 15.4]	8.40 [0.167, 22.3]

Table 1 Characteristics of primary and second neoplasms in 6-month childhood cancer survivors in the North of Portugal by cancer group

- **1100 patients** were primarily diagnosed with **leukemia's or lymphomas** (n=475), followed by **solid** (n=262) and **nervous system** (n=225) tumors
- **54.6%** were **male** and the age at diagnostic was especially lower for **nervous system tumors** with a median of **4 years**
- By the end of 2018, **26** of the survivors (**2.36%**) developed **SNs**, notably solid tumors (n=18) and leukemia's or lymphomas (n=5)
- **Solid SNs** appeared **faster**, after 5.15 years, and were mostly located in the **thyroid** (n=4) after a primary diagnostic of leukemia, lymphoma or sarcoma
- Patients with a **leukemia or lymphoma** as SNs had a median survival time of **3 months**
- SNs cumulative **incidence rising** overtime

Conclusions

Of 1100 children who survived a cancer diagnostic between 1995 and 2004, 26 developed a second malignancy until the end of 2018. Previous publications have reported similar incidence outcomes. [3]

Childhood cancer survivors must be under closed surveillance since the incidence of SNs and late sequelae are set to rise as the survival time increases. Given that the sparse of data about, for example, treatments hinders these studies, cancer data registries should upgrade data acquisition to allow an adequate patient follow-up.

References

[1] Choi DK, Helenowski I, Hijiya N. (2014 Oct 15) Secondary malignancies in pediatric cancer survivors: perspectives and review of the literature. *Int J Cancer*. 135(8):1764-73. doi: 10.1002/ijc.2899

[2] Steliarova-Foucher E, Stiller C, Lacour B, Kaatsch P. (2005 Apr 1) International Classification of Childhood Cancer, third edition. *Cancer*. 103(7):1457-67. doi: 10.1002/cncr.20910

[3] Ho WL et al. (2022 Jan) Characteristics and outcomes of second cancers in patients with childhood cancer: A report from the Taiwan Pediatric Oncology Group. *J Formos Med Assoc*.121(1 Pt 2):350-359. doi: 10.1016/j.jfma.2021.05.012