

Antonio Capizzello

*Ass. Professor of Aristotle University of Thessaloniki,
Radiotherapy oncology department, AHEPA University
Hospital, Thessaloniki Greece*

*Clinical Profile and Outcome of Pediatric Oncology Patients Treated
With Radiotherapy at AHEPA University Hospital Thessaloniki Greece*

Eftychia Tataridou

*Resident - Anticancer Hospital Theageneio, Radiation
Oncology DPT Thessaloniki Greece*

*Pediatric patients commonly referred for external beam
Radiotherapy*

Radiotherapy plays an important role in the multimodal treatment of childhood cancer.

The aim of this presentation is to provide an analysis of pediatric oncology patients treated with radiotherapy in a institution « AHEPA university hospital of Thessaloniki».

A retrospective chart review of children treated with radiotherapy between January 2010 and July 2024 was conducted.

Of the 120 patients who were identified, 101 formed the basis of this presentation.

Some of them have continued their oncology treatment in different institutions so we do not possess these data. Nine patients did not finish the started treatment because of the worsening of their general condition or because they decided to continue their treatment abroad.

The vast majority of patients were previously diagnosed by histopathological examination, except some patients with brainstem tumors who were diagnosed by MRI examination only.

Patients underwent chemotherapy at Pediatric Hematology / Oncology clinics of two Hospitals of Thessaloniki . All of these two institutions are regional referral centers of northern Greece for the treatment of childhood cancer.

From 2010 3D-CRT technique was introduced in our Institute.

In the analyzed period, patients mostly were treated with 3D-CRT and VMAT after 2016.

Delineation of target volumes and organs at risk, prescription of total dose, and dose constraints were in accordance with the international treatment protocols used at the time (HIT MED, HIT HGG, Euro Ewing, CWS, SIOP Umbrella, etc.).

Radiotherapy was delivered according to the International Commission on Radiation Units and Measurements (ICRU) recommendations.

Variables collected from the patient's medical records were:

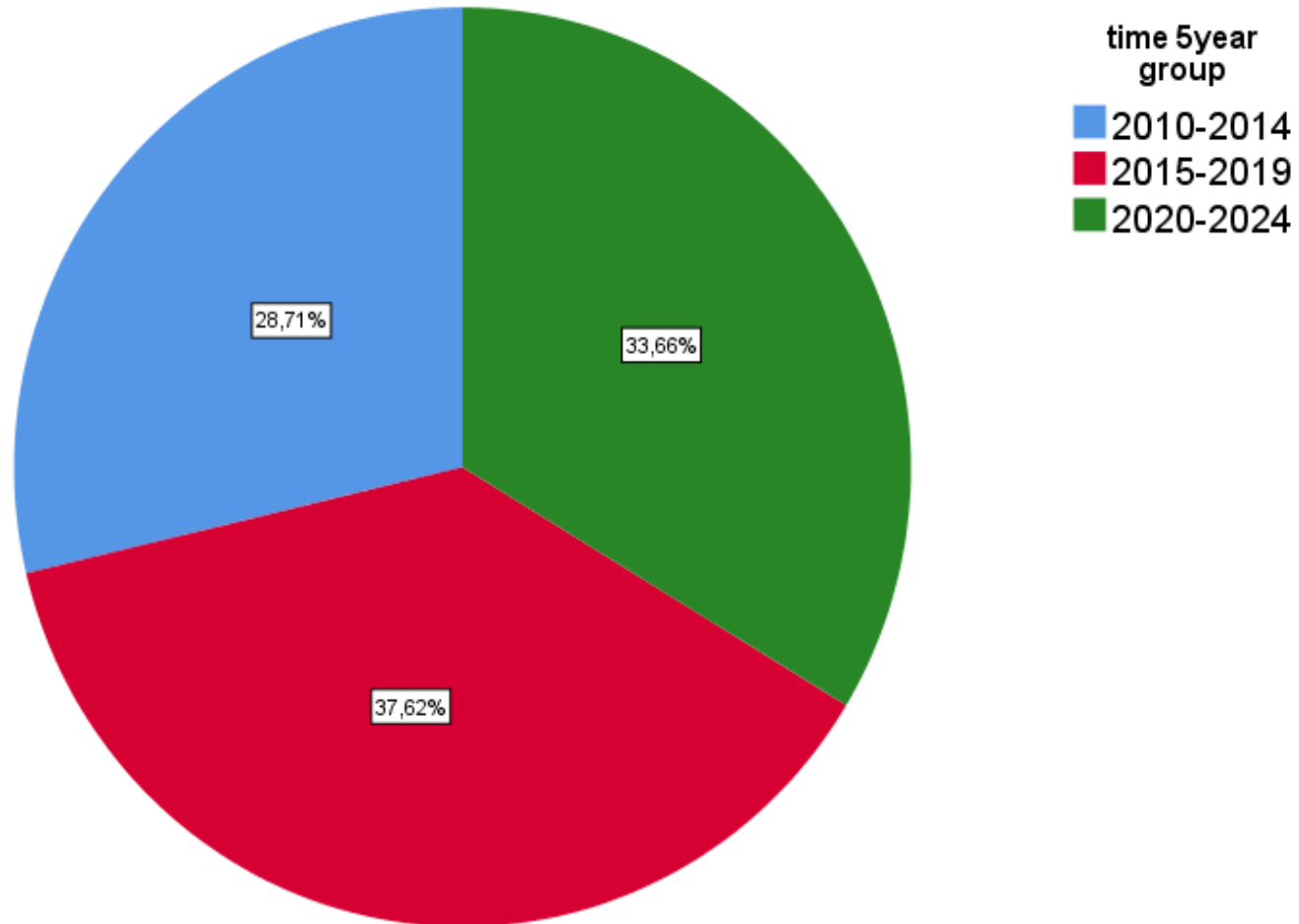
1. **demographic characteristics** (age, gender)
2. **tumor characteristics**, such as histopathology, tumor site, and radiotherapy treatment.

The patients were grouped according to:

- ✓ **age** into 2 groups (0 to 14 y and 15 y to up 19 y)
- ✓ **tumor type** in 9 groups CNS tumors, lymphomas, leukemias, neuroblastoma, nephroblastoma, bone sarcomas, soft tissue sarcomas,
- ✓ **intent of radiotherapy treatment** in 4 groups (prophylactic, definitive, adjuvant, palliative)
- ✓ **radiotherapy treatment site** in 9 groups (cranium, abdomen, chest, head and neck, pelvis, extremities, axial skeleton, testis and craniospinal axis)
- ✓ **radiotherapy treatment** : *TOTAL DOSE DELIVERED*

101 Children treated with radiotherapy between January 2010 and July 2024

Pie Chart Percent of time 5year group



1. demographic characteristics (age, gender)

		age group		Total
		0-14 years	up14 years	
sex	male	44	14	58
	female	34	9	43
Total		78	23	101

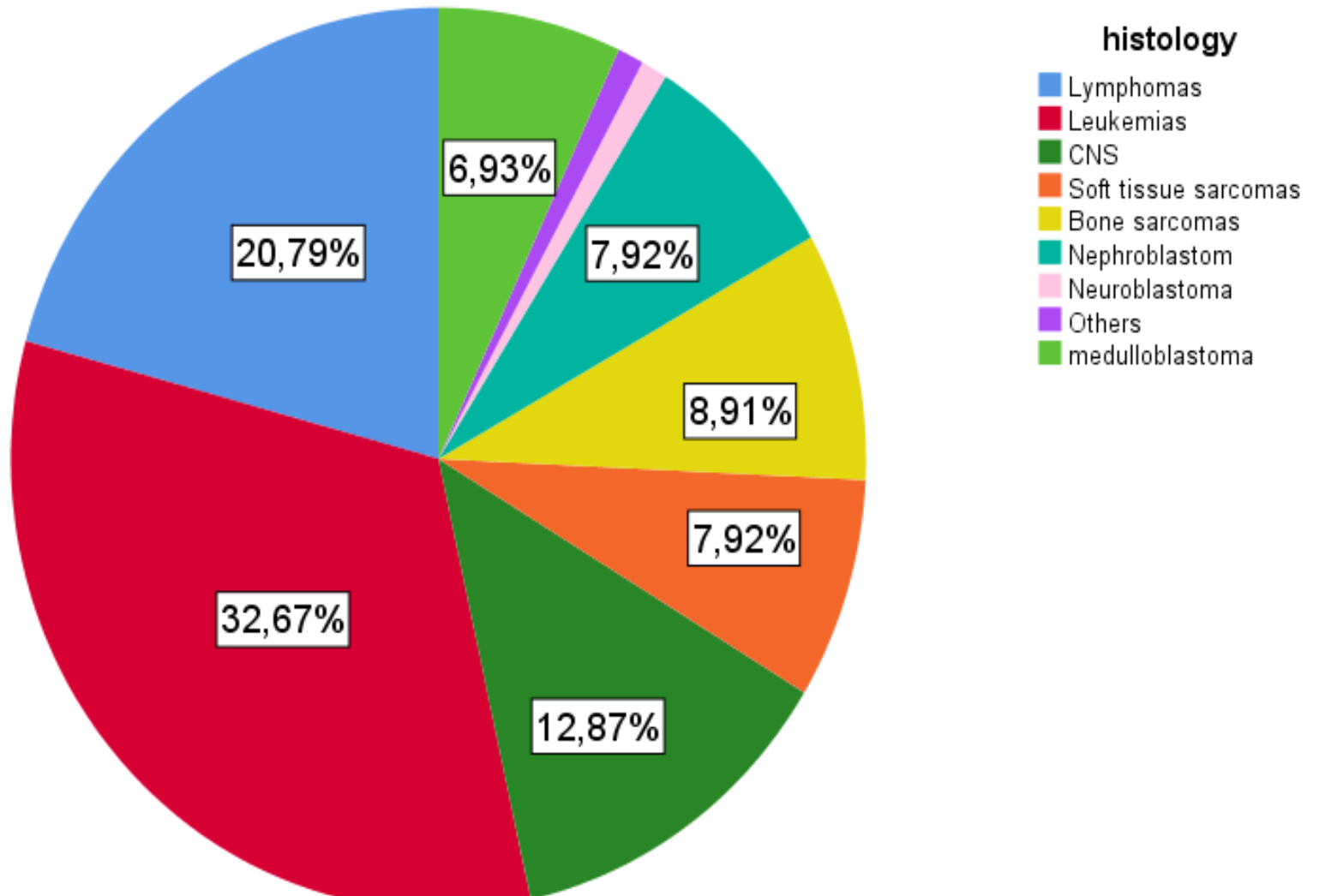
1. demographic characteristics (age) - follow up

			FOLLOW up			Total
			FREE	RECURRENCE	METASTASIS	
0-14 years	STATUS	ALIVE	47	4	0	51
		DIED	0	23	4	27
	Total		47	27	4	78
15-19 years	STATUS	ALIVE	16	0	0	16
		DIED	0	5	2	7
	Total		16	5	2	23
Total	STATUS	ALIVE	63	4	0	67
		DIED	0	28	6	34
	Total		63	32	6	101

2. tumor characteristics:

histopathology

Pie Chart Percent of histology



		histology									Total
		Lymphomas	Leukemias	CNS	Soft tissue sarcomas	Bone sarcomas	Nephroblastom	Neuroblastoma	Others	medulloblastoma	
STATUS	ALIVE	17	27	3	4	6	3	1	1	5	67
	DIED	4	6	10	4	3	5	0	0	2	34
Total		21	33	13	8	9	8	1	1	7	101

2.2 tumor characteristics:

histopathology

	Age : 1-6 years old						Total
	1	2	3	4	5	6	
Leukemias	0	0	1	3	4	3	11
CNS	0	0	0	1	0	0	1
Soft tissue sarcomas	1	0	0	0	0	2	3
Nephroblastom	0	1	1	0	1	0	3
Neuroblastoma	0	0	0	1	0	0	1
medulloblastoma	0	0	0	0	0	3	3
Total	1	1	2	5	5	8	22

STATUS * SURGERY * FOLLOW

Cross tabulation

FOLLOW			SURGERY				Total
			RADICAL	NO SURGERY	SUBTOTAL	BIOPSY	
FREE	STATUS	ALIVE	14	27	4	18	63
	Total		14	27	4	18	63
RECURRENCE	STATUS	ALIVE	3	0	1	0	4
		DIED	6	8	11	3	28
	Total		9	8	12	3	32
METASTASIS	STATUS	DIED	2	2	1	1	6
	Total		2	2	1	1	6
Total	STATUS	ALIVE	17	27	5	18	67
		DIED	8	10	12	4	34
	Total		25	37	17	22	101

radiotherapy treatment: anatomical site tumor

histology	Radiotherapy site								Total
	Cranium	Abdomen	Chest	Head and neck	Pelvis	Extremities	Axial skeleton	Craniospinal axis	
Lymphomas	5	0	11	3	2	0	0	0	21
Leukemias	29	0	1	0	2	0	0	1	33
CNS	12	0	0	0	0	0	0	1	13
Soft tissue sarcomas	1	0	0	6	1	0	0	0	8
Bone sarcomas	0	0	3	0	0	4	2	0	9
Nephroblastom	0	6	0	0	0	1	1	0	8
Neuroblastoma	0	0	0	0	0	0	1	0	1
Others	0	0	0	1	0	0	0	0	1
Medulloblastoma	2	0	0	0	0	0	0	5	7
Total	49	6	15	10	5	5	4	7	101

✓ radiotherapy treatment : *TOTAL DOSE DELIVERED*

	<u>Total dose delivered: histology</u>									Total
	Lymphomas	Leukemias	CNS	Soft tissue sarcomas	Bone sarcomas	Nephroblastom	Neuroblastoma	Others	medulloblastoma	
8-18 Gy	3	29	0	1	0	4	0	0	0	37
18,5- 28Gy	10	4	1	0	1	3	1	0	0	20
30-41,40 Gy	8	0	5	3	0	1	0	0	0	17
50,4 - 63 Gy	0	0	7	4	8	0	0	1	7	27
Total	21	33	13	8	9	8	1	1	7	101

✓ radiotherapy treatment : *TOTAL DOSE DELIVERED*

TOTAL DOSE GROUP Radiotherapy site		histology								Total	
		Lymphomas	Leukemias	CNS	Soft tissue sarcomas	Bone sarcomas	Nephroblastoma	Neuroblastoma	Others		medulloblastoma
High dose RT 50,4 - 63 Gy	Cranium			7	0	0			0	2	9
	Chest			0	0	3			0	0	3
	Head and neck			0	4	0			1	0	5
	Extremities			0	0	4			0	0	4
	Axial skeleton			0	0	1			0	0	1
	Craniospinal axis			0	0	0			0	5	5
	Total			7	4	8			1	7	27
Total	Cranium	5	29	12	1	0	0	0	0	2	49
	Abdomen	0	0	0	0	0	6	0	0	0	6
	Chest	11	1	0	0	3	0	0	0	0	15
	Head and neck	3	0	0	6	0	0	0	1	0	10
	Pelvis	2	2	0	1	0	0	0	0	0	5
	Extremities	0	0	0	0	4	1	0	0	0	5
	Axial skeleton	0	0	0	0	2	1	1	0	0	4
	Craniospinal axis	0	1	1	0	0	0	0	0	5	7
Total	21	33	13	8	9	8	1	1	7	101	

3D conformal RX thessaloniki

