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RESEARCH ARTICLE

CHILDREN AND ADOLESCENTS WITH CANCER UNDERGOING RADIOTHERAPY: WHAT IS THE IMPACT ON SCHOOLING?

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Abstract

Introduction and Aim of the Study: When a child or adolescent is diagnosed with cancer, it represents a challenging ordeal that often brings significant changes to their daily life. School is an important concern for young patients, but a cancer diagnosis usually leads to school disruptions. The aim of our study is to evaluate the impact of radiotherapy treatment on the schooling of children and adolescents affected by cancer.

Materials and Methods: This is a prospective study conducted in the Radiotherapy Department of the National Institute of Oncology in Rabat from January 2022 to December 2022, including 40 children and adolescents aged between 6 and 16 years undergoing radiotherapy or concurrent radiochemotherapy treatment for cancer.

Results: The median age of our patients was 10 years, with a predominance of males (sex ratio = 2). The most common neoplasms were malignant hemopathies (35%), nasopharyngeal carcinoma (20%), soft tissue sarcoma (17.5%), brain neoplasms (15%), and others (nephroblastoma , neuroblastoma 12.5%).42.5% of the patients had previously received chemotherapy alone, 30% had chemotherapy plus surgery, and 27.5% had surgery alone.During our study, all patients received either radiotherapy alone (80%) or concurrent radiochemotherapy (20%). The average number of sessions was 22, held daily from Monday to Friday.All our patients were attending school before their diagnosis. However, 96% discontinued school at the start of their treatment, with only 4% continuing to attend school. The heaviness of the treatments received and their side effects are the main cause of school discontinuation. The distance between the treatment location and the patient's home was also factor for patients undergoing radiotherapy.

Conclusion: The discontinuation of schooling for children and adolescents represents a significant disruption in their daily lives, potentially impacting their psychological well-being. Furthermore, feeling different from other children their age can be challenging for them. Therefore, it is important to offer an adaptation of their schooling with specialized education to enable their social development and well-being.

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Introduction:-

Childhood cancers are rare, however they represent a public health issue due to the challenges in providing care.

Being diagnosed with cancer for child or adolescent, represents a challenging ordeal that often brings significant changes to their daily life. Young patients and their families face numerous challenges, both emotionally and practically. One of the major concerns is school, a crucial aspect of a child's or adolescent's life. However, a cancer diagnosis usually leads to school disruptions, which can have long-term effects on the child's education and social development.

Cancer treatments, such as chemotherapy and radiotherapy, add an additional layer of complexity. Frequent medical appointments, side effects of treatments, as well as the physical and psychological stress associated with the illness can prevent young patients from maintaining a regular school routine. Moreover, radiotherapy, while targeting cancer cells, can also affect healthy tissues, leading to fatigue, cognitive issues, and other complications that impact learning abilities.

Aim of the study:-

The objective of our study is to evaluate the impact of radiotherapy treatment on the schooling of children and adolescents affected by cancer. We will examine the main factors that led to school dropout and make proposals for better support.

Materials and Methods:-

This was a prospective and descriptive, study conducted over a period of one year, from January 2022 to December 2022, at the National Institute of Oncology in Rabat. This institute is the largest national oncology center in Morocco and is a collaborator of the International Atomic Energy Agency (IAEA). It recruits the largest number of patients.

A total of 40 patients were included aged from 6 years old to 16 years old in this study who were undergoing a treatment by radiotherapy . The informations were collected during follow-up consultations and at the last treatment session, based on interviews (with the help of the parents) and clinical examination. Data regarding the disease, histological type, stage, and treatment received were extracted from medical records retrospectively.

During the interview, three questions were asked:

1. How much was the duration of school interruption ?
2. What was the main causes of school interruption ?
3. What are the main perceived side effects during treatment ?

The inclusion criteria were as follows:

1. Patients aged 6 years old or more
2. Patients aged 16 years old or less
3. All the children and adolescents have to be enrolled in school before the diagnosis

The exclusion criteria were as follows:

1. Patients aged < 6 years old
2. Patient aged > 16 years old
3. Children or adolescents who haven’t been in school

Results:-

Forty (n=40) patients were included in this study. The median age was 10 years (range: 6 to 16 years). There was a clear male predominance with a sex ratio =2 (27 boys and 13 girls) The most common neoplasms were malignat hemopathies (35%), nasopharyngeal carcinoma (20%), soft tissue sarcoma (17.5%), brain neoplasms (15%), and others (nephroblastoma , neuroblastoma 12.5%). 42.5% of the patients had previously received chemotherapy alone, 30% had chemotherapy plus surgery, and 27.5% had surgery alone.

Table 1:- Socio-Demographic, Medical, and Therapeutic Characteristics of the Patients.

	N	%
Total number of patients	**40**	**N=40**
Age		
6-10	**19**	**19**
10-16	**21**	**21**
Sex		
Boy	**27**	**67.5%**
Girl	**13**	**32.5%**
Type of Neoplasm		
Malignant hematopathy	**14**	**35%**
Nasopharyngeal carcinoma	**8**	**20%**
Soft tissue sarcoma	**7**	**17.5%**
Brain neoplasms	**6**	**15%**
Others	**5**	**12.5%**
Treatment received before Radiotherapy		
Chemotherapy alone	**17**	**42.5%**
Chemotherapy + surgery	**12**	**30%**
Surgery alone	**11**	**27.5%**
Radiotherapy		
Alone	**32**	**80%**
Concomitant Chemotherapy	**8**	**20%**

During our study, all patients received either radiotherapy alone (80%) or concurrent radiochemotherapy (20%). The average number of sessions was 22, held daily from Monday to Friday.(Table 1)

All our patients were attending school before their diagnosis. However, 96% discontinued school at the start of their treatment, with only 4% continuing to attend school with a few days of absence (ranging from 7 days to 15 days). The duration of dropping from school was under 6 months for 35% patients , 40% of patients for 6 months – 1 year , and 20% of patients were not attending school for over 1 year .

During interviews, it was found that children undergoing treatment for nasopharyngeal carcinoma were most likely to continue their studies, with occasional absences but no complete discontinuation of schooling. Fatigue and chemotherapy complications were the primary reasons for school interruptions initially, followed by children who underwent surgery. 7.5% of children were able to resume their studies after completing chemotherapy.

Table 2:- Descriptive table of descriptive table of school dropout.

School attendance	
Continuing	4%
Discontinuing	96%
Duration of dropping from school	
< 6 months	35%
6months – 1 year	40%
>1 year	21%
Principal causes of dropping school	
• **Treatments**	
Chemotherapy	70.5%
Surgery	40%
• **Other factors**	15%
Return to school	7.5%

For children undergoing radiotherapy, the frequency of sessions and the daily commute from home to the treatment center (15%), along with the toxicities following radiotherapy sessions, were the main factors. (Table 2)

Among the side effects reported, overall fatigue affected 80% of the patients, nausea and vomiting persisted throughout the day in 62.5% of cases, and drowsiness and dizziness were reported by 15% of patients receiving cranial radiotherapy.(Table 3)

Table 3:- Main perceived side effects by children and adolescents.

Principal side effects of Radiotherapy	
Overall fatigue	
Nausea and vomiting	80%
Drowsiness and dizziness	62.5%
	15%

During the interviews, all children expressed their desire to return to their schools with patients aged 10-16 years who felt a stronger desire to resume their normal lifestyle.

Discussion:-

Childhood cancer is a significant health concern in both developed and developing countries. Worldwide, over 300,000 children are diagnosed with cancer annually and This number is expected to rise in the coming years .[1]

Unlike in adult cancer, most of the cancer cells derive from embryonal tissues that have acquired mutation.[2] The commonest childhood cancers across all ages are haematological (30%), central nervous system (CNS) tumours (26%) and lymphoma (11%) [3, 4]

Progress in combined treatments of chemotherapy, radiotherapy, and surgery has yielded good results. These medical advances require the child's adaptation, despite the high risk of mortality.[5]

Radiotherapy is a rare indication in paediatric oncology, it’s specific activity requiring a dedicated management, both in human, organizational, medical and scientific aspects.It has a dual challenge of delivering, on one hand, the prescribed dose precisely within the target volume while maximizing protection of nearby healthy organs, and on the other hand, ensuring the reproducibility of intra- and inter-session procedures through the adherence of the child and their parents to the treatment.[6]

Children and adolescents diagnosed with cancer may encounter many problems that negatively affect their development during and after treatment [7] [8].

The question of the future of these children largely revolves around their schooling: "being able to attend school or not," depending on their age and school experience.[5]

Continuing education is vital for both physical and psychological growth. School serves not only as a place for acquiring knowledge but also for fostering relationships, imparting values, and boosting a patient's confidence.

School attendance was found to be the biggest problem in the year following diagnosis and can extend up to three years after diagnosis[9] . Children with cancer are absent more often than those with other chronic conditions [10]. Absence rates are higher for those undergoing bone marrow transplants [11]and those with CNS tumors [12]; also for children who relapse compared with those in remission [13].

The illness can significantly impact the child's general condition, both physically (fatigue, pain, nausea) and cognitively (concentration and memory capacity). The various treatments administered can indeed come with side effects that hinder the child in their daily life and are likely to alter their physical appearance (e.g., hair loss, weight loss) [14] .

Education becomes different because the young person can no longer attend all classes; fatigue and physical changes may prevent their return to the school environment. This can lead to isolation and a loss of social connections.[15]

Many children want to return to school as it marks their return from an abnormal health condition to normal school life [16] . Young cancer survivors believed that returning to school provides them with a source of identity, self-worth and social contacts .But they may encounter many difficulties in returning after treatment [17]. These

difficulties include the reintegration of the child with school after survival, academic performance, psychosocial functionality or the attitude of school personnel [18].

Academic failure and grade repetition might be the primary concerns for children and parents upon returning to school. Major risk factors include young age at diagnosis, brain tumors (OR 18.8), leukemias and Hodgkin's disease (OR 4.4), radiotherapy (OR 7.2), in a dose-dependent manner, and much more so than intrathecal chemotherapies alone (OR 1.3) [19].

Psychological support should be mandatory for all young people suffering from cancer, from the announcement of the diagnosis to their return to school, to ensure better overall well-being and adaptation.[20]

Conclusion:-

The discontinuation of schooling for children and adolescents due to cancer treatment represents a profound disruption in their daily lives, which can have lasting effects on their psychological well-being. Being unable to participate in typical school activities and feeling isolated from peers may exacerbate feelings of loneliness and frustration. These challenges highlight the importance of implementing specialized education programs tailored to their unique needs.

Adapting their schooling to accommodate medical treatments and recovery periods is crucial for supporting their social development and overall well-being. Providing flexible learning options, such as home tutoring or online education, can help mitigate the educational impact of prolonged absences. Additionally, creating a supportive environment within schools that promotes understanding and acceptance among peers can enhance their sense of belonging and reduce feelings of isolation.

References:-

1. Erdoğan, B., et al., Back to school readiness scale for children with oncological problems: 7–18 years of age. Journal of Pediatric Nursing, 2023. 73: p. e594-e601.
2. Marshall, G.M., et al., The prenatal origins of cancer. Nature Reviews Cancer, 2014. 14(4): p. 277-289.
3. Organization, W.H., CureAll framework: WHO global initiative for childhood cancer: increasing access, advancing quality, saving lives. 2021.
4. Bhakta, N., et al., Childhood cancer burden: a review of global estimates. The lancet oncology, 2019. 20(1): p. e42-e53.
5. Picherot, G., Maladies chroniques de l'enfant. Quelles modalités et quels enjeux? Enfances &PSY, 2014(3): p. 13-23.
6. Demoor-Goldschmidt, C., et al., Organisation française de la radiothérapie pédiatrique: résultats d'une enquête du comité radiothérapie de la Société française des cancers de l'enfant (SFCE). Cancer/Radiothérapie, 2016. 20(5): p. 395-399.
7. Root, M.M., et al., Students with cancer: Presenting issues and effective solutions. International Journal of School & Educational Psychology, 2016. 4(1): p. 25-33.
8. Thompson, A.L., et al., Academic continuity and school reentry support as a standard of care in pediatric oncology. Pediatric blood & cancer, 2015. 62(S5): p. S805-S817.
9. Vignes, C., et al., Schooling of young people with cancer. Bulletin du cancer, 2007. 94(4): p. 371-380.
10. Eiser, C. and Y.H. Vance, Implications of cancer for school attendance and behavior. Medical and pediatric oncology, 2002. 38(5): p. 317-319.
11. Vannatta, K., et al., Social functioning of children surviving bone marrow transplantation. Journal of Pediatric Psychology, 1998. 23(3): p. 169-178.
12. Vannatta, K., et al., A controlled study of peer relationships of children surviving brain tumors: teacher, peer, and self ratings. Journal of pediatric psychology, 1998. 23(5): p. 279-287.
13. Chesler, M.A. and O.A. Barbarin, Parents' perspectives on the school experiences of children with cancer. Topics in Early Childhood Special Education, 1986. 5(4): p. 36-48.
14. Pitel, M., N. El Haïk-Wagner, and C. Flahault, Scolarisation en milieu ordinaire des jeunes en situation palliative et fin de vie: vécu et pratiques des acteurs. État de l'art. Psycho-Oncologie, 2023. 17: p. 55-64.
15. Roesler, C., et al., Quelles spécificités de sociabilisation, sociales, scolaires et professionnelles pour les adolescents et jeunes adultes atteints de cancer? Bulletin du Cancer, 2016. 103(12): p. 979-989.

16. Tremolada, M., et al., Psychological well-being, cognitive functioning, and quality of life in 205 adolescent and young adult childhood cancer survivors compared to healthy peers. Frontiers in Psychology, 2022. 13: p. 860729.
17. Kuntz, N., et al., Pediatric cancer patients' treatment journey: Child, adolescent, and young adult cancer narratives. Journal of pediatric nursing, 2019. 48: p. 42-48.
18. Miser, J.S., et al., The health care utilization and medical costs in long-term follow-up of children diagnosed with leukemia, solid tumor, or brain tumor: population-based study using the National Health Insurance Claims Data. JMIR Public Health and Surveillance, 2023. 9: p. e42350.
19. Bonneau, J., et al., Scolarité et devenir social après un cancer dans l'enfance. Bulletin du cancer, 2015. 102(7-8): p. 691-697.
20. Levallois, S., et al. Enfants et adolescents à l'épreuve du cancer: éclairage psychologique. in Annales Médico-psychologiques, revue psychiatrique. 2007. Elsevier.