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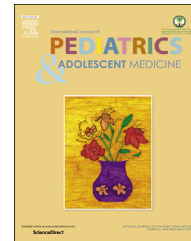


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ORIGINAL ARTICLE

Incidence and distribution of cancers in adolescents and young adults: Single institution experience in Lebanon



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KEYWORDS

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Abstract *Background and objectives:* Cancers of adolescents and young adults are relatively rare and have specific features that range from the types and locations of these tumors to their specific medical, physical, psychological and social needs.

Materials and methods: A retrospective descriptive study on cancer patients aged between 15 and 25 years at Hotel Dieu de France, Saint Joseph University Hospital in Beirut, Lebanon from 2007 to 2011 was conducted to study the incidence and distribution of cancers.

Results: We identified 205 adolescents and young adults with cancer in Hôtel Dieu de France, Saint Joseph University Hospital in Beirut, from 2007 to 2011, which represent 2.9% of all cancers diagnosed in this hospital. Lymphomas (32%), bone tumors (12%), central nervous system (CNS) tumors (13%), leukemia (9%), thyroid cancers (9%), ovarian (5%) and testicular tumors (3%) accounted for more than 80% of all cancers. Thyroid cancers represented 17% of all female cancers in this patient category compared to 1% in males, while the CNS and bone cancer had a higher incidence in males.

Conclusions: Despite the low incidence of cancers in adolescents and young adults, it is essential to obtain more multicentric national and regional comparative data, which can help to elucidate the incidence and distribution of these cancers.

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1. Introduction

Cancers of adolescents and young adults have specific features that range from the types and locations of these tumors to their specific medical, physical, psychological and social needs. The majority of these cancers occurred without a predisposing cause and were linked to carcinogens or familial syndromes in less than 5% of cases [1].

Older adolescents and young adults with cancer have benefited less from therapeutic advances and studies compared to older or younger oncological patients [2].

Cancers of adolescents and young adults are relatively infrequent. Their incidence in France is estimated at 700 new cases per year in the 15- to 19-year-old age group and 1000 new cases per year in the 20- to 24-year-old age group, thereby representing 0.5% of all cancers [3].

Cancers of adolescents and young adults between 15- and 25-year-olds represent 2% of all cancers in the United States [1], a percentage that is comparable to that found in the Lebanese population where 2.16% (204/9423) of cancer patients in 2008 are included in this age group [4].

Finally, the distribution of different types of cancers changes from 15- to 25-year-olds, where most common cancers between 15- and 19-year-olds are different from the cancers prevalent between 20- and 25-year-olds.

2. Materials and methods

A retrospective descriptive study was performed on cancer patients aged between 15 and 25 years old at Hotel Dieu de France (HDF), University Hospital of Saint Joseph University (USJ) in Beirut, Lebanon from 2007 to 2011 to study the incidence and distribution of cancers according to the type, location, histology and sex of patients. The data were collected from the pathology laboratory of HDF and were analyzed using SPSS version 17.0.

3. Results

In this study, 205 adolescents and young adults with cancer were identified in HDF/USJ in Beirut from 2007 to 2011, representing 2.9% (205/7068) of all cancers diagnosed in this hospital during this period. Patients were almost equally divided between the two sexes (49.5% males and 50.5% females).

Lymphomas, central nervous system (CNS) tumors, bone and soft tissue tumors, leukemia, thyroid cancers, ovarian and testicular tumors accounted for more than 85% of all cancers (Fig. 1).

Lymphomas (32% of all cancers of the 15- to 25-year-old age group) were of the Hodgkin type in two-thirds of the cases (66%), and one-third of the cases were of the non-Hodgkin type (34%), with 55% being females and 45% being males.

Concerning bone tumors (12% of all cancers in the 15- to 25-year-old age group), Ewing's sarcomas were the most frequent type (43%), followed by osteosarcomas (26%) and chondrosarcomas (9%). Two-thirds of these tumors occurred in males, and one-third occurred in females (Fig. 2).

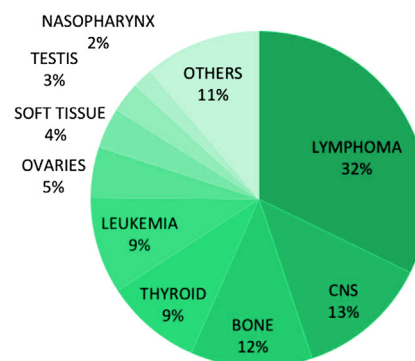


Figure 1 Incidence of different cancers in adolescents and young adults.

CNS tumors accounted for 13% of all cancers in the 15- to 25-year-old age group (70% males, 30% females). The most common histological types were medulloblastomas (23%), glial tumors (19%), pilocytic astrocytomas (19%), oligodendrogliomas (12%) and ependymomas (8%) (Fig. 3).

Leukemias and thyroid tumors represent 9% of all cancers in the 15- to 25-year-old age group. In addition, 58% of leukemias were ALL, 37% were AML and 5% were bi-phenotypical.

For thyroid cancers, 74% were of the papillary type, 21% of the follicular type and 5% of the medullary type, which occurred in more than 95% of female cases.

Thyroid cancers represented 17% of all female cancers in this patient category compared to 1% in males, while CNS and bone cancer had a higher incidence in males compared to their incidence in females (Fig. 4a and b)

Two cases of breast cancer were reported among young females aged 24 and 25 years old.

Lymphomas and bone tumors are more common in adolescents aged between 15 and 19 years old compared to thyroid tumors, tumors of the CNS, testicular and ovarian tumors, which were more prevalent in young adults between 20 and 25 years old (Fig. 5a–b).

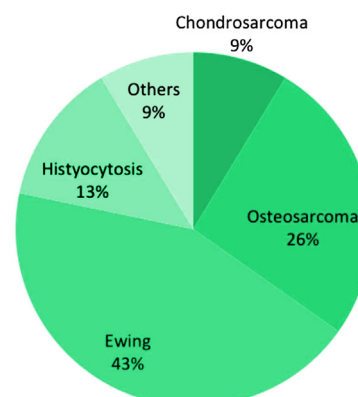


Figure 2 Cancers of bone in adolescents and young adults.

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