

## Cancer in Iraq: 2000-2004

### *Cancro in Iraq: 2000-2004*

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#### Summary

**Background.** Little is known about the frequency of various childhood cancers in Iraq. The aim of this paper is to report the frequency of childhood cancers in Iraq in the largest series of Iraqi patients with cancer. **Patients and methods.** In the largest series of 63,923 Iraqi patients with different types of newly diagnosed cancer registered by the Iraqi Ministry of Health from all Iraqi provinces with exception of 3 Northern provinces (Sulaimanyia, Erbil, and Dohouk) during a five-year period (2000-2004), 5,049 cases of cancers occurred in children under 14 years of age accounting for approximately 8% of all cancer cases in Iraq. **Results.** Leukemia is by far the commonest childhood cancer in Iraq, accounting for 33% of childhood cancers. The other most frequent childhood cancers are: Hodgkin lymphomas (HL), central nervous system neoplasms, Non-Hodgkin lymphomas (NHL), renal tumors, bone tumors, retinoblastomas, soft tissues tumors, adrenal gland tumors, and tumors of testis and ovary. **Conclusion.** The pattern of childhood cancer in Iraq is slightly

#### Riassunto

**Premessa.** Poco si sa circa la frequenza dei tumori infantili in Iraq. Lo scopo di questo lavoro è quello di segnalare la frequenza dei tumori infantili in Iraq all'interno del più vasto numero possibile di pazienti iracheni affetti da tumore. **Pazienti e metodi.** Su un totale di 63.923 pazienti iracheni affetti da diversi tipi di tumore diagnosticato precocemente (registrati tra il 2000 e il 2004) dal Ministero della Sanità iracheno su tutte le province ad eccezione di tre province del Nord (Sulaimanyia, Erbil e Dohouk), 5.049 si sono manifestati in bambini al di sotto dei 14 anni, rappresentando così l'8% circa di tutti i casi di tumore in Iraq. **Risultati.** La leucemia è di gran lunga il tumore più comune nell'età infantile, con un 33% sul totale di tutti i tumori nei bambini. Gli altri tipi di tumore infantile più frequenti sono: linfomi di Hodgkin (HL), neoplasie del sistema nervoso centrale, linfomi non-Hodgkin (NHL), tumori renali, tumori ossei, retinoblastomi, tumori dei tessuti molli, tumori delle ghiandole surrenali e tumori del testicolo e dell'ovaio. **Conclusione.** La tipologia dei tumori infantili in Iraq è leggermente

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different from the patterns in other countries. A higher frequency of leukemias than in most other countries is observed. *Eur. J. Oncol.*, 15 (3-4), 145-148, 2010

**Key words:** childhood, cancer, Iraq

**Introduction**

Childhood cancers (age at diagnosis: 0-14 years) include a variety of malignancies, with incidence varying worldwide with respect to age, sex, ethnicity and countries. Substantial regional differences in the incidence of childhood cancer have also been reported. In the same way its incidence may vary according to gender, age, race, and ethnicity (1-6). Little is known about childhood cancer in Iraq, so that the aim of this paper is to describe the pattern of childhood cancer in this country and to report the frequency of childhood cancers in the largest series of Iraqi patients with cancer. These research findings are useful in order to point out the future childhood cancer research needs.

**Patients and methods**

In the largest series of 63,923 Iraqi patients with various types of newly diagnosed cancer registered by the Iraqi Ministry of Health from all Iraqi provinces with the exception of 3 Northern provinces (Sulaimania, Erbil, and Dohouk) during a five-year period (2000-2004), 5,049 cases of cancers occurred in children under 14 years of age accounting for approximately 8% of all cancer cases in Iraq.

**Results**

Leukemia is by far the commonest childhood cancer in Iraq accounting for 33% of childhood cancers. The other most frequent childhood cancers are represented by Hodgkin lymphomas (HL), central nervous system (CNS) neoplasms, Non-Hodgkin lymphomas (NHL), renal tumors, bone

diversa da quella degli altri paesi. Si osserva una maggiore frequenza di leucemie rispetto alla maggior parte degli altri paesi. *Eur. J. Oncol.*, 15 (3-4), 145-148, 2010

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tumors, retinoblastomas (RB), soft tissues tumors, adrenal gland tumors, and tumors of testis and ovary. Cancers of the liver ranked 11<sup>th</sup> in the list accounting for less than 1% of childhood cancers.

The incidence of these childhood cancers in males and females is shown in Table 1.

**Discussion**

The frequency of malignant neoplasms in children has been found to vary among countries. For example, in children in Canada, the United States, and Europe, the three most common cancers are leukemias, tumors of the central nervous system (CNST), and lymphomas (7-9), whereas in children in Latin America, the order of frequencies is different: leukemias are still in the first place, with lymphomas being more common than CNST (8-12). Also in other countries such as Nigeria, Malawi, and Egypt, lymphomas are the principal neoplasias (8).

The percentage of cases of each type of neoplasm with reference to the total number of cancers is also different. In the developed countries, the percentages for leukemias range between 30 and 37%; for CNST,

**Table 1 -** The pattern of childhood cancers

	No (%)	Males	Females
Leukemia	1,675 (33% )	999	676
NHL	834 (16.5%)	537	297
Brain & CNS	786 (15.6%)	459	327
Hodgkin lymphoma	262 (5%)	193	69
Kidney	246 (4.9%)	135	111
Bone	227 (4.5%)	127	100
Eye (RB)	173 (3.4%)	102	71
Soft tissues	159 (3.1%)	91	68
Adrenal gland	106 (2.1%)	55	51
Testis/Ovary	90 (1.8%)	26	64
Liver	45 (0.9%)	23	22

between 18 and 27%; and for lymphomas, between 7 and 12% (7-9). In Latin America, the percentages for leukemias are between 27 and 44%; for lymphomas, between 13 and 22%; and for CNST, between 10 and 19% (8, 10-12). In African countries, the percentages of lymphomas range between 30 and 64% (8). In Asian countries such as Japan and China, the percentages of leukemias have been found to range between 30 and 40%; CNST, between 12 and 20%; and lymphomas, between 10 and 20% (8).

During the decade 1968-1977 a total of 1,488 cases of neoplasms was registered in Slovakia in children aged 0-14 years. The most common malignancies were leukemias (28.2%), tumors of the

nervous system (23.9%), lymphomas (14.9%) and Wilm's tumors of kidney (6.7%) (4). In Poland the most frequent childhood cancers include leukemia, which accounts for 28% of cancer cases, lymphoma (14.3%) and CNST (16.3%). Neoplasms of the hematopoietic system (leukemias and lymphomas) account for about 42% of all childhood cancers. Malignant lymphomas, bone tumors and germinal tumors are more frequently diagnosed in Poland, but the incidence of CNST is lower than in other countries (6).

Fig. 1 shows the pattern of childhood cancers in 4 countries.

The study of the frequency of cancer in children is not only of interest to the clinical physician because it

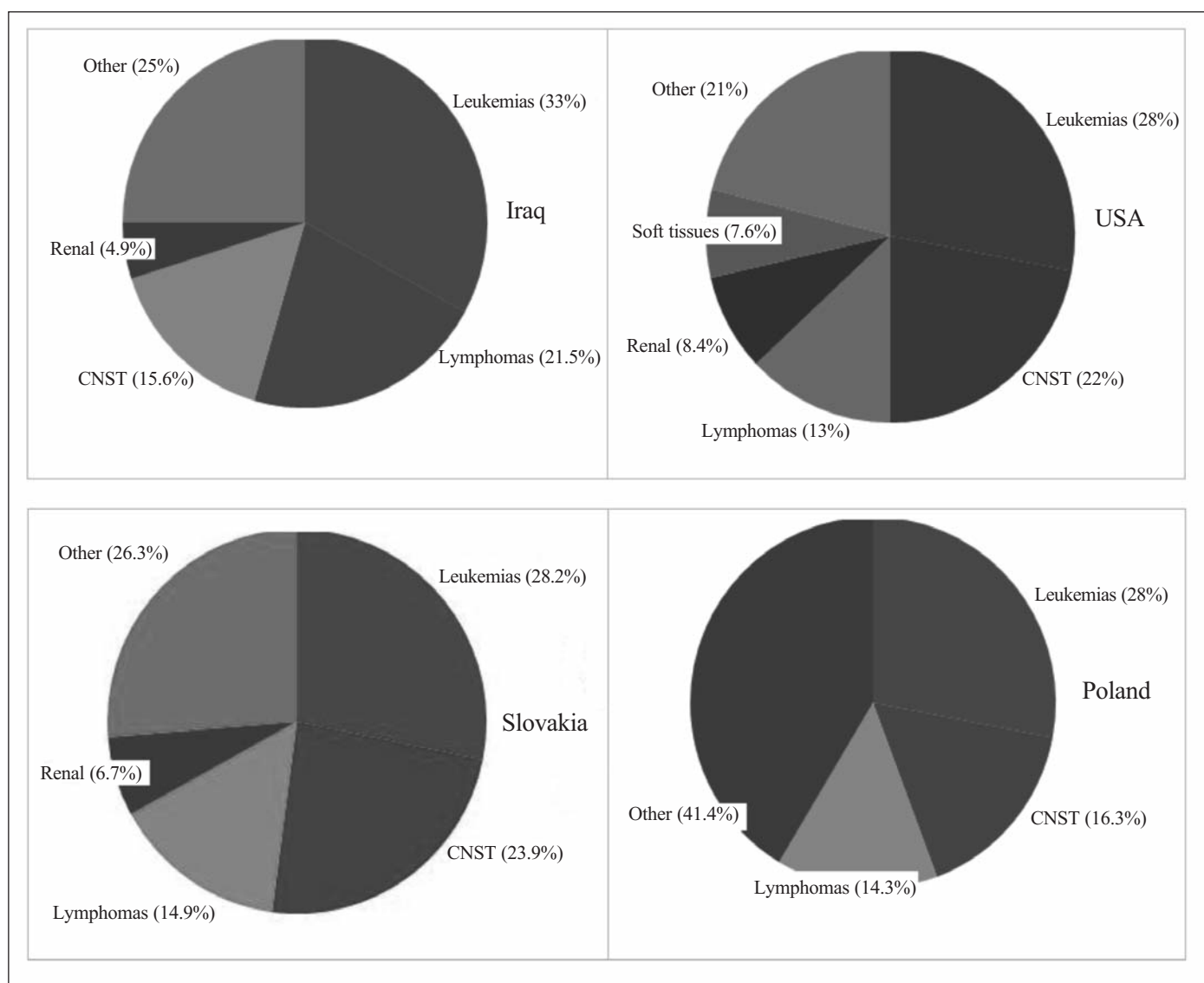


Fig. 1. The pattern of childhood cancers in 4 countries

helps him/her to establish the pre-testing probability for a child suspected of having cancer (13), but is also of interest to the personnel in charge of the planning and programming the medical care for these children, with reference to the assignment of human resources (physicians, specialized nurses, social workers, and others) and to the allotment of financial resources (centers providing medical attention, laboratories, imaging facilities, medicines, etc.) that are necessary for the treatment of these children (14).

## Conclusion

The pattern of childhood cancer in Iraq is slightly different from the patterns in other countries. A higher frequency of leukemias than in most other countries is observed.

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