ABSTRACT

The study was undertaken to determine the pattern of childhood malignancy in Sri Lanka and some selected risk factors of Acute Lymphoblastic Leukaemia (ALL) in children under 15 years of age.

In the descriptive part of the study, morbidity and mortality data on childhood malignancy was collected from records available at the cancer hospitals and Office of the Registrar General over a period of 13 and 10 years respectively.

The matched case control study was conducted prospectively at the cancer hospital Maharagama on incident cases of ALL below 15 years of age for a period of one year. The control group of 4 controls per case, matched for age and district of residence were identified randomly from the general population.

Results from the descriptive study showed an increase in the incidence rate of malignancy in children under 15 years from 2.6 to 6.2 cases per 100,000 from 1982 to 1994 with a mean incidence rate of 4.7 per 100,000 children per year. A rate of increase of cases by 3.06 + 0.24*year, per 100,000 children was predicted from the available data. The trend of incidence showed an upward curve when a line of "best fit" was fitted. Thus the predicted incidence rate of childhood malignancy for the year 1996 is 6.3 per 100,000 children.

Leukaemia was the commonest childhood malignancy in Sri Lanka (42%), of which 82.7% were cases of ALL, followed by lymphomas (12.6%) and central nervous system tumours (9.7%). The highest rate of increase was seen among brain tumours.

Of the deaths due malignancies 4.2% occurred in children under 15 years of age. Of these 51% were due to malignancy of lymphatic and haemopoetic tissues and leukaemia accounted for 82% of these deaths. Age specific mortality rate did not show a marked change during the study period.

Study of risk factors for ALL after adjusting for confounding using Conditional Logistic Regression analysis showed that males and children with birth weights of over 3500 grams were at a significantly higher risk. (ORa =2.0, 95% C.I=1.2-3.3 and ORa =2.8, 95%CI=1.4-5.8 respectively). A history of consanguinity in the family, exposure of the father to chemicals during childhood of the index child, environmental exposure of the child to electro-magnetic fields and high levels of pesticides were also significant risk factors with significant adjusted odds ratios of 2.2, 1.7, 3.3, 14.4 respectively.

Occupational exposure of mothers to chemicals during pregnancy, maternal exposure to X-rays during index pregnancy, lower birth orders and post natal X-ray exposure of the child were not significantly associated with the risk of development of ALL. Risk of ALL did not increase with advanced maternal or paternal age, a history of foetal loss prior to index pregnancy or family history of malignancy. High social class was not identified as being a risk factor for ALL. No interaction effects of risk factors were noted.

Attributable risk percent and population attributable risk percent calculated using the data indicate the significance of these in the prevention of ALL, through elimination of exposure when feasible.