



Second cancers among survivors of teenager and young adult cancer

NCIN Data Briefing

Patterns of second cancers in TYA cancer survivors

Cancer among teenagers and young adults (TYA) is relatively rare and survival rates are high for most cancer types in this age group. However a small number of individuals develop another cancer later in life. This data briefing explores the pattern of second cancers in those diagnosed with a cancer at ages 15-24 in England. Only cancers occurring five or more years after the diagnosis of the first cancer were included to minimise the risk of the same tumour being counted twice. A small number of patients had a third or further cancer diagnosis but these were not considered in this analysis. The methodology for this data briefing is available at <http://www.nwcis.nhs.uk>

KEY MESSAGE:

The individual risk of a second cancer in the fifteen years after five year survival from a cancer diagnosed in the TYA years is low. However, some groups such as females with Hodgkin Lymphoma (HL) are at increased risk.

Between 1985 and 2003, 26,897 individuals in England were diagnosed with a malignant neoplasm or borderline or benign CNS tumour (excluding skin carcinomas) between the ages of 15 and 24 years. Of these, 19,766 (73%) survived at least five years from initial cancer diagnosis. Median follow-up was 9.6 years with a range from 1 day to 20 years.

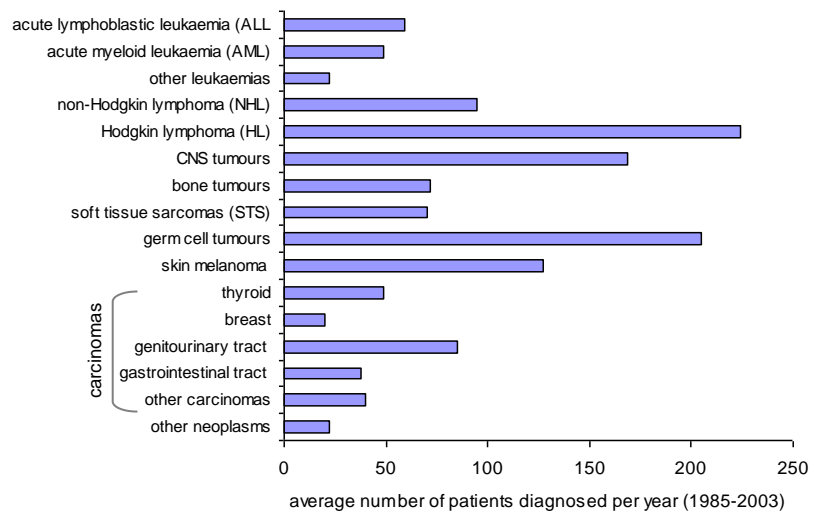


Fig. 1) Number of patients aged 15-24 years diagnosed each year (av. 1985-2003) in England with different types of cancer

New cancer diagnoses

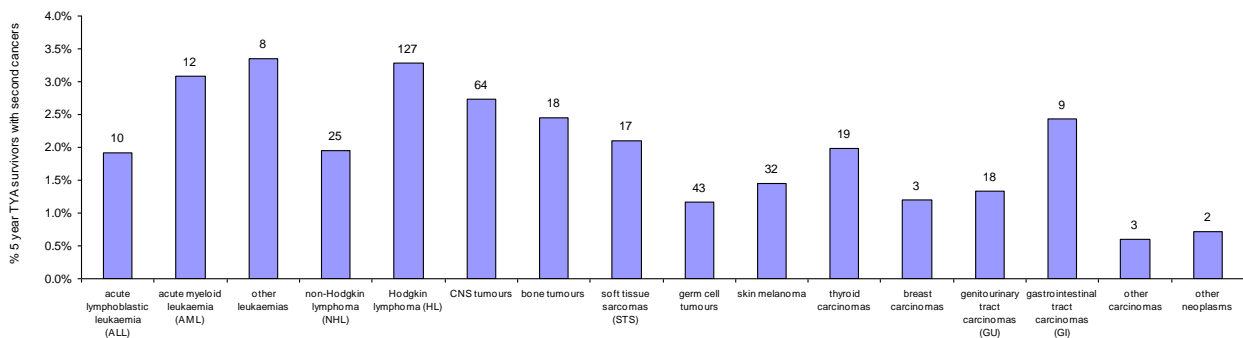


Fig. 2) Number and percentage of TYA five year survivors with a second cancer by site of first cancer

Two percent (N = 410) of the five year TYA cancer survivors were diagnosed with a second cancer during the follow-up period. The percentage and number of individuals with a second cancer varied according to the site of the first cancer (Fig.2). More than 3% of those with HL or with leukaemia other than ALL developed a second cancer. The figure for females with HL was 4.7%. The rate of second cancers appeared to rise with increasing follow-up (Fig. 3). Among patients diagnosed with their first cancer between 1985-90, the rate of second cancers for those with 5-11 years of follow-up was 2.0 (95% CI: 1.5-2.4) per 1000 person years.

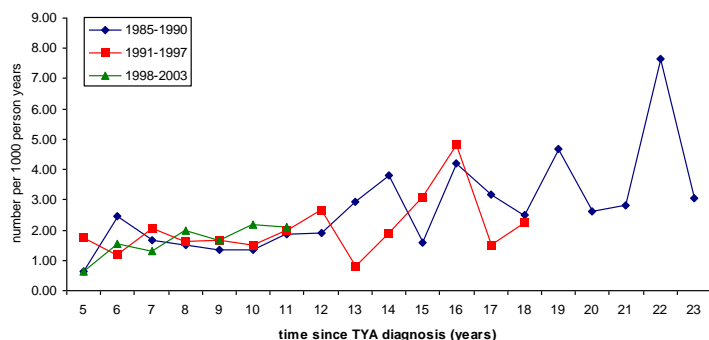


Fig. 3) Rates of second cancers by period of, and time from, the diagnosis of the first cancer

For those with 12-18 years and 19plus years of follow-up the rate of second cancers was 2.7 per 1000 (95% CI: 2.2-3.3) and 3.8 per 1000 (95% CI: 2.3-4.0) respectively. The risk in those diagnosed 1991-97 and 1998-2003 was similar to that seen in those diagnosed 1985-90.

The two diagnoses most frequently observed as second cancers after each first cancer type are shown in Figure 4. The most common first-second cancer relationship was breast cancer following HL, seen in 1.1% of all HL survivors (2.3% for females).

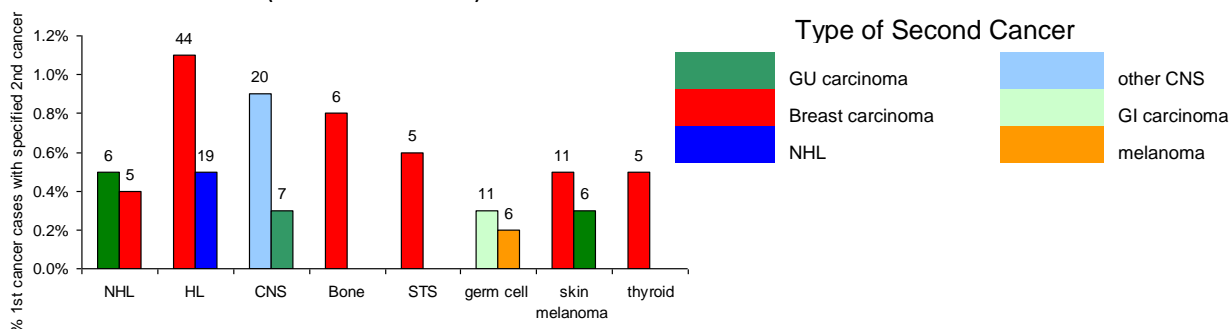


Fig. 4) Two most common types of second cancer by type of first cancer. Bars represent the percentage of patients with a given type of first cancer (horizontal axis) who developed a specific type of second cancer. Bars are colour coded for the type of second cancer with the number of cases above each bar. First-second cancer relationships observed with fewer than 5 cases are excluded.

Summary

The incidence of second cancers was relatively low with only 2% of TYA patients diagnosed with a second cancer over the follow-up period. The risk of a second cancer seemed to increase with longer follow-up, though this may reflect the rising incidence of cancer as a whole with increasing age. No evidence was found for a decreased risk over time. The strongest relationship was between HL as a first diagnosis and breast cancer as a second, probably reflecting the previously recognised risk of breast cancer following radiotherapy for HL¹. Further analyses, including relating treatment exposure to second cancer, will be needed to clarify this and other possible causative factors. Most relationships are based on a small number of cases and therefore findings should be interpreted with caution.

¹ Henderson et al (2010) Systematic review: surveillance for breast cancer in women treated with chest radiation for childhood, adolescent, or young adult cancer. *Ann Intern Med.* 152(7): 444-5

FIND OUT MORE:

North West Cancer Intelligence Service (NWCIS) is the lead Cancer Registry for cancer in teenagers and young adults. Other information about TYA cancer and this data briefing can be found at <http://www.nwcis.nhs.uk>.

Other useful resources within the NCIN partnership:

Cancer Research UK CancerStats – Key facts and detailed statistics for health professionals
<http://info.cancerresearchuk.org/cancerstats/>

The National Cancer Intelligence Network is a UK-wide initiative, working to drive improvements in standards of cancer care and clinical outcomes by improving and using the information collected about cancer patients for analysis, publication and research. Sitting within the National Cancer Research Institute (NCRI), the NCIN works closely with cancer services in England, Scotland, Wales and Northern Ireland. In England, the NCIN is part of the National Cancer Programme.