RISK FACTORS FOR COMMON HEALTH CONDITIONS OCCURRING FIVE YEARS AFTER NON-HODGKIN LYMPHOMA: A REPORT FROM THE CHILDHOOD CANCER SURVIVOR STUDY

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ABSTRACT

Risk factors for specific adverse late effects after pediatric non-Hodgkin lymphoma (NHL) treatment are not well characterized. We assessed self-reported health problems among 1,081 Childhood Cancer Survivor Study subjects who were 5-year survivors of NHL diagnosed 1970-1986 before age 21. We abstracted detailed data concerning chemotherapy and radiotherapy (RT) from original medical records and characterized self-reported health conditions with National Cancer Institute Common Terminology Criteria for Adverse Events version 3.0, indicating severity (grades 1-5) and time of onset. We limited analyses to those medical conditions occurring beyond 5 years after NHL diagnosis and used Cox proportional hazards modeling to assess demographic, clinical, and treatment-related predictors of the most frequent conditions. During 11,476 person-years (mean 10.6 years’ follow-up), there were 55 deaths. 56% of survivors reported any medical condition, including 21% severe (grade 3) or life-threatening (grade 4) conditions. The most frequent conditions were sensory neuropathy, hypothyroidism, second malignant neoplasms (SMNs), hypertension, pulmonary symptoms, arrhythmias, vertigo, hearing loss, chewing or swallowing problems, and thyroid nodules. Sensory neuropathy was associated with both vincristine (hazard ratio (HR)=7.5, 95% confidence interval (CI): 1.0, 57.6) and methotrexate (HR=2.5, 95% CI: 0.9, 6.5). Hypothyroidism, thyroid nodules, and SMNs were increased following neck and chest RT. Cardiac arrhythmias and hypertension were not significantly associated with anthracyclines or cardiac RT exposure, but hypertension increased with younger age at NHL treatment (HR=0.8, 95% CI: 0.8, 0.9). Pulmonary symptoms were increased after mediastinal NHL (HR=3.0, 95% CI: 1.1, 8.2) and chest RT (HR=2.1, 95% CI: 0.8, 5.5), but not after
bleomycin (HR=1.5, 95% CI: 0.3, 6.2) or lifetime smoking of >100 cigarettes.

Hypothyroidism, thyroid nodules, SMNs, vertigo, and cardiac arrhythmias occurred significantly more often in female than male subjects. Late-occurring diseases are not uncommon after pediatric NHL, and specific treatment regimens may be associated with symptoms in susceptible individuals. (299 words)