

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

Elizabeth Bluhm, M.D., M.P.H.¹, Kevin Oeffinger, M.D.², Charles A. Sklar, M.D.², Anna Meadows, M.D.³, Robert Hayashi, M.D.⁴, Ann C. Mertens, Ph.D.⁵, Toana Kawashima, M.S.⁶, Sarah Donaldson, M.D.⁷, Lillian Meacham, M.D.⁵, Marilyn Stovall, Ph.D.⁸, Leslie L. Robison, Ph.D.⁹, Peter Inskip, Sc.D.¹

¹ National Cancer Institute, National Institutes of Health, Bethesda, MD, USA.

² Memorial Sloan-Kettering Cancer Center, New York, NY, USA.

³ Children's Hospital of Philadelphia, Philadelphia, PA, USA.

⁴ Washington University School of Medicine, St. Louis, MO, USA.

⁵ Emory Children's Center, Atlanta, GA, USA.

⁶ Fred Hutchinson Cancer Research Center, Seattle, WA, USA.

⁷ Stanford University Medical Center, Stanford, CA, USA.

⁸ The University of Texas M.D. Anderson Cancer Center, Houston, TX, USA.

⁹ St Jude Children's Research Hospital, Memphis, TN

Correspondence to:

Elizabeth Bluhm, M.D., M.P.H.
Radiation Epidemiology Branch
Division of Cancer Epidemiology and Genetics
National Cancer Institute
6120 Executive Boulevard MSC 7238
Bethesda, MD 20892-7238
Phone: (301) 594-7205
Fax: (301) 402-0207
Email: bluhme@mail.nih.gov

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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)