Factors Associated with COVID-19, Influenza, and Pneumococcal Vaccination in survivors of Hematologic Malignancies

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Introduction

An estimated 1.5 million people in the U.S. are living with, or in remission from, a hematological malignancy (HM). Many of these individuals are particularly vulnerable to infections such as COVID-19, influenza, and pneumococcal disease. Immunocompromised patients often experience more severe illness, prolonged disease, higher rates of ICU admission, and death. Vaccination remains a key strategy for reducing these adverse outcomes. The aim of this study was to assess vaccination rates and identify modifiable factors associated with COVID-19, influenza, and pneumococcal vaccinations in HM survivors.

Methods

We conducted a cross-sectional analysis of data from the 2022 and 2023 CDC Behavioral Risk Factor Surveillance System-Cancer Survivorship Optional Module. Population-based vaccination estimates and 95% CIs were calculated. All statistical tests were 2-sided with $p < .05$ was considered significant.

Results

Of the 1,335 HM survivors, 56.8% had lymphoma, 29.7% had leukemia, and 13.5% had other blood malignancies. The vaccination rates for COVID-19, influenza, and pneumococcal were 46.0%, 57.7%, and 57.4%, respectively. Influenza vaccination was associated with having had an annual physical exam ($p = .000$), having CVD ($p = .003$), diabetes ($p = .034$), not being a current smoker ($p = .001$), and having 3+ comorbidities ($p = .001$). Pneumococcal vaccination was associated with having had an annual physical exam ($p = .019$), receiving follow-up instructions from a doctor after completing HM treatment ($p = .020$), having COPD ($p = .000$), CVD ($p = .000$), diabetes ($p = .001$), CKD ($p = .029$), not being a current smoker ($p = .003$), and having 3+ comorbidities ($p = .019$). Older age (65+) is associated with higher rates of both influenza and pneumococcal vaccinations. No variable significantly predicted COVID-19 vaccination. Vaccination rates did not vary by type of HM. 18.9% of patients did not receive follow-up instructions from their doctor after completing cancer treatment, and only 10.9% reported participating in a clinical trial as part of their cancer care.

Discussion

We identified several modifiable factors, underreported in the literature, that are associated with non-vaccination. Improving awareness among both physicians and patients may help increase vaccination rates and enhance protection for this at-risk population.

References

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