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Risk and impact of respiratory hospitalisation among childhood and young adult cancer survivors

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Background

Respiratory diseases are one of the most common causes of late morbidity and mortality in childhood cancer survivors and results in an increased risk of hospitalisation. There is presently no published data on the types of respiratory conditions which lead to this increase in disease burden. We used population-based cancer registry data linked to inpatient hospitals admissions to quantify incidence and cause of admissions for respiratory disease in long-term survivors of cancer in children and young people.

Methods

Data from the Yorkshire Specialist Register for Cancer in Children and Young People (YSRCCYP) for cancers diagnoses between 1990 and 2011, diagnosed aged 0-29 years, were linked to inpatient Hospital Episode Statistics (HES) for admissions up to 2017. Admissions rates for any respiratory condition, including asthma, pneumonia, lower respiratory diseases (including emphysema and COPD) and lung fibrosis in the cancer survivor cohort were compared to the general population in Yorkshire matched on age, sex and year using hospitalisation rate ratios (HRR). The cumulative incidence of respiratory disease was calculated with death as a competing risk and multivariable competing risk models were used to assess the association between respiratory admissions and treatment exposures

Results

Of 4245 five-year cancer survivors, 15.7% had at least one admission for a respiratory disease, this was 86% higher than in the general population (HRR=1.86 (95%C 1.73-2.01)). By age 40, the cumulative incidence for an admission for any type of respiratory condition was 49%, asthma was 20%, pneumonia was 13% and lower respiratory disease was 3%. Those treated with pulmonary toxic chemotherapy had an increased risk of admissions for all respiratory conditions (HR=1.26 (95%CI 1.03-1.53)) and pneumonia (HR= 1.48 (95%CI 1.01, 2.17)).

Conclusions

For survivors of childhood and young adult cancer, the risk of hospitalisation for respiratory disease increases with age and is significantly higher in cancer survivors compared to the general population. Identifying groups at highest risk of hospitalisation is important for prevention, early detection and treatment.