



Diabetes prevalence among Christie patients

Diabetes and Cancer

Evidence suggests diabetes significantly increases the risk of developing many types of cancer. Furthermore patients with diabetes present unique challenges to clinicians around treatment decisions, particularly for those with renal, cardiac, or neuropathic diabetes related complications due to the risk of these conditions being exacerbated by some chemotherapeutic agents. As such patients with diabetes and cancer require specialist care.

The introduction of electronic forms for both inpatient admissions and new patient referrals means we can now potentially review the prevalence of co-morbidities such as diabetes in the context of the full patient profile for all Christie patients. Access to rich and timely structured data means patient outcomes can be evaluated for different categories of patients providing a much greater understanding of why differences in outcomes occur and how they can be improved. These data also provide a means for ongoing monitoring of care, highlighting quickly where additional resources may be required and where practices may need to be reviewed.

This report is a review of the prevalence of diabetes of all new inpatient admissions for the period January – April 2015 and a subset of new patients referred for treatment January 2013-May 2015.

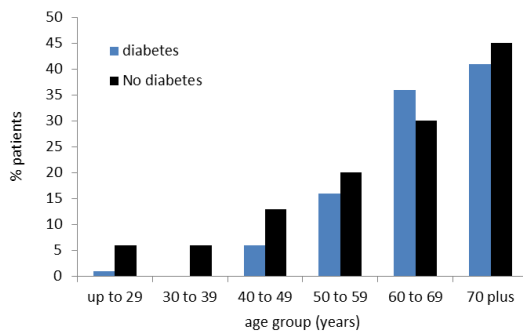


Fig 1. Age distribution of Christie inpatients by diabetes status.

Diabetes among Christie inpatients

1,900 patients were admitted either as planned admissions, emergency admissions, admissions for brachytherapy or for surgery (non-eras) during the period January – April 2015. Presence or absence of diabetes was identified from the nursing admission forms and the Diabetes care plan forms. Information on diabetes was Of these 10% had identified diabetes. Median age of inpatients during this period was 62 years. Patients with diabetes are on average older than those without diabetes (68 years versus 61 years) (Fig 1). While there is also some variation in diabetes prevalence by cancer type (Fig 2) these differences become non-significant when age variation between cancer types is taken into account.

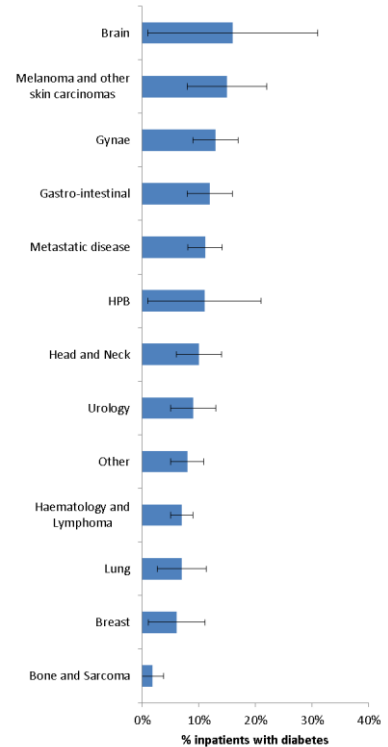


Fig. 2. Percentage of inpatients with diabetes by diagnosis (error bars are 95% confidence intervals).

Impact of diabetes on outcomes

Length of stay for patients admitted for an overnight stay (non day case) varies by route of admission (emergency or planned). However diabetes status is not associated with length of stay for either emergency admissions or planned admissions when age and cancer type are taken into account. Also, after age and cancer type are taken into account, there is no significant association between diabetes status and survival (Fig 3).

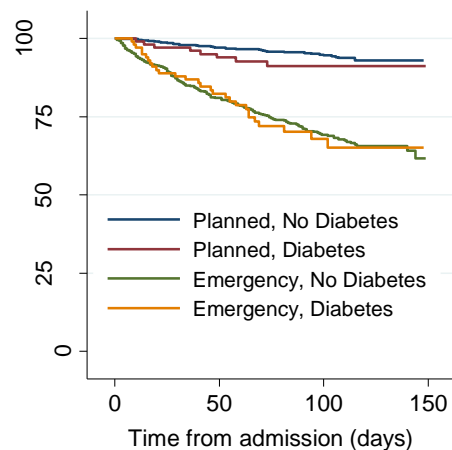


Fig 3. Survival for patients admitted January – April 2015 (follow up to May 2015) by mode of admission and diabetes status.

Diabetes among new patient referrals

We reviewed diabetes status among 18000 new patients referred to The Christie between January 2013 and June 2015. Using information captured within clinician entered e-forms, we reviewed all co-morbidities recorded as part of the diagnosing and staging information collected when a patient is newly referred to either a clinical or medical oncologist or for surgery. From this we extracted all records of diabetes.

Among these patients the prevalence of diabetes was similar to that seen for inpatients; 10% of all new patients were recorded to have diabetes. As for inpatients, newly referred patients with diabetes tended to be slightly older on average than patients without diabetes. Median age for new patients without diabetes was 67 years compared with 70 years for patients with diabetes. Male patients were more likely to have diabetes than females (12% versus 9%). There was also variation by cancer group (Fig 4) even after adjusting for age and sex. Breast cancer had the lowest proportion of patients with diabetes of all cancer groups.

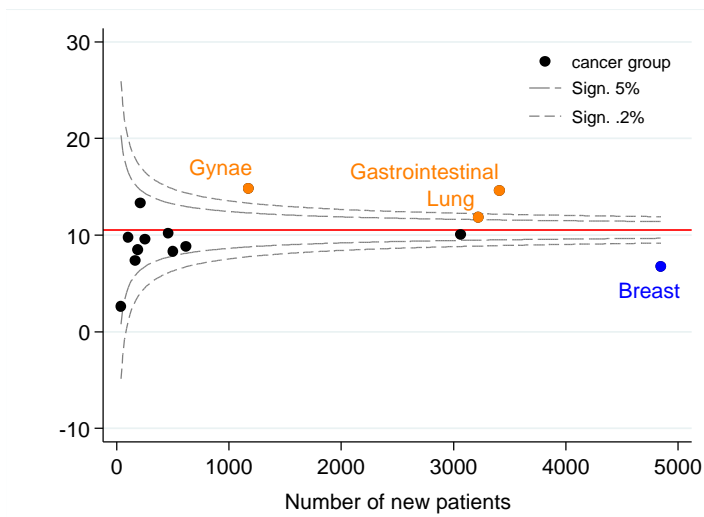


Fig. 4. Percentage of patients with diabetes by cancer group. Cancer groups indicated in orange had a higher than average proportion of patients with diabetes. Those indicated in blue had a lower proportion of patients with diabetes.

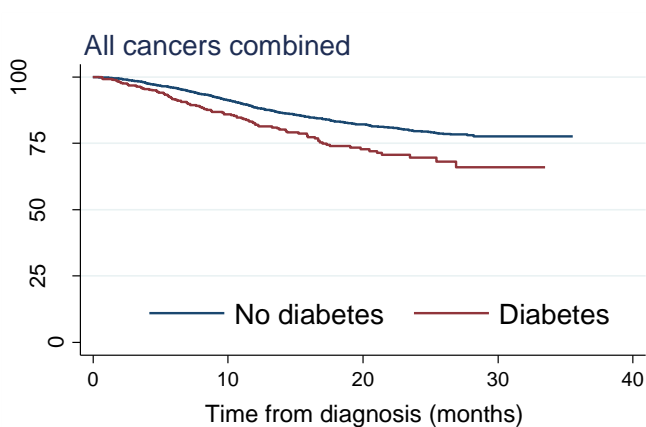


Fig. 5. Survival for all patients referred for primary treatment with curative intent 2013 – 2015 with follow up to May 2015.

Diabetes and outcomes

Survival varies for cancer patients with and without diabetes. For all patients who referred to The Christie for primary treatment with curative intent one year survival was estimated to be 89% (95% confidence intervals 88% - 90%) compared with 82% (95% confidence intervals 78%-85%) for patients with diabetes (Fig 5). Some of these differences may be associated with differences in age between patients with and without diabetes. However even when age, gender and cancer type are taken into account, differences in survival persisted for all cancers combined.

Other factors such as performance status and smoking status were also associated with both diabetes and outcomes. Treatment decisions may also be associated with diabetes status.

All Christie patients are assessed for performance status (ECOG) using a scale of 0 (patient is fully active) to 4 (completely disabled by poor health). Among patients referred to the Christie for primary treatment with curative intent, patients with diabetes were more likely to be performance status of 2 or higher, (restricted ability to work or worse) compared with patients without diabetes (Fig 6). These differences persisted even when age, gender and cancer type were taken into account. Among patients where smoking history was recorded, patients with diabetes were more likely to be current or ex-smokers (91% of patients with diabetes) than patients without diabetes (74% smokers). These additional factors associated with diabetes are likely to contribute to poorer outcomes in patients with diabetes compared to those without.

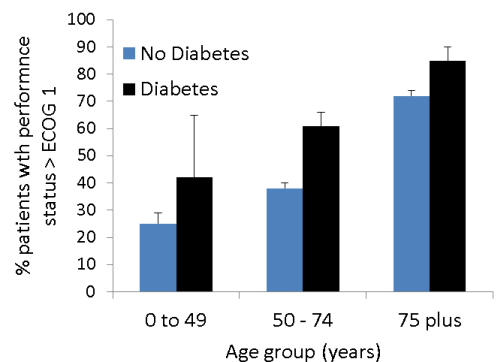


Fig. 6. Percentage of new patients referred for primary treatment with curative intent with performance status ECOG 2 - 4 by age group and diabetes status (error bars are 95% confidence intervals).