MULTIPLE CANCER DIAGNOSES AND SURVIVAL

An investigation in Scottish lung cancer patients

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Background

The Scottish Routes from Diagnosis (SRfD) project forms part of the Macmillan Cancer Support/ NHS Scotland Information Services Division (ISD) partnership. SRfD uses routinely collected health data to quantitatively describe the pathways patients follow after diagnosis with cancer. As part of SRfD, we investigated pathways for patients diagnosed with more than one primary cancer.

A significant minority of cancer patients are diagnosed with more than one cancer in their lifetimes. As diagnostic techniques and survival rates improve, the proportion of patients experiencing multiple cancer diagnoses is likely to increase[1, 2]. The needs of and health outcomes for these patient may differ from patients with a first cancer diagnosis. Here we present an analysis of survival outcomes for lung cancer patients with and without a previous diagnosis of another cancer.

Methods

We used routinely collected data from the Scottish Cancer Registry to define a cohort of all patients diagnosed with lung cancer in Scotland in 2012. We linked the cohort to previous cancer registrations [A] (excluding previous lung cancer registrations).

We compared survival in groups of patients that had had a previous cancer diagnosis (0-1, 1-3, 3-5 and 5-10 years prior to their cohort diagnosis) with survival in patients with no previous diagnoses in the last 10 years ('no previous cancers' group). Patients with >1 previous cancer diagnosis (n=95) were assigned to the time period of their most recent previous diagnosis.

Survival in follow-up (5yrs) was calculated by linking to NRS death records. It was expected that having multiple cancer diagnoses would decrease survival rates due to the increased burden of ill health.

Results

There were 5182 diagnoses of lung cancer in Scotland in 2012, 2% of which (n=97) had a previous cancer in the year prior to the cohort cancer and 8.5% of the total cohort (n=442) had a previous diagnosis of cancer within the last 10 years (Table 1).

Those patients with a previous cancer diagnosis up to 1 year prior had significantly lower risk of death across a 5 year follow up period with 56% surviving at 1 year and 20% at 5 years, compared to 34% and 10% survival in the 'no previous cancers' group. (Hazard ratio 0.63, 95% CI 0.50 - 0.78, p<0.001, Cox proportional hazards model). There was negligible difference in survival between the 'no previous cancers' group and those with cancers diagnosed 1-10 years ago (Figure 1).

The age/sex structure of the group with a cancer diagnosis in the previous year did not differ substantially from the other groups. However, a much higher proportion of lung cancers were diagnosed at an early stage in this group (37% at stage 1 or 2 in this group compared to 17% in the 'no previous cancers' group (Figure 2) [B]).

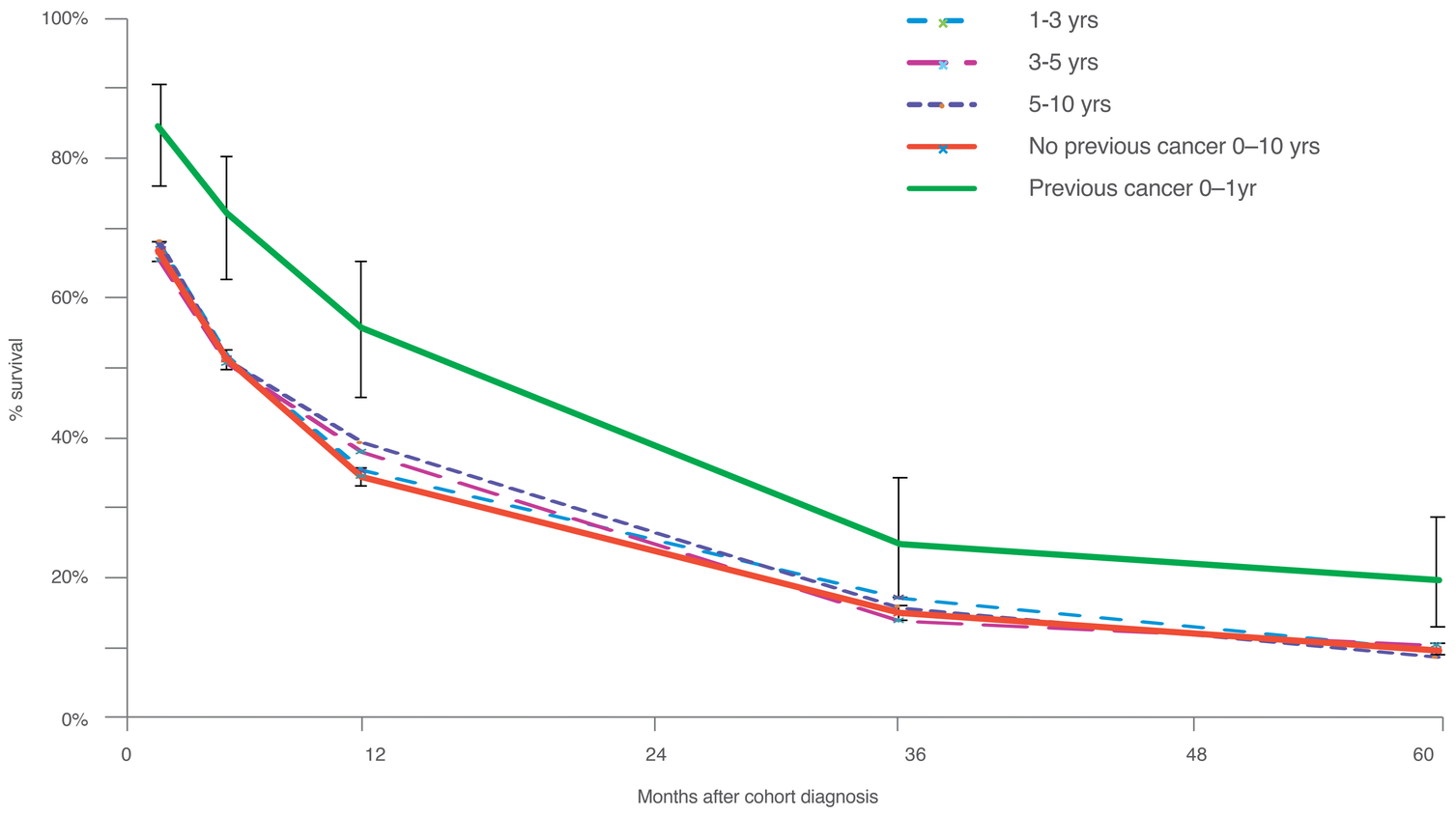

Figure 1: Comparison of survival rates after lung cancer diagnosis by presence and timing of previous cancer diagnosis.

	N in cohort	No previous diagnoses	0-1yr	1-3yr	3-5yr	5-10yr	Total 0-10yr
N	5182	4740	97	105	87	153	442
% of cohort	-	91.5%	1.9%	2.0%	1.7%	3.0%	8.5%

Table 1: Number and % of lung cancer patients with previous cancer diagnosis over a 10-year lookback period.

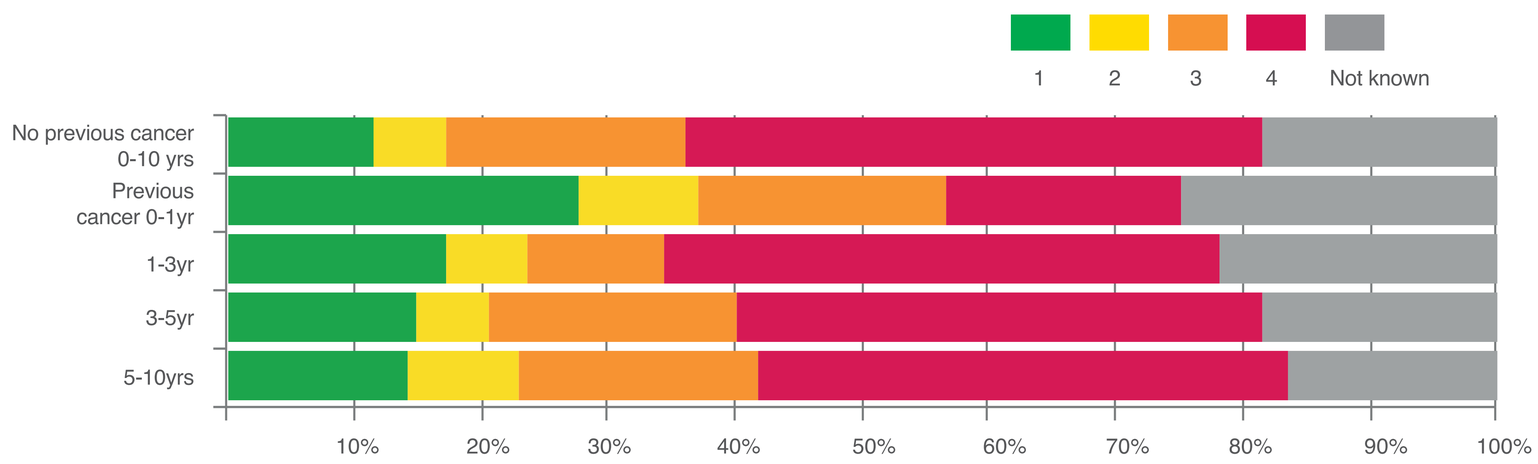

Figure 2: Comparison of TNM stage at diagnosis of lung cancer by presence and timing of previous cancer diagnosis.

Conclusions

A number of people in our lung cancer cohort (n=442, 8.5% of the cohort) had a previous cancer diagnoses within the last 10 years.

It is likely the higher rate of lung cancers detected at early stage explains the higher survival rates in those with a previous cancer diagnosis in the recent past [B]. Earlier diagnosis in the patients with a recent previous cancer registration (<1 year) may result from investigations, treatment or follow up from the previous cancer. The earlier diagnosis effect does not persist for patients with previous cancers registered more than 1 year previously.

Multiple primary cancer diagnoses may impact disease outcomes, often for the worse. However, in our cohort, it appeared that there was a higher proportion of early stage lung cancer and higher survival in those who had a diagnosis of cancer in the year prior to a lung cancer diagnosis.

Recent exposure to healthcare services for other cancers may facilitate the earlier diagnosis of lung cancer in Scottish patients, impacting on survival rates in this sub-group of patients. Additional work may be required to explore this further.

References

1) Cancer Statistics, Survival http://www.isdscotland.org/Health-Topics/Cancer/Cancer-Statistics/All-Types-of-Cancer/

2) Second Primary Cancer, National Cancer institute, https://dceg.cancer.gov/research/what-we-study/second-cancers

Notes

A. The Scottish cancer registry only records primary tumours, it does not include information on tumours which are an extension, a recurrence or a metastasis of a previous tumour

B. Variation in the proportion of patients diagnosed at a particular stage may reflect, at least in part, variation in the proportion recorded with a 'not known' stage. Care should be taken when comparing stages as large differences in the 'not known' stage are likely to make such comparisons unreliable.

Acknowledgements

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