

Landmark analysis of ipsilateral invasive breast cancer after ductal carcinoma in situ: a population-based cohort study

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Qian Chen¹, Ian Campbell², Mark Elwood¹, Alana Cavadino¹, Phyu Sin Aye³, Sandar Tin Tin⁴

1. Department of Epidemiology and Biostatistics, Faculty of Medical and Health Sciences, University of Auckland
2. Department of Surgery, Faculty of Medical and Health Sciences, University of Auckland.
3. Department of Pharmacology, Faculty of Medical and Health Sciences, University of Auckland
4. Cancer Epidemiology Unit, Oxford Population Health, University of Oxford.



INTRODUCTION

- The incidence of ductal carcinoma in situ (DCIS) has risen with population-based mammographic screening and now represents about a quarter of screen-detected breast cancers.
- Despite favourable survival prognosis, the main concern for DCIS is progression to ipsilateral invasive breast cancer (iIBC).
- Landmark analysis provides relevant prognostic information for patients who remain event free for some time.
- Whether prognostic factors associated with the subsequent iIBC persist at 5-year landmark remained unknown.

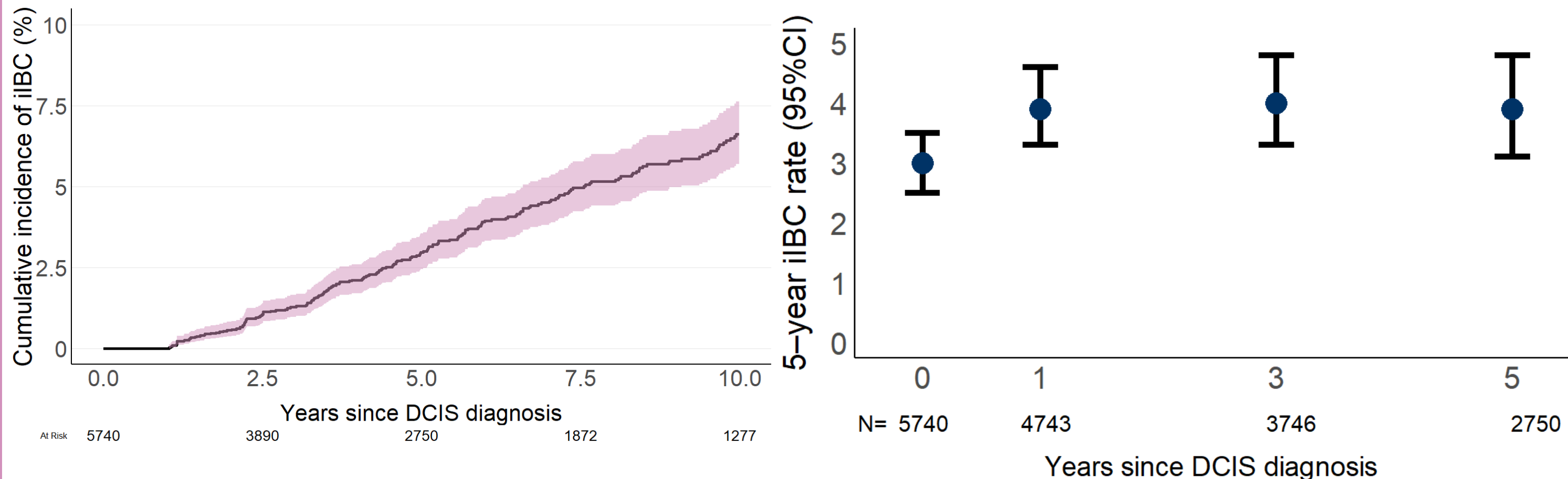
METHODS



- We conducted a retrospective cohort study to characterise the risks of iIBC among women diagnosed with DCIS in New Zealand.
- Women with unilateral DCIS diagnosed between 2000 and 2022, who received locoregional treatment were identified from breast cancer national register.
- Statistical analysis**
 - Cumulative incidence of iIBC was calculated with death as a competing risk.
 - Multivariable Fine-Gray subdistribution hazard models were used to estimate hazard ratios (sHRs).
 - Landmark analyses were performed for patients who remained event-free at 1-, 3-, and 5-years post-diagnosis.

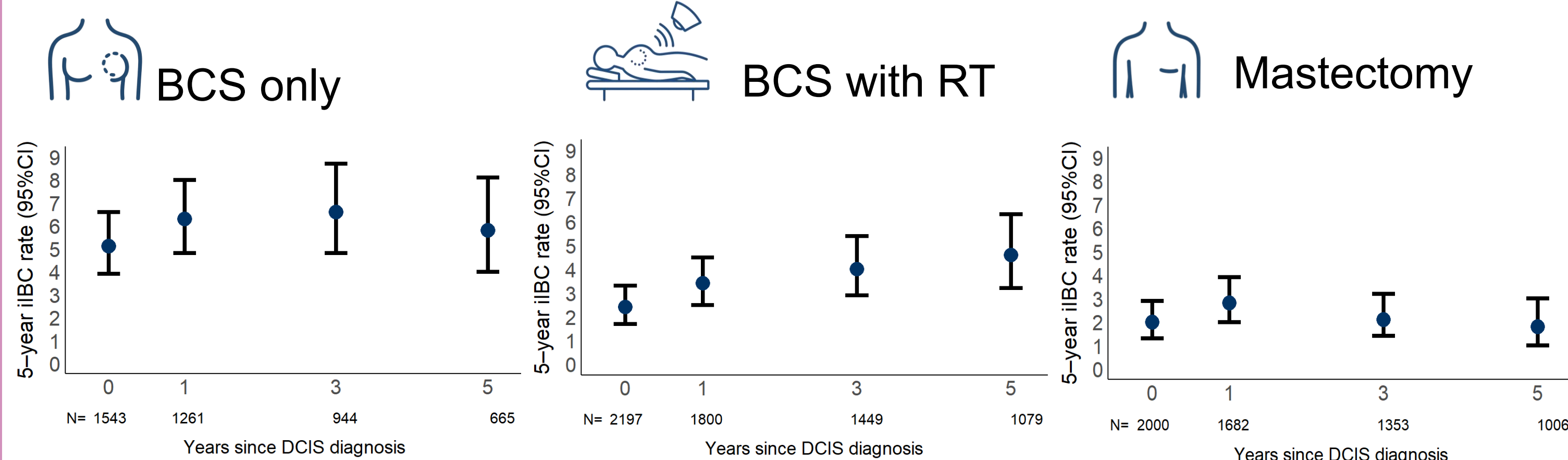
CUMULATIVE RISKS

Overall cohort



- The 5-year cumulative incidence of iIBC was 3.2% in the overall cohort.
- In landmark analyses at 1, 3, and 5 year, the subsequent 5-year risks were stable at approximately 4.0%.

Locoregional treatment groups



- The 5-year cumulative incidence of iIBC was the highest in patients who received BCS only.
- In landmark analyses at 1, 3, and 5 year, the subsequent 5-year risks were slightly increased among BCS, with or without RT.

PATIENT CHARACTERISTICS

A total of 5734 women diagnosed with unilateral DCIS as their first breast cancer were included.

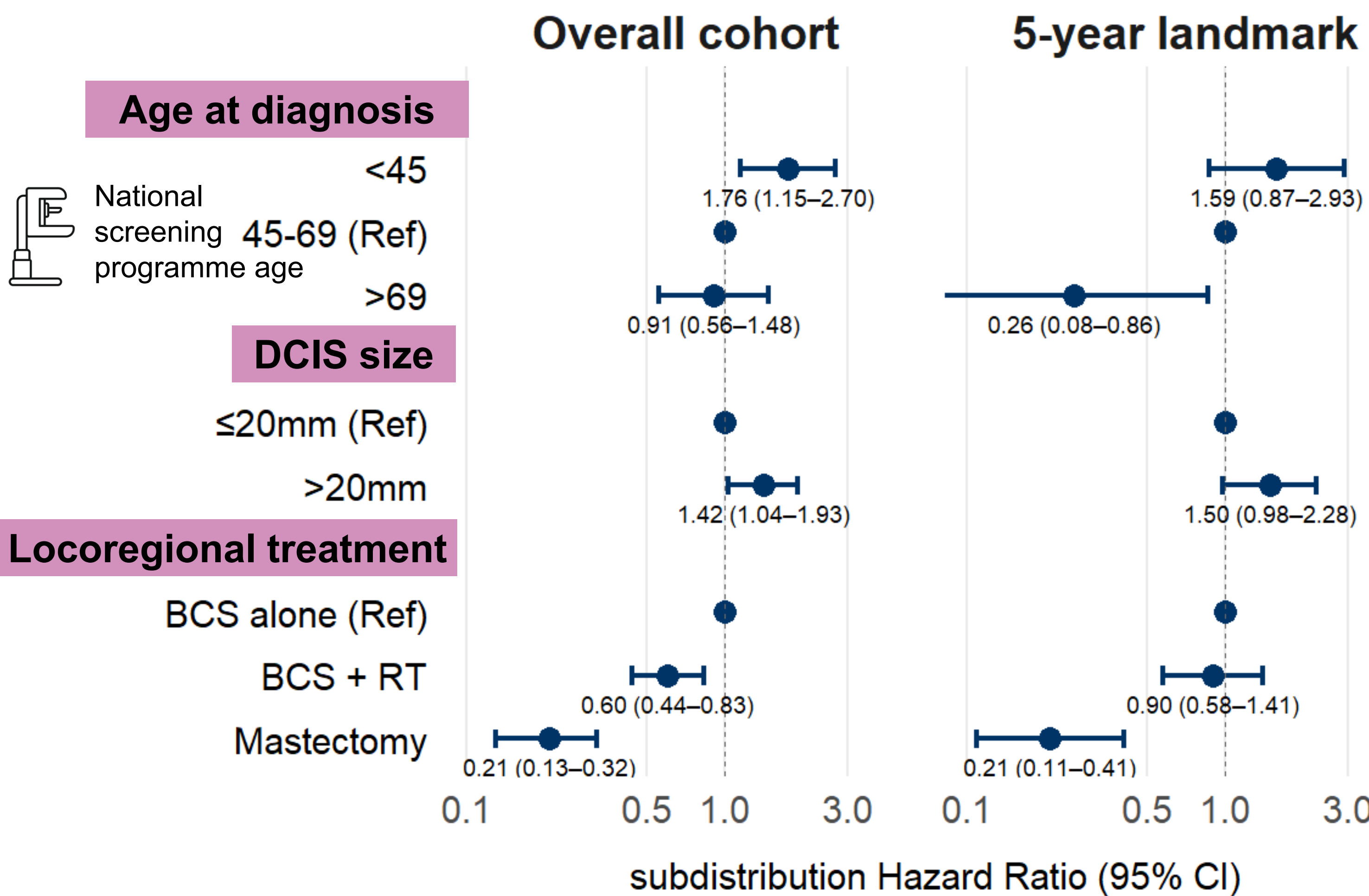
82.0% of patients were in the screening age (45-69 years) at diagnosis.

65% had breast conserving surgery (BCS), with or without radiotherapy (RT).

Table 1. Patient characteristics by types of locoregional treatment.

	BCS alone N = 1,543	BCS with RT N = 2,197	Mastectomy N = 2,000
Age at diagnosis			
<45	98 (6.4%)	104 (4.7%)	259 (13.0%)
45-69	1,254 (81.3%)	1,960 (89.2%)	1,552 (77.6%)
>69	191 (12.4%)	133 (6.1%)	189 (9.5%)
DCIS size			
≤20mm	1,372 (88.9%)	1,452 (66.1%)	482 (24.1%)
>20mm	171 (11.1%)	745 (33.9%)	1,518 (75.9%)
DCIS grade			
Low	297 (19.2%)	1,190 (54.2%)	1,234 (61.7%)
Intermediate	672 (43.6%)	830 (37.8%)	579 (29.0%)
High	543 (35.2%)	169 (7.7%)	173 (8.7%)
Unknown	31 (2.0%)	8 (0.4%)	14 (0.7%)

PROGNOSTIC FACTORS



- In the overall cohort, age<45 years or DCIS >20mm were associated with higher risk of iIBC, while RT after BCS was associated with lower risk.
- At 5-year landmark, the higher iIBC risk associated with age < 45 years slightly attenuated, while the risk associated with DCIS size persisted.
- The lower iIBC risk associated with RT after BCS was less pronounced.

CONCLUSIONS

- The subsequent 5-year risk of iIBC appeared stable at each landmark.
- Continued long-term mammographic surveillance is important for women with larger DCIS, those treated with BCS, and possibly in younger women aged under 45.