

Risks of Developing a Second Primary Cancer in Male Breast Cancer Survivors: A Systematic Review and Meta-Analysis

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Introduction:

Male breast cancer (MBC) survivors may be at increased risk of other cancers. Quantifying such risks would inform the potential for benefit from enhanced early detection strategies.

- Research aims:**
- Review the latest evidence regarding combined and site-specific risks of second cancers following MBC.
 - Investigate effects of cancer risk factors such as younger age on second cancer risks following MBC.

Methods:

- PubMed, Embase, and Web of Science systematically searched.
- Studies giving SIRs and standard errors for non-breast cancers in BC survivors were accepted.
- SIRs synthesised in random-effects meta-analyses, using generic inverse variance method.

Results:

- **9 studies selected for review, 6 for meta-analyses**
- **Significantly increased overall second non-breast cancer risk for MBC survivors**
SIR: 1.15 (95% CI: 1.03-1.29).
- **Significantly increased second cancer risk for those under 50 at first BC diagnosis**
SIRs: 1.50 (95% CI: 1.22-1.84) for <50 vs. 1.14 (95% CI: 0.97- 1.33) for >=50, p for difference = 0.035.
- **Significantly increased colorectal, pancreatic, and thyroid cancer risks**
SIRs: 1.30 (95% CI: 1.01-1.66) for colorectal cancer, 1.67 (95% CI: 1.13-2.47) for pancreatic cancer, 5.58 (95% CI: 1.04-30.05) for thyroid cancer.
- **Increased prostate and stomach cancer risks, albeit non-significant**
SIRs: 1.33 (95% CI: 0.99-1.78) for prostate cancer, 1.34 (95% CI: 1.00-1.80) for stomach cancer.

Future Plans:

- Estimate SIRs for second cancers in BC survivors diagnosed in England, 1995-2019, using NHS Digital electronic health records.
- Investigate influence of germline susceptibility variants and of treatments.

Conclusion:

Male BC survivors may benefit from targeted early detection strategies for colorectal, pancreatic, and thyroid cancers.

(M)BC = (Male) Breast Cancer
SIR = Standardized Incidence Ratio

Figure: Pooled SIRs for second cancers in MBC survivors, grouped by age at first BC diagnosis

