www.redjournal.org

Clinical Investigation

Cardiovascular Disease Risk in a Large, Population-Based Cohort of Breast Cancer Survivors



Naomi B. Boekel, MSc,* Michael Schaapveld, PhD,*
Jourik A. Gietema, MD,† Nicola S. Russell, PhD,‡
Philip Poortmans, MD,^{§,||} Jacqueline C.M. Theuws, MD,[¶]
Dominic A.X. Schinagl, MD,^{||} Derek H.F. Rietveld, MD,*
Michel I.M. Versteegh, MD,** Otto Visser, PhD,††
Emiel J.T. Rutgers, MD,‡‡ Berthe M.P. Aleman, MD,‡ and Flora E. van Leeuwen, PhD*

*Epidemiology, Netherlands Cancer Institute, Amsterdam, The Netherlands; †Medical Oncology, University Medical Center Groningen, Groningen, The Netherlands; †Radiation Oncology, Netherlands Cancer Institute, Amsterdam, The Netherlands; §Radiation Oncology, Institute Verbeeten, Tilburg, The Netherlands; ¶Radiation Oncology, Radboud University Nijmegen Medical Center, Nijmegen, The Netherlands; ¶Radiotherapy, Catharina Hospital Eindhoven, Eindhoven, The Netherlands; #Radiation Oncology, VU University Medical Center Amsterdam, Amsterdam, The Netherlands; **Steering Committee Cardiac Interventions Netherlands, Leiden University Medical Center, Leiden, The Netherlands; ††Registration and Research, Comprehensive Cancer Center The Netherlands, Utrecht, The Netherlands; and †\$Surgery, Netherlands Cancer Institute, Amsterdam, The Netherlands

Received Aug 18, 2015, and in revised form Nov 3, 2015. Accepted for publication Nov 29, 2015.

Summary

Breast cancer survival rates have substantially improved. However, breast cancer treatment may increase cardiovascular disease (CVD) risk. In our large, population**Purpose:** To conduct a large, population-based study on cardiovascular disease (CVD) in breast cancer (BC) survivors treated in 1989 or later.

Methods and Materials: A large, population-based cohort comprising 70,230 surgically treated stage I to III BC patients diagnosed before age 75 years between 1989 and 2005 was linked with population-based registries for CVD. Cardiovascular disease risks were compared with the general population, and within the cohort using competing risk analyses.

Reprint requests to: Flora E. van Leeuwen, PhD, Netherlands Cancer Institute, Plesmanlaan 121, 1066 CX Amsterdam, The Netherlands. Tel: (+31) 20-512-2483; E-mail: f.v.leeuwen@nki.nl

Presented in part at the 2nd European Society for Radiotherapy & Oncology (ESTRO) forum, April 19-23, 2013, Geneva, Switzerland; Werkgroep Epidemiologisch Onderzoek Nederland (WEON), June 6-7, 2013, Utrecht, The Netherlands; and the European Cancer Congress, September 27-October 1, 2013, Amsterdam, The Netherlands.

Int J Radiation Oncol Biol Phys, Vol. 94, No. 5, pp. 1061–1072, 2016 0360-3016/\$ - see front matter © 2016 Elsevier Inc. All rights reserved. http://dx.doi.org/10.1016/j.ijrobp.2015.11.040

This study was supported by Dutch Cancer Society grant NKI 2008-3004

M.S. and J.A.G. contributed equally to this work.

B.M.P.A. and F.E.v.L. contributed equally to this work.

Conflict of interest: none.

Supplementary material for this article can be found at www.redjournal.org.